

Verifying Copper with the JDSU SmartClass™ TPS



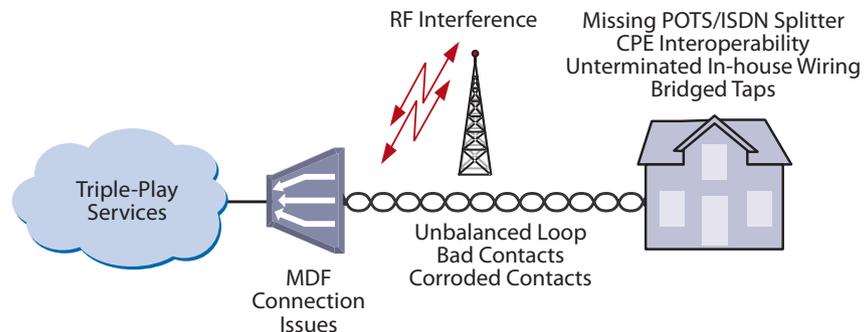
The JDSU SmartClass TPS tester is the ideal tool for technicians who install, troubleshoot, and maintain Triple-Play services.

Test Challenge

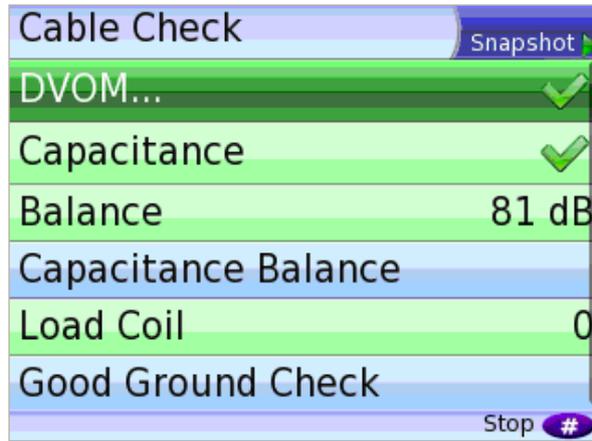
The fastest and most secure test for verifying a DSL line is performing a modem synchronization check. If the modem does not synchronize, or the trained data rates are doubtful, the technician must verify the copper circuit does not contain a fault.

Addressing the Challenge with the SmartClass TPS

The CableCheck automatically tests the copper circuit as a single-ended line test (SELT) to ensure that no foreign voltage, opens, shorts, or load coils are on the line. It also tests whether the line is well balanced to sustain noise from interfering with the DSL signal.



Copper loop issues such as foreign voltage, opens, shorts, or load coils can impact the performance of DSL and Triple-Play Services



CableCheck automates copper verification with Pass/Fail results

The SmartClass TPS provides highly precise test results, including concepts like the Good Ground Check which verifies the results provided by the Longitudinal Balance test as the user is prompted to remove one of the test leads to verify use of a proper shield or earth/ground connection. In theory, that will create a maximum unbalanced loop condition resulting in a significant drop in the Balance value reading.

Standard recommended values for CableCheck Pass/Fail thresholds :

	Pass	Marginal	Fail
AC Volts	<5 V	5-10 V	>10 V
DC Volts (discon.fr CO battery)	<5 V	5-10 V	>10 V
Resistance	>5 M Ω	3.5-5 M Ω	<3.5 M Ω
Opens* (depending on DSL standard)	\leq 15 kft/5 km		>15 kft/5 km
Longitudinal Balance	\geq 60 dB		<60 dB
Capacitive Balance (difference T/A to G/Earth and R/B to G/Earth)			>5%
Good Ground Check (removing one test lead, longitudinal balance expected to drop)			<30%

*Notes: Opens limit depends on the technology and profile used. Use 3 kft/1 km for VDSL2 and 10 kft/3 km for ADSL2+.

Conclusion

DSL and Triple-Play quality of service (QoS) is highly dependent on physical loop quality. The SmartClass TPS CableCheck test sequence provides technicians with a tool that can secure easy, repeatable Pass/Fail results for copper loop verification.

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