
Tolly Common Test Plan 1082: VoIP System Power Consumption

A best-practices guide to defining and evaluating quantitative and qualitative product characteristics



TOLLY[™]
common
TEST PLAN SERIES

Kevin W. Tolly, Common Test Plan Series Editor
Version 1.01 - 24 November 2009
Document TestPlan1082 ISBN-TBD

Table of Contents

Introduction to the Tolly Common Test Plan™ Series	4
Definition	4
Purpose & Scope	4
Development	5
Audience	5
Licensing and Usage	5
Support for the Test Plan Document	5
Updates to this Test Plan	6
Disclaimer and Terms of Use	6
Document Abstract - V1.0	6
Version History	6
1.0 - Release Mar 2009	6
VoIP System Power - Level Set	7
Power Consumption	7
LAN/WAN Communication Infrastructure	7
Tolly Common Test Plan #1080 - LAN Switch Power consumption	8
Environmental Life Cycle	8
<i>Upcoming Challenges</i>	8
Challenges to Benchmarking VoIP System Power consumption	9

<i>Power Measurement</i>	9
<i>VoIP System Scope and Components</i>	11
<i>Competitive Equivalents</i>	11
Benchmarking VoIP System Power Consumption	13
Universal Topics	13
<i>Test Challenges</i>	13
<i>Safety</i>	13
<i>Power Source</i>	13
<i>System Configuration</i>	14
<i>Published vs Actual Power: Calibration Factor</i>	15
<i>Test Metrics & Definitions</i>	16
<i>System States</i>	16
<i>Steady-State Power Draw</i>	16
<i>Impact of Power Supply</i>	17
<i>System Measurements—</i>	17
<i>Watts</i>	17
<i>Power Factor</i>	17
VoIP System Power Consumption	19
<i>Premise</i>	19
<i>Test Overview</i>	19
<i>Test Coverage</i>	20
<i>Component Summary: Bill of Materials</i>	21
<i>Measurement and Documentation</i>	22
<i>VoIP Phone: Measurement and Documentation</i>	22
<i>System Components: Measurement and Documentation</i>	24
<i>Interpretation of Results</i>	26

Evaluating Total Cost of Ownership	27
<i>Users Per Server</i>	27
<i>High-Availability (HA) Configurations</i>	28
<i>Electricity Rates</i>	29
<i>Power Up - Cool Down</i>	29
<i>Dissipation Location</i>	30
<i>Life Cycle and Environmental Impact</i>	30
<i>Power Over Ethernet</i>	30
<i>Sample Cost Calculations</i>	31
Forthcoming Topics	33
Industry Input	33

Introduction to the Tolly Common Test Plan™ Series

DEFINITION

The Tolly Common Test Plan series presents a collection of detailed test plans that are designed to help validate feature/function and performance characteristics of Information Technology products and solutions. The Common Test Plan can assist Information Technology professionals as well as technology vendors in conducting detailed, consistent assessments of product features and performance.

PURPOSE & SCOPE

The Test Plan document does not present a product feature “checklist” nor does it specify levels of achievement required to “pass” a given test. Rather, the purpose of the Tolly Common Test Plan is to provide a wide range of specific evaluation points - more items and elements than are likely required by any single user. Users of this document can select those tests and evaluation points that they find relevant to their environments.

Ultimately, the purpose of the Common Test Plan series is to reduce the amount of time and effort expended by end-users in the RFP process. While users may have some unique requirements, it is likely that there are many requirements that are common across a great many users. This document aims to identify and document those common requirements and, most importantly, how to quantify how well a device or solution meets a given requirement.

This Test Plan document is a “living document” to which tests are added over time. Thus, any document should be considered a subset of all possible tests rather than a comprehensive collection. We welcome suggestions for additional areas to be covered either within this document or of other technologies.

DEVELOPMENT

This document draws upon expertise from The Tolly Group as well as invited input from leading technology vendors and end-users. Any vendor input is evaluated by Tolly engineers and analysts and included as deemed appropriate by the Tolly team. Vendors do not pay to provide that input and vendors do not sponsor this document. As with end users, some vendors may choose to license the document for their own internal use.

AUDIENCE

This document is written for a technical audience, specifically, people who are tasked with conducting “hands-on” evaluations of the subject technology to validate compliance with customer requirements. While it is our goal to provide appropriate context for the Test Plan tests described herein, basic knowledge of the subject technology and testing techniques is assumed.

LICENSING AND USAGE

This material is intellectual property of Tolly Common RFP, LLC and is offered only through a paid license agreement. You or your employer must have such a license in place to possess and use this document. Typically, the document is licensed on an annual basis.

If you are a VAR, consultant or reseller you are not licensed to distribute the document to your customers unless you have signed a distribution agreement with Tolly Common RFP, LLC.

Contact us at: Tolly Common RFP, LLC. Post Office Box 812333, Boca Raton, FL 33431. 561-391-5610. You may also contact the series editor, Kevin Tolly, directly at Kevin.Tolly@tolly.com. <http://CommonTestPlan.org>

SUPPORT FOR THE TEST PLAN DOCUMENT

Depending on your license agreement you may have email, telephone or no support. Please reference your subscription purchase invoice, license agreement, and/or company coordinator.

UPDATES TO THIS TEST PLAN

This Test Plan is updated periodically. Depending upon the type of license you purchased, you may qualify to receive updated versions.

DISCLAIMER AND TERMS OF USE

Tolly Common RFP, LLC presents this Test Plan as an informational, instructional tool and is not responsible for how the reader makes use of it. Users should not make purchases based solely upon the information that they gather based upon running the tests described herein. While reasonable efforts have been made to assure that the tests procedures produce accurate results, neither accuracy nor applicability are guaranteed. Under no circumstances will buyer/user be entitled to any damages that exceed the licensing costs paid for use of this Test Plan.

Document Abstract - V1.0

This is the first version of the Test Plan and was released in March 2009.

This version covers basic power consumption measurement tests. It also addresses total cost of ownership with respect to power and provides resources and sample calculations.

Version History

1.01 - RELEASE NOV 2009

Minor updates.

1.0 - RELEASE MAR 2009