

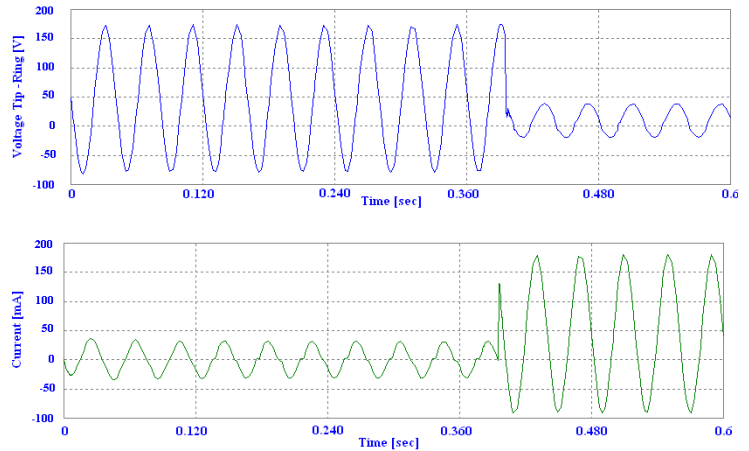
In typical DSL deployments, Voice and DSL services are provided over the same line of twisted-pair copper wires. The copper wires carry signals with frequencies up to 30MHz (VDSL2), enabling customer data rates of more than 100Mbps. Signals intended for DSL service disrupt the service of the voice calls. More importantly, phone transient events disrupt DSL services, causing errors and in the worst cases loss of signal, making it is essential to select a Comtest quality splitter to isolate the low frequency POTS signal from DSL signals.



When DSL systems are installed at the Central Office (CO) or in a remote location (RT), splitters are typically either internal or external to the DSLAM. Splitter designs are critical to the success of any VDSL2/POTS deployment as they perform three essential functions:

## Low Pass filter

The LPF performs the basic splitter function, isolating the low frequency POTS signals from the xDSL signals. It is critical that the splitter add little to no load on the line ensuring peak data rates, while ensuring quality/integrity of the voice signal. Additionally, splitters should exhibit excellent resilience to transients during POTS signaling, such as ringing and ring trip. Splitters must not be an afterthought in a DSLAM design; poor splitter selection will result in poor performance.



## DC Blocking

DC blocking capacitors on the splitter act as a HPF (high-pass filter); the DSLAM may have internal DC blocking in which case it is no longer required on the splitter. DC Blocking capacitors also provide DC potential isolation and reduce the amplitude of ringing signals.

### Protection

Splitter cards include secondary protection (both over-current and over-voltage). The protection is designed to coordinate with primary protectors in order to shield other expensive in-line equipment and prevent potentially dangerous hazards resulting from lightning, power-cross and other such events. Knowledge of NEBS III is essential, in particular when designing an internal card. The additional protection on the splitter card protects the DSLAM circuitry from these destructive events. Cooperation between equipment vendors ensures that the equipment meets the requirements at a system level. Partner with Comtest; our extensive experience with internal splitter design will help in a quick and inexpensive NEBS process!

Comtest has developed many custom internal ADSL2+/VDSL2 splitter cards in partnership with DSLAM vendors all over the world. Our team of splitter experts will design an internal card that:

1. Reduces your total cost;
2. Meets the size and technical requirements specific to your product; and,
3. Is high-quality and high-performance.

### Customize your solution and Reduce the Total Cost of Internal splitters

#### Customization and Flexibility

Comtest custom splitters work for your application. Some designs have height restrictions, some width limitations, some depth. We don't care! Comtest splitters have a small footprint and are the lowest profile available, making them ideal for internal applications. Designing a new product around an off the shelf rectangular splitter module can be limiting; instead Comtest can design a custom splitter card to fit within the requirements unique to your product.

#### Fixed Development Costs

Shortening time to market while controlling development costs is the key to any successful new product launch. Comtest experts will manage the internal splitter card development, at a fixed cost and within a set schedule, allowing your resources to focus on your core business. Doing it right the first time is key ... Comtest knows splitters, it is what we do!

#### Access to Volume Pricing

Comtest produces millions of xDSL splitter ports every year and has access to world class pricing on the components specific to splitter designs. We use that advantage and buying power to offer our customers high performance splitters at a competitive cost.

#### Fixed Pricing for Assemblies

Managing contract manufacturers is a challenge and controlling costs an even bigger challenge. CMs offer attractive pricing to win your business and then continuously raise prices, not to mention the other variables, such as expedite fees, shipping, and other hidden costs. Comtest offers contract pricing in order to fix your costs.

## Reduce Risk

In order to expedite the development process, equipment designers often turn to pre-packaged splitter modules. These modules are single sourced and make your supply chain vulnerable to disruptions. Comtest maintains multiple supply chains for all critical components. Raw inventory is held at our North American facilities, ensuring an uninterrupted flow of material to the production floor, allowing us to respond quickly to spikes in demand without additional expedite charges.

## Standard Splitter Specifications

Comtest splitters meet all industry standards and, at minimum meet the requirements in the table below. If your application requires something different, we can do that too!

Parameters	Comtest Splitters
Maximum support xDSL Bandwidth	30 MHz - VDSL2 Profile 30a
Maximum Bitrate	200 Mbps
Corner Frequency	11.5 kHz
Insertion Loss (1kHz)	< 0.3 dB
30kHz Attenuation	> 70 dB
Attenuation Distortion (0.2kHz-.4kHz)	< 0.5 dB
Delay Distortion	< 40 $\mu$ S
Return Loss	Termination 900 $\Omega$ +2.16 $\mu$ F ERL +21 dB; SRL-LO +15 dB, SRL-HI +25 dB
DC Resistance	< 22 Ohms
Longitudinal Balance	> 70 dB
Maximum Loop Current	300 mA
Dimensions (HWD)	0.433" x 1.55" x 0.71"
Temperature (operating & storage)	-40°C to +85°C
Warranty	3 years
DSL Loading	< 0.15 dB
Compliances	CE, ITU K.20, CSA/UL EN60950, NEBS North American Splitters: TI.413, TI.424, G.99x.x, TI. TRQ.10-2003, TR127 ETSI TS 101 952 (Annex and B)