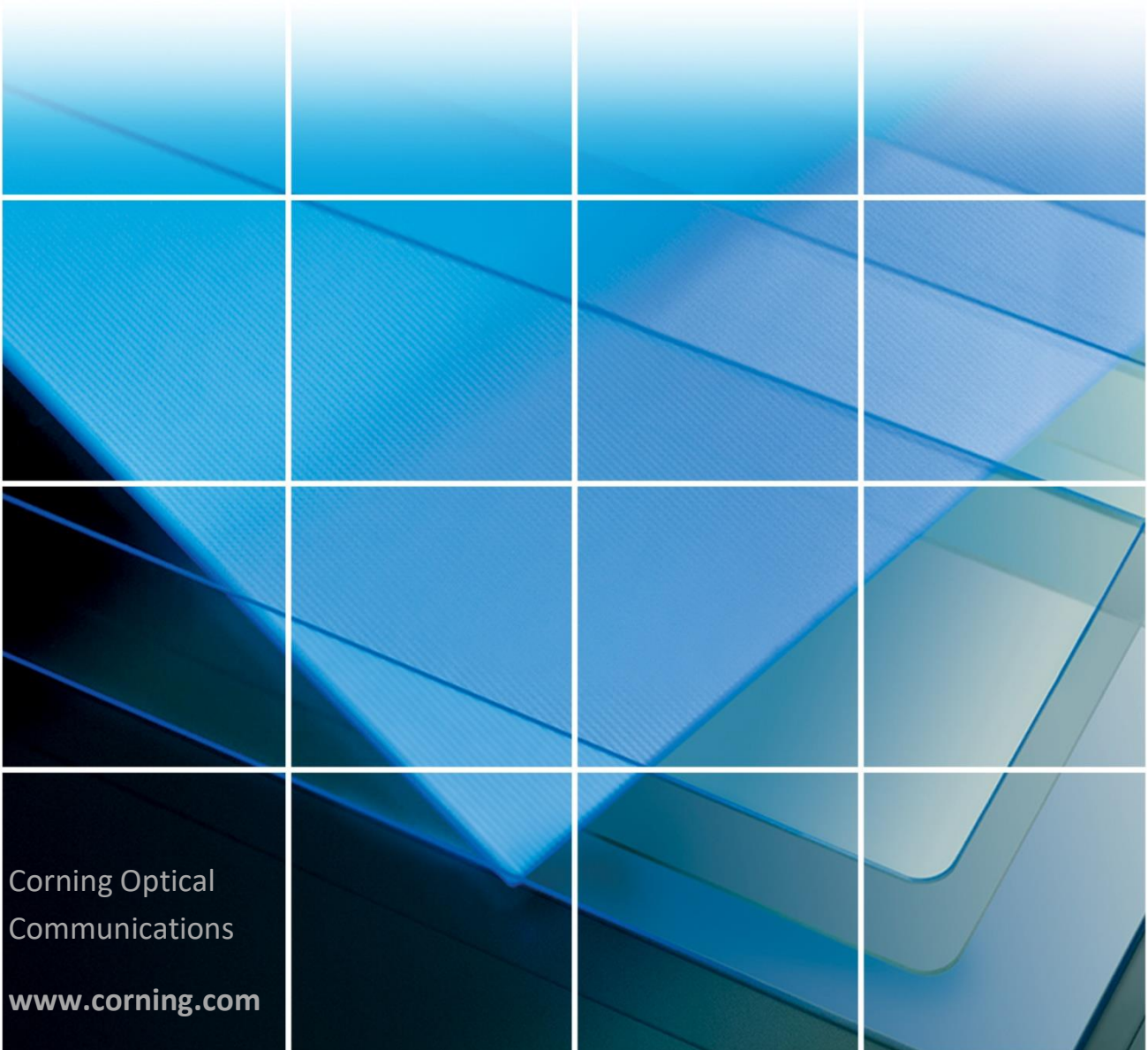




Corning Everon™ 6000
DAS Solutions
Specification Sheet



Corning Optical
Communications
www.corning.com



Features and benefits |

| | |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Comprehensive service Support | 600 MHz, 700 MHz, FirstNet, 800/850 MHz, 1900 (PCS), EAWS, 2.3 GHz (WCS), 2.5 GHz (TDD). Support of SISO and MIMO services, FDD and TDD formats. Supports 3G, 4G, 5G technologies |
| Multi-X system | Supports multi-operator, multi-band, multi-technology services over a single infrastructure. Supports single and multi-building (“campus”) network architectures |
| Highly modular/ Highly scalable | Can be easily expanded to support additional capacity: sectors, frequency bands, channels and coverage areas via extending 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. Ready for future direct interfaces interoperability with digital based capacity sources (e.g. BBUs/DUs) |
| 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 as well as remote end-to-end configuration, system diagnostics, maintenance, support management and control by operators NOC |

Corning Everon 6000 DAS is an advanced in-building cellular service solution for small, medium and large size venues, supporting a broad range of cellular generations:3G,4G and 5G.

Corning Everon 6000 DAS is based on digital distribution architecture, advanced digital processing, and channelized implementation, enabling efficient utilization of digital links.

The solution is designed to support multi-band, multi-technology and multi-operator networks over a single fibre-based infrastructure.

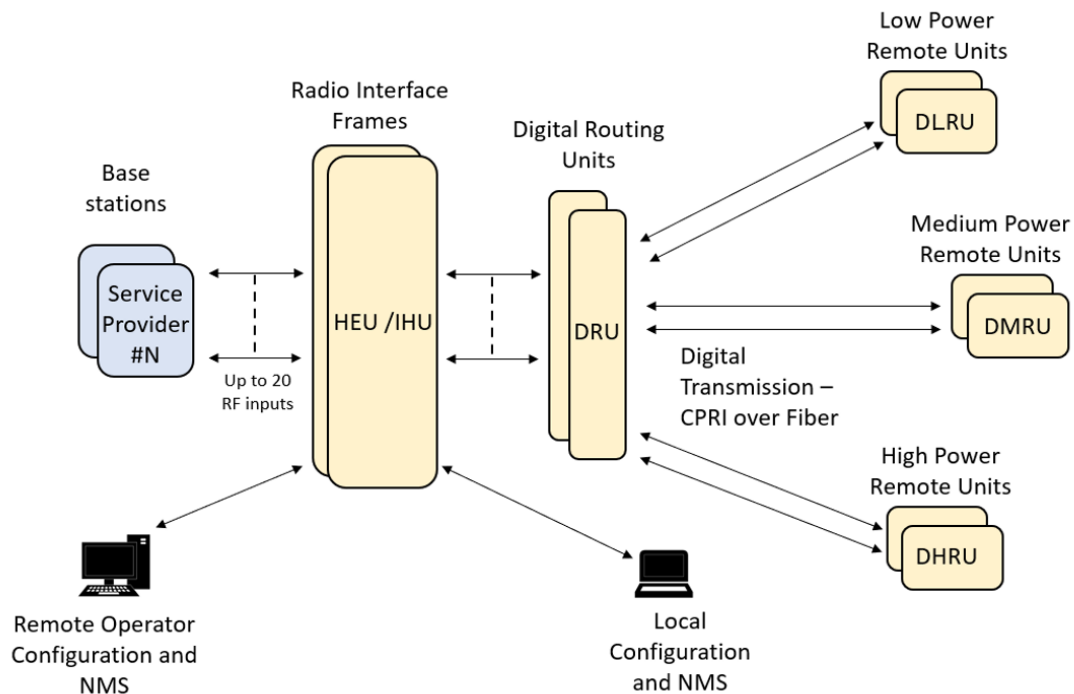
Corning Everon 6000 high bandwidth distribution architecture provides preparedness for future radio technologies, broader spectrum, and new frequency bands.

Due to its modular design and configuration flexibility, Corning Everon 6000 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.

Corning Everon 6000 offers multiple types of digital remote units, supporting a variety of frequency band combinations, SISO/MIMO configurations, with different power levels ranging from 20 dBm per band to 43 dBm per band.

Advanced network configuration and management capabilities enable on-site as well as remote end-to-end configuration, system diagnostics, maintenance and support operators NOC connectivity.

System architecture -Everon 6000 |



Radio Interface Frames (Point of Interface)

Radio Interface frames are modular chassis used for interface between the base stations and the Everon 6000. A system may be comprised of two types of Chassis: IHU (Integrated Head-end Unit) and HEU (Head End Unit). The IHU can interface up to 8 RF duplexed ports (or 16 UL/DL simplex ports) and can be expanded by an HEU radio interface frame which provides interface capabilities for additional 12 RF duplexed ports (or 24 UL/DL simplex ports). The following modules are used with the radio interface frames:

- RIMe (Radio Interface Module Enhanced) - provides an interface and signal conditioning to signals coupled between the signal source RF antenna ports and the Everon 6000 (uplink and downlink)
- DCM (Digital Conversion Module) - Provides RF to CPRI (Downlink) and CPRI to RF (Uplink) conversion, where the well-known CPRI (Common Public Radio Interface) standard is used for representing the RF signals. Each DCM may convert signals capturing up to 190 MHz aggregated bandwidth.
- RIX (Radio Interface Expander) – combines downlink signals of the HEU and IHU RIMe’s and provides the combined signals to the OIX, splits uplink signals arriving from the OIX to the HEU and IHU RIMe’s.
- OIX (Optical Interface Expander) – combines downlink signals arriving from the HEU RIX and the IHU RIX and splits the uplink signal for the HEU RIX and the IHU RIX uplink ports.
- PSM (Power Supply Module) – provides power to the radio interface frame
- dHCM (Digital Head-End Control Module) is a “master” frame controller
- ACM (Auxiliary Control Module) is a “slave” frame controller controlled by the dHCM

DRU – Digital Routing Unit

The DRU - Digital Routing Unit is the Everon 6000 central Hub and Distribution element. The DRU interfaces between the DCM modules and the IHU Radio Interface Frames, allowing to receive the operators service signals in CPRI format, and to route these signals to the remote antenna units. The DRU supports all Corning digital remote antenna units' flavours, for all services, power levels and antenna configurations (SISO or MIMO). Each DRU includes 4 SFP+ ports connected to the DCMs and 32 SFP+ ports for connection to the remote units. When more remote antenna units are needed, the system scales up easily by adding additional system modules.

LRU - Low power Remote Unit

The LRU is a low power remote antenna unit with 20 dBm per MIMO stream per band output RF power and native support of 2x2 MIMO antenna scheme. Two types of LRU are available:

Low Band dRAU LRU - supports 600 MHz (band 71), 700 MHz Low (band 12), 700 MHz High (band 13), FirstNet (band 14), 800/850 MHz (band 26) bands via one SFP+ connection.

Medium Band LRU - supports EAWS (band 66), PCS (band 25), WCS (band 30) and 2.5GHz TDD (band 41) services via 3 SFP+ connections.

The LRU cooling is natural convection with no fans. Due to its IP66 enclosure design the LRU can also be installed outdoors.

MRU – Medium-power Remote Unit

The MRU is a medium power modular remote antenna unit with a single antenna port. The output power for the lower bands: 600/700 MHz Low/700 MHz High/FirstNet, 800/850 MHz is 33 dBm and the output power for the medium bands EAWS, PCS, WCS and 2.5GHz TDD is 37dBm.

Two SFP+ connections are used to support all the bands. The MRU modular structure and integrated high-performance cavity based multiplexing functionalities, enable setups of up to 6 RF modules, for a variety of licensed frequency bands within a single cabinet.

The MRU also provides CBRS/C-Band ready RF interface for future field upgrades.

HRU – High-power Remote Unit

The HRU is a high power modular remote antenna unit which provides 43 dBm output RF power per service module, and native support of 2x2 MIMO antenna scheme. The HRU modular structure enables set ups of up to 8 service modules in 600/700 MHz Low/700 MHz High/FirstNet, 800/850 MHz, EAWS, PCS, WCS and 2.5GHz TDD.

The HRU cooling is based on natural convection, with no fans. Due to its IP65 enclosure design the HRU can also be installed outdoors.

Specifications |

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 | 1930-1995 MHz |
| EAWS-band 66 | 1710-1780 MHz | 2110-2200 MHz |
| WCS -band 30 | 2305-2315 MHz | 2350-2360 MHz |
| 2500 -band 41 | 2496-2690 MHz (TDD) | |

Standards and Certifications

| Attribute | Description |
|-----------|-----------------------------------------------|
| EMC | CE, EMC FCC 47 CFR Part 15 sub part B |
| Safety | 62368 |
| Radio | Fire Safety UL 2043 (applicable for LRU only) |

*Technical spec subject to change without notice

Radio Interface Frames (IHU/HEU)

IHU Chassis



| Radio Interface Frame Modules | |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RIMe – up to 8 modules per chassis | Single band module (see bands table) Interfaces: UL, DL and duplexed interface ports, QMA RF connectors Weight: 1.9 lbs (0.9 kg) |
| DCM – up to 2 modules per chassis | Interfaces: CPRI: 4x SFP+ (optical connectors) Weight: 2.9 lbs (1.3 kg) |
| RIX- one module per chassis | Interfaces: Two 9-pin coaxial interface connectors (RF and Clock) Two QMA ports for reference clock connections between Radio Interface Frames (IHU, HEU) Weight: 1.54 lbs (0.7 kg) |
| OIX - one module per chassis | Interfaces: Two 9-pin coaxial interface connectors (RF and Clock) Weight: 1.54 lbs (0.7 kg) |
| PSM – up to 2 modules per chassis | Power Consumption 200 Watt (Full Chassis) AC PSM: power input 120-220 VAC; tri-pin DC PSM: power input 48 VDC; 9A Max.; 6-pin terminal block connector On/Off power switch Weight: 1.9 lbs (0.9 kg) |
| dHCM – one module per system using IHU and 7 HEU chassis | Interfaces: Four RJ45 100 Mb Ethernet ports - internal interfaces to auxiliary control modules One RJ45 1 Gigabit Ethernet LAN port – for remote management One RJ45 1 Gigabit Ethernet Local port – for local configuration and management One RJ45 console port – for service personnel use only (e.g., debugging, etc.) SD card slot – support for micro SD card up to 32 GB, used for saving and importing system configuration files Status LEDs: indicating power, module operation (RUN), system status and fan operation of chassis Weight: 2.2 lbs (1 kg) |
| ACM -one module per chassis | Interfaces: Four RJ45 100 Mb Ethernet ports - internal interfaces to dHCM One RJ45 console port – for service personnel only Status LEDs: indicating power, module operation (RUN), system status and fan operation of chassis To dHCM RJ-45 internal port Weight: 2.2 lbs (1 kg) |

| Mechanical | |
|-----------------------|------------------------------------------------|
| Dimension (H x W x D) | 7" x 17.3" x 18.95" (177.8 x 440 x 481.7 mm) |
| Mounting | 19"/4U |
| Weight | 58 Lbs (26.4Kg) for full chassis configuration |

| Environmental | |
|-----------------------|----------------------------|
| Operating temperature | 0 to +50° C (32 to 122° F) |

*Technical spec subject to change without notice

HEU Chassis



| Radio Interface Frame Modules | |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RIME – up to 12 modules per chassis | Single band module (see bands table) Interfaces: UL, DL and duplexed interface ports, QMA RF connectors Weight: 1.9 lbs (0.9 kg) |
| RIX- one module per chassis | Interfaces: Two 9-pin coaxial interface connectors (RF and Clock) Two QMA ports for reference clock connections between Radio Interface Frames (IHU, HEU) Weight: 1.54 lbs (0.7 kg) |
| PSM – up to 2 modules per chassis | Power Consumption 200 Watt (Full Chassis) AC PSM: power input 120-220 VAC; tri-pin DC PSM: power input 48 VDC; 9A Max.; 6-pin terminal block connector On/Off power switch Weight: 1.9 lbs (0.9 kg) |
| ACM -one module per chassis | Interfaces: Four RJ45 100 Mb Ethernet ports - internal interfaces to dHCM One RJ45 console port – for service personnel only Status LEDs: indicating power, module operation (RUN), system status and fan operation of chassis To dHCM RJ-45 internal port Weight: 2.2 lbs (1 kg) |

| Mechanical | |
|-----------------------|------------------------------------------------|
| Dimension (H x W x D) | 7" x 17.3" x 18.95" (177.8 x 440 x 481.7 mm) |
| Mounting | 19"/4U |
| Weight | 64.5 Lbs (29.3) for full chassis configuration |

| Environmental | |
|-----------------------|----------------------------|
| Operating temperature | 0 to +50° C (32 to 122° F) |

*Technical spec subject to change without notice

DRU - Digital Routing Unit



| Interfaces & Mechanical | |
|------------------------------------|--------------------------------------------------------------------|
| CPRI ports | 32 x SFP+ (10.1 Gbps, CPRI line bit rate option 8) to Remote Units |
| CPRI ports | 4 x SFP+ (10.1 Gbps, CPRI line bit rate option 8) to DCM |
| Ethernet Ports | 2x RJ45 - LAN, Local |
| External synchronization | 2*QMA -10MHz In/Out |
| Mounting: | 19" rack, 1U |
| Dimension (W x H x D) | Size: 19" x 1.75" x 16.5" (482.6 x 44.5x 419 mm) |
| Weight | 19.8 Lbs (9Kg) |
| Powering | |
| Powering | 48V DC / or AC 220/110V |
| Power Consumption | 180 Watt |
| Environmental | |
| Operating temperature | 0 to +50° C (32 to 122° F) |

*Technical spec subject to change without notice

**Low Band dRAU LRU-Low power Remote
Unit P/N: dLRU-G2-678
End to End System Performance
Headend to Digital Low power Remote Unit**



| RF Specifications | | | | | | |
|-------------------------------------------|----------|-----------|---------------------------------------------------------------|---------|-------------------|---------|
| Frequency Range Name | | 600 | 700L & 700U & FirstNet | 800/850 | | |
| Frequency Range | Uplink | MHz | 663-698 | 698-716 | 776-787, 788- 798 | 817-849 |
| | Downlink | | 617-652 | 728-746 | 746-757, 758-768 | 862-894 |
| Max. Operating Bandwidth-Non-contiguous | | MHz | Full Band | | | |
| Instantaneous Bandwidth | | MHz | 35 | 18 | 21 | 32 |
| Downlink Output Power (LRU) | | dBm | 20 | 20 | | 20 |
| Attenuation Adjustable Range (1dB step) | | dB | 0-20 | | | |
| Pass Band Ripple (p-p) | | dB | ≤ 4 | ≤ 4 | ≤ 4 | ≤ 4 |
| Channel Bandwidth | | MHz | 5/10/15/20 | | | |
| Uplink Noise Figure (typical) | | dB | 12 | | | |
| Uplink IIP3 (typical) | | dBm | -14 | | | |
| VSWR | | | ≤ 1.8 | | | |
| EVM (256 QAM) (TM3.1A @ Rated power) | | % | < 3.5 | | | |
| Spurious Emission | | | 3GPP TS 36.106/25.106; 3GPP TS 38.104 V15.5.0 (sections 6; 7) | | | |
| Electrical Specifications | | | | | | |
| Power Consumption | | Watt | 70 | | | |
| DC voltage | | DC | 37-57 | | | |
| Interfaces and Mechanical | | | | | | |
| CPRI Port | | | 1, SFP+ 10.1Gbps | | | |
| Antenna Ports | | | 2, 4.3-10 female | | | |
| Dimension (W x H x D) | | Inch (mm) | 9.84 x 10.63 x 2.75 (250 x 270 x 70) | | | |
| Weight | | Lbs (Kg) | 13 (6) | | | |
| Mounting and installation | | | Wall, ceiling and pole mount options | | | |
| Cooling | | | Convection | | | |
| Environmental | | | | | | |
| Operational Temperature | | °F (°C) | -40° to 131° (-40° to 55°) | | | |
| Outdoor installation (Ingress Protection) | | | IP 66 | | | |

*Technical spec subject to change without notice

Medium Band LRU- Low power Remote Unit

P/N: dLRU-17192325

End to End System Performance

Headend to Digital Low power Remote Unit

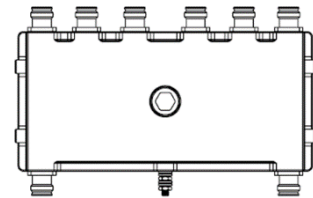


| RF | | | | | | |
|-------------------------------------------|----------|-----------|---------------------------------------------------------------------------------------|-----------|-----------|--------------------------------------|
| Frequency Range Name | | | 1900 | EAWS | WCS | 2500 |
| Frequency Range | Uplink | MHz | 1850-1915 | 1710-1780 | 2305-2315 | 2496-2690 |
| | Downlink | | 1930-1995 | 2110-2180 | 2350-2360 | 2496-2690 |
| Max. Operating Bandwidth-Non-contiguous | | MHz | Full Band | | | |
| Instantaneous Bandwidth | | MHz | 65 | 70 | 10 | 60 + 60 |
| Downlink Output Power (LRU) | | dBm | 20 | 20 | 18 | 20 |
| ATT Adjustable Range (1dB step) | | dB | 0-20 | | | |
| Pass Band Ripple (p-p) | | dB | ≤ 4 | ≤ 4 | ≤ 4 | ≤ 4 |
| Channel Bandwidth | | MHz | 5/10/15/20 | | | 5/10/15/20 for 4G 40 or 60 for 5G |
| Uplink Noise Figure (typical) | | dB | 12 | | | |
| Uplink IIP3 (typical) | | dBm | -14 | | | |
| VSWR | | | ≤ 1.8 | | | |
| EVM (256 QAM) | | % | < 3.5 | | | |
| Spurious Emission | | | 3GPP TS 36.106/25.106; 3GPP TS 38.104 V15.5.0 (sections 6; 7); 3GPP TR 36.846 V12.0.0 | | | |
| Electrical Specifications | | | | | | |
| Power Consumption | | Watt | 80 | | | |
| DC voltage | | DC | 36-57 | | | |
| Interfaces and Mechanical | | | | | | |
| CPRI Port | | | 3, SFP+ 10.1Gbps | | | |
| Antenna Ports | | | 2 ,4.3-10 female | | | |
| Dimension (W x H x D) | | Inch (mm) | 9.84 x 10.63 x 2.75 (250 x 270 x 70) | | | |
| Weight | | Lbs (Kg) | 13 (6) | | | |
| Mounting and installation | | | Wall, ceiling and pole mount options | | | |
| Cooling | | | Convection | | | |
| Environmental | | | | | | |
| Operational Temperature | | °F (°C) | -40° to 131° (-40° to 55°) | | | |
| Outdoor installation (Ingress Protection) | | | IP 66 | | | |

*Technical spec subject to change without notice

LRU 2:2 MIMO Antenna Combiner

The LRU combiner is used to combine the 2 LRU's:
 Low Band dRAU LRU and Medium Band LRU.
 The combiner has a total of 6 input ports and 2 output ports.
 There are two independent three-frequency combiners inside.
 The input frequencies are:
 617-894MHz (connected to LRU Low Band dRAU)
 1695-2690 MHz (connected to LRU Medium Band)
 3450-4000MHz (for future connection to CBRS C-Band LRU)



| | | Port1/Port4 | Port2/Port5 | Port3/Port6 |
|----------------------------------|----------|-------------------------------------|------------------------------|------------------------------|
| Port Name | | Low Band dRAU 1/2 | Mid Band 1/2 | C-Band 1/2 |
| Frequency Range | MHz | 617-894 | 1695-2690 | 3450-4000 |
| Bandwidth | MHz | 277 | 995 | 550 |
| Insertion Loss | dB | ≤ 1 | | |
| Pass band Ripple | dB | ≤ 0.5 | | |
| Out of Band Isolation | dB | ≥50@1695-2690 ≥50@3450-4000 | ≥50@617-894 ≥40@3450-4000 | ≥50@617-894 ≥50@1695-2690 |
| PIM | dBc | -155 (@ 2x1W) | | |
| Return Loss | dB | ≥18 | | |
| Isolation | dB | ≥40 | | |
| Impedance | Ω | 50 | | |
| Interfaces and Mechanical | | | | |
| Port Type | | 4.3-10 Female | | |
| Dimension | Inch(mm) | 10.6 x 4.92 x 1.38 (270 x 125 x 35) | | |
| Maximum Power | | 1W (Average) | | |
| Environmental | | | | |
| Operating temperature | °F (°C) | -40 to +185 (-40 to +85) | | |
| Ingress Protection | | IP66 | | |

*Technical spec subject to change without notice

MRU - Medium Power Remote Unit

System performance

Head End to Medium power Remote Unit



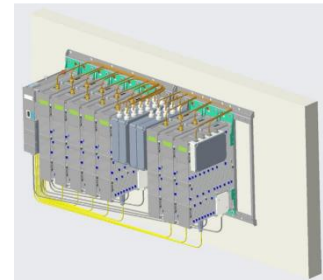
| RF | | | | | | | | | | | |
|-----------------------------------------|----------|-----|---------------------------------------------------------------|------------------------|---------|----------|-----------|-----------|-----------|------------------------------------------|--|
| Frequency Range Name | | | 600 | 700L & 700U & FirstNet | | 800 /850 | 1900 | EAWS | WCS | 2500 | |
| Frequency Range | Uplink | MHz | 663-698 | 698-716 | 777-798 | 817-849 | 1850-1915 | 1710-1780 | 2305-2315 | 2496-2690 | |
| | Downlink | | 617-652 | 728-746 | 746-768 | 862-894 | 1930-1995 | 2110-2180 | 2350-2360 | | |
| Max. Operating Bandwidth-Non-contiguous | MHz | | Full Band | | | | | | | | |
| Instantaneous Bandwidth | MHz | | 35 | 18 | 21 | 32 | 65 | 70 | 10 | 60+ 60 | |
| Downlink Output Power | dBm | | 33 | 33 | | 33 | 37 | 37 | 37 | 37 | |
| Attenuator Adjustable Range (1dB step) | dB | | 0-20 | | | | | | | | |
| Pass Band Ripple (p-p) | dB | | ≤ 4 | | | | | | | | |
| Channel Bandwidth | MHz | | 5/10/15/20 | | | | | | | 5/10/15/20 for 4G 40 or 60 for 5G | |
| Uplink Noise Figure (typical) | dB | | 12 | | | | | | | | |
| Uplink IIP3 (typical) | dB | | -12 | | | | | | | | |
| VSWR | | | ≤ 1.8 | | | | | | | | |
| EVM (256 QAM) (TM3.1A@ Rated power) | % | | < 3.5 | | | | | | | | |
| Spurious Emission | | | 3GPP TS 36.106/25.106; 3GPP TS 38.104 V15.5.0 (sections 6; 7) | | | | | | | | |
| CBRS ready frequencies | MHz | | 3350-3980. Combined with all other services | | | | | | | | |
| Coupling port | dB | | 35 | | | | | | | | |
| Electrical Specifications | | | | | | | | | | | |
| Power Consumption (Typical) | Watt | | With DC power supply: 515 With AC power supply: 550 | | | | | | | | |
| DC voltage | DC | | 48 | | | | | | | | |

| Interfaces and Mechanical | | |
|----------------------------------|--------------|------------------------------------------------------------------------------------------------|
| CPRI Port | | 2, SFP+ 10.1Gbps |
| Antenna Ports | | 1, 4.3-10 female |
| CBRS port | | 1, N-Type female |
| Coupling port | | 1 ,QMA connector that will enable measurement of the DL/UL signals while the system is working |
| Dimension (W x H x D) | Inch (mm) | 17.45 x 10.5 x 15.75 (443.2 x 266.7 x 400) |
| Mounting and installation | | 19",6U -Wall mount and Rack mount options |
| Weight | Lbs (Kg) | 83.77(38) -Fully populated with 6 RF modules |
| Cooling | | Active |
| Environmental | | |
| Operational Temperature | °F (°C) | -40° to 131° (-40° to 55°) |
| Indoor installation | | For outdoor applications external enclosure is required |

*Technical spec subject to change without notice

HRU -High-Power Remote Unit

System performance (Head End to High power Remote Unit)



| RF | | | | | | | | | | |
|-----------------------------------------|----------|-------------------------------------------------------------------------------|---------|------------------------|---------|----------|-----------|-----------|--------------------------------------|-----------|
| Frequency Range Name | | | 600 | 700L & 700U & FirstNet | | 800 /850 | 1900 | EAWS | WCS | 2500 |
| Frequency Range | Uplink | MHz | 663-698 | 698-716 | 776-798 | 817-849 | 1850-1915 | 1710-1780 | 2305-2315 | 2496-2690 |
| | Downlink | | 617-652 | 728-746 | 746-768 | 862-894 | 1930-1995 | 2110-2180 | 2350-2360 | |
| Max. Operating Bandwidth-Non-contiguous | MHz | Full Band | | | | | | | | |
| Instantaneous Bandwidth | MHz | 35 | 18 | 21 | 32 | 65 | 70 | 10 | 100 | |
| Downlink Output Power | dBm | 43 | 43 | | 43 | 43 | 43 | 43 | 43 | |
| Attenuator Adjustable Range (1dB step) | dB | 0-20 | | | | | | | | |
| Pass Band Ripple (p-p) | dB | ≤ 4 | | | | | | | | |
| Channel Bandwidth | MHz | 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 V15.5.0 (sections 6; 7) | | | | | | | | |
| Electrical Specifications | | | | | | | | | | |
| Power Consumption (Typical) | Watt | OEU (Optical Expansion Unit) –connected to RFU's | | | | | 50 | | | |
| | | 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) | Inch (mm) | OEU | 14.6 x 3.2 x 13.8 (370 x 80 x 355) |
| | | RFU accept 700 | 19.7 x 3.2 x 13.8 (500 x80 x355) |
| | | RFU 700 | 19.7 x4.8 x 13.8 (500 x121 x355) |
| Mounting and installation | | Wall mount | |
| Weight | Lbs (Kg) | OEU | 26.4 (12) |
| | | RFU accept 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 spec subject to change without notice

Low Bands Combiner specifications

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

| Frequency Name | | 600 | 700 | 800/850 | High Freq |
|------------------|------|------------------------|---------|---------|-----------|
| Port Name | | Port 1 | Port 2 | Port 3 | 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 DIN-Female | | | |

*Technical spec subject to change without notice

Medium Bands Combiner specifications

The medium band combiner is designed to combine the following 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 | 2496-2690 | | | |
| 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 | dB | ≤ 0.2 | | | | | | |
| PIM | dBc | ≤155@2×43dBm | | | | | | |
| Power Capacity | Watt | 250 per port | | | | | | |
| Interface | | | | | | | | |
| Connector | | 4.3-10 Mini DIN-Female | | | | | | |

*Technical spec subject to change without notice

Installation |

See QUIS (Quick Installation) for details.

Ordering information |

Headend Unit Assemblies and RF Modules

HEU Assemblies

| Part Number | Description |
|----------------|------------------------------------------------------------------------------------------------------------|
| HEU: | Head End Unit Assembly (without RIMe); provided with ERFC, one PSM and one RIX (supports up to 12 RIMe's) |
| HEU-1-00-1-A-A | Hosts one RIX module; one ETM. one PSM-AC and one ACM |
| HEU-1-00-1-D-A | Hosts one RIX module; one ETM. one PSM-DC and one ACM |
| HEU-1-00-2-A-A | Hosts one RIX module; one ETM , 2 PSM-AC and one ACM |
| HEU-1-00-2-D-A | Hosts one RIX module; one ETM, 2 PSM-DC and one ACM |

RF Modules

| Part Number | Description |
|-------------|-------------------|
| RIMe-25T | 2500 MHz TDD |
| RIMe-W23 | WCS 2300 MHz |
| RIMe-L70 | LTE 700 MHz |
| RIMe-E80 | CELL/ESMR 800 MHz |
| RIMe-A17 | AWS 1700 MHz |
| RIMe-P19 | PCS 1900 MHz |
| RIMe-FN70 | FirstNet® 700 MHz |
| RIMe-L60 | TMO 600 MHz |

Integrated Headend Unit Assemblies

Note: IHUs support both RIMe and OIMs (ordering information detailed in HEU and OIU ordering information).

| Part Number | Description |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| IHU: | Integrated Headend Unit Assembly (without RIMe and DCM's); provided with ERFC cable, one RIX and one OIX. Supports up to eight RIMe and two DCM's |
| IHU-2-11-1-A-dH | Hosts one RIX; one OIX; one ERFC cable; one PSM-AC module and one dHCM module |
| IHU-2-11-2-A-dH | Hosts one RIX; one OIX; one ERFC cable; two PSM-AC modules and one dHCM module |
| IHU-2-11-1-D-dH | Hosts one RIX; one OIX; one ERFC cable; one PSM-DC module and one dHCM module |
| IHU-2-11-2-D-dH | Hosts one RIX; one OIX; one ERFC cable; two PSM-DC modules and one dHCM module |

Control Modules

| Part Number | Description |
|-------------|------------------------------------------------------------------|
| dHCM | Digital Headed Control Module; Includes two RJ45 cables (2 m) |
| ACM | Auxiliary Control Module; Includes two RJ45 cables (2 m) |
| DCM -4-S | Digital Conversion Module 4 CPRI ports, SISO (SFP+ not included) |

Power Supply Modules

| Part Number | Description |
|-------------|--------------------------------------------------------------------------------------------------------------|
| PSM-AC | AC Power Supply – installed in HEU, OIUc, and IHU chassis; includes U.S. plug power cords |
| PSM-DC | DC Power Supply - installed in HEU, OIUc, and IHU chassis; includes 48 V DC six-pin terminal block connector |

DRU Part Numbers

| Part Number | Description |
|------------------|--------------------------------------------------------------------------------------------------------------------|
| DRU-1A-32C-4C-AD | Digital Routing Unit, 32 CPRI Ports of Distribution, 4 CPRI ports for uplink, AC and DC Power(SFP+, not included) |

LRU Part Numbers

| Part Number | Description |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Stand Alone Modules | |
| dLRU-G2-678 | LRU module, supporting low bands in MIMO configuration: 600, 700 and 800/850 |
| dLRU-17192325 | LRU module, supporting mid bands in MIMO configuration: PCS, AWS, WCS and TDD 2500 MHz |
| dLRU-COMB | LRU combiner for low, mid band including CBRS/C-Band, including jumper cables, termination loads and combiner plate |
| dLRU-CABLE | Jumper cable between the LRU and the combiner |
| dLRU-TL | Termination load for LRU combiner |
| Assemblies | |
| dLRU-67817192325 | LRU set including: LRU Low Band dRAU LRU mid band, mounting brackets, combiner plate, jumper cables, termination load, combiner |
| Wall Mount bracket | |
| BR-dLRU | LRU bracket for wall or ceiling mount installation |

MRU Part Numbers

| Part Number | Description |
|----------------------------|-------------------------------------------------------------------------------------|
| Stand Alone Modules | |
| dMRU-ASM-DC | MRU Chassis Assembly with: dOPTM ,FAM, Mid-Plane, Cavity Filter, DC power supply |
| dMRU-ASM-AC | MRU Chassis Assembly with: dOPTM ,FAM, Mid-Plane, Cavity Filter, AC power supply |
| dMRU-CHS-ASM | MRU Chassis Assembly with: dOPTM ,FAM, Mid-Plane, Cavity Filter |
| dMRU-PSM-AC | MRU Power Supply Module AC feeding |
| dMRU-PSM-DC | MRU Power Supply Module DC feeding |
| dMRU-DPAM-67 | MRU- Digital Power Amplifier Module supporting 600,700 Lower,700 Upper and Firstnet |
| dMRU-DPAM-8 | MRU- Digital Power Amplifier Module supporting 800/850 |
| dMRU-DPAM-17 | MRU- Digital Power Amplifier Module supporting AWS 1700MHz |
| dMRU-DPAM-19 | MRU- Digital Power Amplifier Module supporting PCS 1900MHz |
| dMRU-DPAM-23 | MRU- Digital Power Amplifier Module supporting WCS 2300MHz |
| dMRU-DPAM-25-TDD | MRU- Digital Power Amplifier Module supporting TDD 2500MHz |
| Assemblies | |
| dMRU-671719-AC | MRU-AC Assembly w/ DPAM: 600/700,AWS, PCS |
| dMRU-671719-DC | MRU-DC Assembly w/ DPAM: 600/700,AWS, PCS |
| dMRU-671923-AC | MRU-AC Assembly w/ DPAM: 600/700, PCS, WCS |
| dMRU-671923-DC | MRU-DC Assembly w/ DPAM: 600/700, PCS, WCS |
| dMRU-6781719-AC | MRU-AC Assembly w/ DPAM: 600/700,800/850, PCS , AWS |
| dMRU-6781719-DC | MRU-DC Assembly w/ DPAM: 600/700,800/850, PCS , AWS |
| dMRU-678171923-AC | MRU-AC Assembly w/ DPAM: 600/700,800/850, PCS, AWS , WCS |
| dMRU-678171923-DC | MRU-DC Assembly w/ DPAM: 600/700,800/850, PCS, AWS , WCS |
| dMRU-67817192325-AC | MRU-AC Assembly w/ DPAM: 600/700,800/850, AWS, PCS, WCS , TDD 2500 |
| dMRU-67817192325-DC | MRU-DC Assembly w/ DPAM: 600/700,800/850, AWS, PCS, WCS , TDD 2500 |
| dMRU-67819-AC | MRU-AC Assembly w/ DPAM: 600/700,800/850, PCS |
| dMRU-67819-DC | MRU-DC Assembly w/ DPAM: 600/700,800/850, PCS |
| dMRU-6781923-AC | MRU-AC Assembly w/ DPAM: 600/700,800/850, PCS, WCS |
| dMRU-6781923-DC | MRU-DC Assembly w/ DPAM: 600/700,800/850, PCS, WCS |
| Wall Mount Bracket | |
| BR-dMRU-W | MRU Wall Mounting Bracket |

General Information

MRU-DC/AC includes: OPTM, FAM, Mid-Plane and Cavity Filter
 Shipping Box will include:
 AC power Cord-3m (in case of AC)
 Wall mount BR is not included, should be ordered separately.

HRU Part Numbers

| Part Number | Description |
|----------------------------|---------------------------------------------------------------------------------------------------------------|
| Stand Alone Modules | |
| dHRU-dHPOM | HRU Digital High Power Optical Module |
| dHRU-dHPAM-6 | HRU Digital High Power Amplifier Module supporting 600 |
| dHRU-dHPAM-7 | HRU Digital High Power Amplifier Module supporting 700 |
| dHRU-dHPAM-85 | HRU Digital High Power Amplifier Module supporting 800/850 |
| dHRU-dHPAM-19 | HRU Digital High Power Amplifier Module supporting PCS |
| dHRU-dHPAM-17 | HRU Digital High Power Amplifier Module supporting AWS |
| dHRU-dHPAM-23 | HRU Digital High Power Amplifier Module supporting WCS |
| dHRU-dHPAM-25 | HRU Digital High Power Amplifier Module supporting TDD 2500, 100MHz contiguous BW |
| dHRU-COMB-L | HRU combiner module supporting low bands 600,700,800/850 including cables |
| dHRU-COMB-M | HRU combiner module supporting low bands AWS,PCS,WCS and TDD 2500 including cables |
| dHRU-TL | HRU termination load |
| BR-dHRU-L | HRU bracket to support Low Band dRAU modules |
| BR-dHRU-M | HRU bracket to support mid band modules |
| dHRU-CABLE | HRU 4.3-10 RF Jumper Cable |
| dHRU-INT-SFP | HRU Internal SFPs (from dHRU-dHPOM to modules) and Fiber |
| Assemblies | |
| dHRU-6781719232525-AC | HRU assembly supporting low and mid bands in a MIMO configuration: 600, 700, 800/850, PCS, AWS, WCS, TDD 2500 |
| dHRU-678-AC | HRU assembly supporting low bands in a MIMO configuration: 600, 700, 800/850 |
| dHRU-781719-AC | HRU assembly supporting low and mid bands in a MIMO configuration: 700, 800/850, PCS, AWS |
| dHRU-1719232525-AC | HRU assembly supporting mid bands in a MIMO configuration: PCS, AWS, WCS, TDD 2500 |

SFP+ Part Numbers

| Part Number | Description |
|-----------------------|-------------------------------------------------------------------------------------------------|
| SFP-10G-10K-BiDi-1270 | SFP+ 10.1Gb/s ,10Km, Bi Directional TX 1270nm, for DCM and DRU output connected to Remote Units |
| SFP-10G-10K-BiDi-1330 | SFP+ 10.1Gb/s ,10Km, Bi Directional TX 1330nm, for Remote Units and DRU input connected to DCM |
| SFP-10G-10K | SFP+ 10.1Gb/s ,10Km, dual fiber |
| SFP-10G-1.4K | SFP+ 10.1Gb/s ,1.4Km, dual fiber |

Notes |

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