



## ATT-TP-76208

### Virtual Optical Line Termination (vOLT) Equipment Physical Design Requirements

**To:** Telecommunications Equipment Suppliers

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## 1. General

### 1.1. Purpose

This document provides equipment suppliers with a comprehensive reference regarding the approval for use for virtual optical line termination (vOLT) equipment placement in AT&T. An equipment's compliance with the requirements and objectives of this section will not be the sole basis for the acceptance of the equipment, however non-compliance with one or more of the requirements or objectives of this section may be the basis for equipment denial of purchase.

### 1.2. Scope

The requirements contained herein apply to vOLT equipment intended for installation in Carrier Communications Space (CCS).

### 1.3. Definitions

- A. The term **equipment supplier** as used throughout this section refers to the equipment manufacturer or agent of the equipment manufacturer, whichever is appropriate for the equipment being considered.
- B. The term **company representative** as used throughout this section refers to the AT&T employee representing AT&T
- C. Requirements are those equipment features that **must** be provided by the equipment manufacturer. The words "shall" and "must" are used throughout this section to identify requirements.
- D. Objectives are equipment features that are **desired** for the long term use or application. The word "should" is used throughout this section to identify objectives.

### 1.4. Equipment Evaluation Process

Equipment must demonstrate conformance to subsets of requirements contained in this document. See Appendix A for processes required to document conformance to requirements.

Unless the AT&T Fast Track process is used (see Appendix A), for requirements that call for testing to verify conformance, test reports and forms **must** be forwarded to AT&T for review before the equipment will be evaluated as in conformance.

### 1.5. Equipment Deployment Locations

**Network Equipment Space** – Network Equipment Space refers to any AT&T carrier managed building space, owned, leased or customer provided, that is primarily used for equipment dedicated to the transport, interconnection and switching of network voice, video and data. Network Equipment Space includes Carrier Communications Space and Non-Carrier Communications Space.

**Carrier Communications Space** – AT&T Network Equipment spaces primarily dedicated to communications switching and transport equipment. Examples of these locations include COs, L-T POPs, SNRCs, MTSOs, NTCs, huts, CEVs, and environmentally controlled cell site structures. Due to national, state and local codes

specific to these locations, there are ATT-TP-76200 requirements that are specific to Carrier Communications Spaces (e.g., GR-63 Fire Spread).

**Outside Plant (OSP/CELL-SITE)** – Outside plant part of the network. Typically network locations between the inside of Network Equipment Space buildings and Customer Premises Antenna locations. OSP/CELL-SITE equipment shall be Carrier Grade.

**Most of World (MoW)** – Equipment Deployed outside the United States:

Equipment Deployed outside the United States will require verification of compliance to ATT-TP-76208 per Appendix A and completed MoW Letter of Attestation found in Section 3.

## 1.6. Equipment Testing Requirements

Any alterations to the test protocols given in this document or in referenced test standards documents must be clearly identified in the executive summary and the test results sections of test reports. Testing performed per the Telecommunications Providers Group (TCG) checklist will be acceptable to AT&T. This checklist is available on AT&T's web site at <https://ebiznet.sbc.com/sbcnebs/>.

- Conditional Requirements and Objectives contained in referenced industry standards shall not be considered AT&T requirements unless explicitly stated within the requirements sections of this document
- ETSI standards may be accepted on a case by case basis in lieu of GR/ATIS test results

## 1.7. Laboratory Accreditation Requirements

For tests completed after January 1<sup>st</sup>, 2004, AT&T Technology Operations will only accept test reports submitted by testing laboratories that are accredited by an accreditation agency (e.g., the American Association for Laboratory Accreditation, National Voluntary Laboratory Accreditation Program) that is recognized by the National Cooperation for Laboratory Accreditation.

- The scope of accreditation must include the test standards referenced in test reports.
- AT&T Technology Operations will accept test reports that include test data generated at non-accredited test laboratories if the tests are witnessed and verified by a representative from a company that operates an accredited test laboratory. Records shall be retained that clearly demonstrate that the individual who witnessed the test has the appropriate expertise and competence. Submitted test reports shall clearly distinguish test data generated in-house at an accredited laboratory from witnessed and verified test data. The test report shall also contain a statement attesting to the compliance of the testing to applicable standards.
- Test laboratories located outside of the United States shall be accredited in accordance with ISO/IEC Guide 25 or ISO/IEC 17025. This accreditation must be performed by a nationally recognized accrediting body operating in accordance with ISO/IEC Guide 58. Testing performed outside of the United States by a non-

accredited laboratory or manufacturer's performed testing may be accepted if witnessed and verified by a U.S. Nationally Recognized Testing Laboratory.

- Each test report submitted to AT&T Technology Operations shall contain accreditation and scope information or a letter containing this information may be forwarded for our files.

### **1.8. Reasons for Re-issue**

## 2. Requirements

### 2.1. Safety Requirements

The electromagnetic compatibility and electrical safety requirements for Carrier Grade equipment are primarily stated in Telcordia publication GR-1089-CORE Electromagnetic Compatibility and Electrical Safety Generic Criteria for Network Telecommunications Equipment.

#### **R1-1: Equipment Type**

The equipment supplier shall determine the Equipment Type and record the appropriate numerical equipment. To determine the Equipment Type, refer to GR-1089-CORE, Appendix B for all equipment. GR-1089-CORE provides guidelines for applying the aforementioned electromagnetic compatibility requirements. Application of the various criteria is a function of the type of equipment under consideration, its connection to the telecommunications network and the intended location of the equipment.

#### **R1-2: Electromagnetic Interference**

Equipment deployed in carrier communications locations shall meet the radiated emission requirements stated in section 3.2 of GR-1089-CORE. Equipment deployed in outside plant locations shall meet the radiated emission requirements stated in section 5.2.3 of GR-3108-CORE.

#### **R1-3: Conducted Emissions**

Equipment deployed in carrier communications locations shall meet the conducted emission requirements stated in section 3.2 of GR-1089-CORE. Equipment deployed in outside plant locations shall meet the conducted emission requirements stated in section 5.2.3 of GR-3108-CORE.

#### **R1-4: Immunity**

Equipment deployed in carrier communications locations shall meet the immunity requirements stated in section 3.3 of GR-1089-CORE. Equipment deployed in outside plant locations shall meet the immunity requirements stated in section 5.2.3 of GR-3108-CORE.

#### **R1-5: Lightning and AC Power Faults**

Equipment deployed in carrier communications locations shall meet the applicable lightning and ac power fault requirements stated in sections 4 of GR-1089-CORE. Equipment deployed in outside plant locations shall meet the applicable lightning and ac power fault requirements stated in section 5.2.4 of GR-3108-CORE. The equipment's Port Type shall be determined using GR-1089, Appendix B.

#### **R1-6: Steady State Power Induction**

Equipment deployed in carrier communications locations shall meet the steady state power induction requirements stated in section 5 of GR-1089-CORE. Equipment deployed in outside plant locations shall meet the steady state power induction requirements stated in section 5.2.5 of GR-3108-CORE.



**R1-7: Electrical Safety Criteria**

Equipment deployed in carrier communications locations shall meet the electrical safety requirements stated in section 7 of GR-1089-CORE. Equipment deployed in outside plant locations shall meet the steady state power induction requirements stated in section 5.2.7 of GR-3108-CORE.

**R1-8: DC Potential Difference**

Equipment deployed in carrier communications locations shall meet the dc potential difference requirements stated in section 6 of GR-1089-CORE. Equipment deployed in outside plant locations shall meet the dc potential difference requirements stated in section 5.2.6 of GR-3108-CORE.

**R1-9: Electrostatic Discharge (ESD) Immunity Criteria**

Equipment deployed in carrier communications locations and/or outside plant locations shall meet the ESD immunity criteria requirements for normal operation and be tested for installation and repair objectives according to section 2.1.2 (ESD Immunity Criteria) of Telcordia's GR-1089-CORE, document. All tests shall be conducted as described in section 2.1.4 of GR-1089 and IEC Publication 61000-4-2.

**R1-10: Special Requirements and Maintenance Information**

Any additional equipment-specific requirements in paragraph 2.1.2.4 of GR-1089-CORE shall be described in the report.

**R1-11: Electrical Fast Transient (EFT)**

Equipment deployed in carrier communications locations and/or outside plant locations shall be tested in accordance with section 2.2 of Telcordia's GR-1089-CORE, document with tests conducted as described in section 2.2.1.

**R1-12: Bonding and Grounding Requirements**

Equipment deployed in carrier communications locations and/or outside plant locations that are submitted for evaluation shall meet applicable Bonding and Grounding requirements of section 9 of GR-1089-CORE. For Ancillary reviews, only the short circuit test data of section 9.10 is required.

**R1-13: Fire Spread**

Field conditions for deployment may require deployment in existing carrier communications locations and/or outside plant locations that utilize Fire Code Exemptions and do not have automatic fire suppression. Equipment deployed in these locations shall meet the enhanced fire spread requirement below.

Equipment shall meet ATIS-0600319.2014 *Equipment Assemblies – Fire Propagation Risk Assessment Criteria* (see note below).

**Note:** Equipment may conform to this requirement by way of inherent design features that include all items below:

- Height of 2 RU or less
- Horizontally mounted main printed circuit board
- Metallic 5 sided enclosure with a metallic or non-metallic front cover or faceplate
- Non-metallic materials shall comply with ATIS-0600307 4.1

For equipment that does not meet the fire spread requirements of ATIS-0600319.2014 by way of inherent design features noted above, the manufacturer shall attest that the equipment has successfully passed the burn test as referenced in the ATIS document.

Equipment deployed in outside plant locations with Class 2, 3 and 4 environments shall comply with the fire resistance criteria of Telcordia GR-3108-CORE, Section 6.5.

## 2.2. Minimum Infrastructure Operating Requirements

Minimum infrastructure operating requirements state that the equipment works as intended and can be installed efficiently. New equipment is required to integrate into the network seamlessly (fit, form and finish), without the impact or cost pressure to compensate for the product introduction. This supports the goal of having a “homogeneous” network that does not require special practices/procedures to accommodate each new equipment installation.

### 2.2.1. Environmental

#### R2-1: Temperature and Humidity Operating Requirements

Equipment deployed in carrier communications locations shall be designed and verified to meet the following requirements:

**Table 2-1 Temperature and Humidity Limits Conditions**

Conditions	Limits
Operating Temperature	15°C to 40°C
Operating Temperature Short-term*	-5°C to 50°C
Rate of Temperature Change	30°C / hr
Operating Relative Humidity	5% to 85%
Dew Point	17°C

Notes:

\* Short-term refers to a time period of not greater than 96 consecutive hours, and a total of not more than 360 hours per year.

Equipment deployed in outside plant locations shall conform to the applicable requirements in GR-3108-CORE, Sections 4.1, 4.2, 4.3, 4.4, 4.5, and 4.6.

**R2-2: Altitude**

Altitude conformance for equipment deployed in carrier communications locations shall be stated by the manufacturer via documentation containing specific product information and company identification information (logo). Typical forms of documentation are Product Data Sheets, Product Manuals or Letters of Attestation. Formal testing documentation from third party testing labs is an acceptable alternative.

- The equipment shall function within the limits established in R2-1 for altitudes between 60 meters (200 ft) below sea level through 1830 meters (6000 ft) above sea level.
- The maximum temperature limit stated in R2-1 may be de-rated 1°C for every 300 meters (1000 ft) segment above 1830 meters (6000 ft) but below 3960 meters (13,000 ft) above sea level. Operation above 3960 meters do not require confirmation.

Equipment deployed in outside plant locations shall conform to Telcordia publication GR-3108-CORE, Section 4.7.

**R2-3: Energy Efficiency**

When equipment is eligible for the United States Environmental Protection Agency (EPA) Energy Star® certification for Computer Servers, the supplier shall report if the equipment is EPA Energy Star® certified (Yes / No). If Yes, a copy of the written certification by a Certification Body recognized by the EPA for Computer Servers shall be provided. Eligibility criteria can be found at [www.energystar.gov/specifications](http://www.energystar.gov/specifications). AT&T's intent is to favor equipment that is Energy Star® certified.

When applicable, the Alliance for Telecommunications Industry Solutions (ATIS) Telecommunications Energy Efficiency Requirements rating (TEER) shall be measured and reported. Reference ATIS-0600015.2009 and supplemental standard ATIS-0600015.01.2014, *Energy Efficiency for Telecommunication Equipment, Methodology for Measurement and Reporting – Server Requirements*, [www.atis.org/docstore/default.aspx](http://www.atis.org/docstore/default.aspx). AT&T's intent is to use the ATIS TEER rating to improve the energy efficiency of our network and in our Supplier Citizenship and Sustainability Report Card.

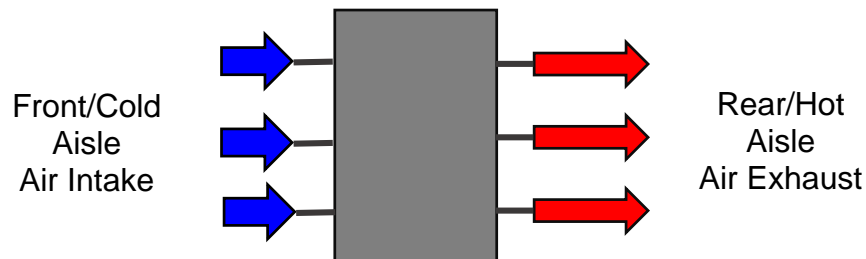
If the ATIS TEER rating is unknown, the latest SPECpower\_ssj2008 server rating and output test document may be substituted. This benchmark is available from the Standard Performance Evaluation Corporation, 6685 Merchant Place, Suite 100, Warrenton, VA 20187. [www.spec.org](http://www.spec.org)

**R2-4: Equipment Air Flow**

Establishing consistent air flow patterns for all network elements supports the efficient design and use of infrastructure cooling technologies.

Air cooled equipment shall be designed and verified to utilize a cold aisle air inlet and a hot aisle exhaust. This is commonly known as front aisle air intake and rear

aisle air exhaust. The nomenclature for the individual products may differ based on the equipment faces the manufacturer calls "front" and "rear". For AT&T applications, the intake equipment face shall be orientated toward the cold aisle and the exhaust equipment face shall be orientated to the hot aisle.



Equipment deployed in outside plant locations shall also conform to Telcordia publication GR-3108 Section 4.2.1.3.

### **R2-5: Acoustic Noise**

Manufacturer shall report the measured acoustic noise of equipment. It is a strong preference and an objective of AT&T that equipment deployed in carrier communications locations not exceed an operating acoustic noise level of 78 dB sound power at 26°C, as measured according to ANSI ASA S12.10-2010, or a comparable industry standard. Equipment deployed in Outside Plant locations shall conform to Section 6.6 of Telcordia GR-3108.

### **R2-6: Equipment Units Design**

Equipment physical design shall:

- A. Incorporate the use of holes or closed slots in mounting hardware for attachment to equipment framework mounting surfaces
- B. Be designed for 19" framework mounting
- C. Accommodate mounting in equipment frameworks using a 1-3/4 x 19 inch mounting hole pattern.

## **2.2.2. Alarms and Indicators**

### **R2-7: Alarms**

An amber or red LED, located on the faceplate of the network element, shall be used to indicate the current status of any alarm. The LED shall be lit indicating that an alarm condition exists. The alarm LED is extinguished when all active alarms clear.

### **R2-8: Unit Indicator**

It is preferred, but not required, that equipment provide a remotely activated blue LED on the faceplate and/or backplane of the Network Element to function as a unit indicator.

**R2-9: Alarm Interconnections**

Equipment shall meet the alarm requirements stated in section 4 of ATT-TP-76450 (available at <https://ebiznet.sbc.com/sbcnebs>).

**2.2.3. Power****R2-10: AC and DC Power**

Field conditions may be either AC or DC powered. It is strongly preferred that all equipment be available for purchase in AC and DC versions.

**R2-11: AC Powered**

AC powered equipment shall accommodate a voltage range from 110V to 240V.

**R2-12: DC Power – Nominal -48Vdc**

Nominal -48Vdc is the preferred and standard platform for power delivery to network equipment. If the equipment uses a DC voltage other than -48Vdc, it shall be provided with internal DC-DC converters to meet the intent of this requirement. The design criterion of the nominal -48Vdc power is based on a normal operating voltage between -50V to -56.7Vdc, with nominal rating of -48Vdc and low voltage of -40Vdc measured at the input terminals of the network equipment.

**R2-13: DC Battery Return Configuration**

Equipment battery return configuration shall be DC-I. Equipment configured with the battery return and chassis ground bonded together (DC-C) shall not be deployed in the network. The DC-C configuration cannot be utilized with dual plant equipment operation.

**R2-14: DC Power - Terminations General**

- A. Power terminations shall be located on the rear of the chassis.
- B. All power connections shall be clearly labeled and fully protected with a non-metallic, non-flammable cover.

**R2-15: DC Power - Redundant Power Feeds**

Redundant power feeders are required for all network equipment. Each element/shelf/circuit pack, whichever is the smallest independent load device of the equipment, shall obtain power from at least two power feeds.

**R2-16: DC Power - Battery Return Conductor**

Each power feeder shall have its own battery return conductor. This design concept shall also carry through directly to each piece of equipment.

**R2-17: DC Connectors**

Equipment shall meet the DC connector requirements stated in section 2.4 of ATT-TP-76450 (available at <https://ebiznet.sbc.com/sbcnebs>).

**R2-18: Equipment DC Power Protection**

Equipment shall meet the equipment DC power protection requirements stated in section 2.6 of ATT-TP-76450 (available at <https://ebiznet.sbc.com/sbcnebs>).

**R2-19: Filtered Battery**

Equipment shall meet the filtered battery requirements stated in section 2.7 of ATT-TP-76450 (available at <https://ebiznet.sbc.com/sbcnebs>).

**R2-20: Special PDU**

Equipment shall meet the special PDU requirements stated in section 2.8 of ATT-TP-76450 (available at <https://ebiznet.sbc.com/sbcnebs>).

**R2-21: Visual Power Alarms and Status Indicator**

Equipment shall meet the visual power alarms and status indicator requirements stated in section 2.10 of ATT-TP-76450 (available at <https://ebiznet.sbc.com/sbcnebs>).

**R2-22: Steady-State Input DC Voltage Requirements**

The telecommunications load equipment deployed in carrier communications locations and/or outside plant locations shall meet its operational requirements at any input voltage of the correct polarity between and including the minimum and maximum values specified in Tables 1 in ATIS-0600315.

**R2-23: Undervoltage Requirements**

Equipment deployed in carrier communications locations and/or outside plant locations shall operate properly when exposed to steady state undervoltage conditions and shall comply with the conformance criteria as described in ATIS-0600315. The equipment supplier shall provide a report containing the test methods and results for the above requirement.

**R2-24: Minimum Operating Voltage**

Specify the minimum voltage at which the equipment remains fully operational and verify the equipment will recover to a fully operational state after losing power.

**R2-25: DC Power Current Drains**

Battery return and current path information must be provided in the supplier's response documentation to be in compliance with this item. List 1, 1X, 2 and 2X drains shall be provided in the ESP Forms documentation.

**List 1 Current Drain** – The List 1 current drain, for a maximum configuration of cards and shelves, shall be provided in amperes on the appropriate ESP form. List 1 drain is the average busy-hour current at normal voltage and operating conditions. List 1 current drains are used to size batteries and rectifiers. The cumulative List 1 current drain is the current consumed on both the A and B supplies.

**List 1X Current Drain** - The current that will flow in one side of a dual powered circuit when the other supply circuit has failed and the power plant feeding the remaining circuit is at the normal operating voltage (float voltage).

**List 2 Current Drain** – The List 2 current drain, for a maximum configuration of cards and shelves, shall be provided in amperes on the appropriate ESP form. List 2 drain is the peak current during emergency operating limits of the EUT and with normal operating conditions (no short circuits or other malfunctions). This value is based on manufacturer-supplied data, and calculated to the AT&T minimum -42.64 Vdc engineering design level and equipment configuration.

**List 2X Current Drain** - The current that will flow in one side of a dual powered circuit if the other supply circuit is failed and the power plant feeding the remaining circuit is at 42.64Vdc, engineering design level, or the total power consumption of the network equipment in watts divided by 42.64Vdc.

### **R2-26: Overvoltage Requirements**

Telecommunications load equipment deployed in carrier communications locations and/or outside plant locations shall not be permanently damaged or permanently have its performance degraded when an input voltage of correct polarity, with a value between 0 V and the maximum voltage level for each nominal voltage plant specified in Tables 1 of ATIS-0600315 is applied for any period of time.

Equipment shall operate properly when exposed to steady state overvoltage conditions, shall comply with the conformance and test results shall be recorded in a test report as described in ATIS-0600315.

### **R2-27: Overvoltage Transient Requirement**

Equipment deployed in carrier communications locations and/or outside plant locations shall operate properly when exposed to an overvoltage transient condition, shall comply with the conformance criteria and test results shall be recorded in a test report as described in ATIS-0600315.

### **R2-28: Protective Device Operation Transient**

Equipment deployed in carrier communications locations and/or outside plant locations shall operate properly when exposed to transient conditions, shall comply with the conformance criteria and test results shall be recorded in a test report as described in ATIS-0600315. Testing methods shall be utilized to ensure prevention of malfunction or damage.

### **R2-29: Electrical Noise Requirements**

**Noise immunity** – Equipment deployed in carrier communications locations and/or outside plant locations shall operate properly when exposed to electrical noise, shall comply with the conformance criteria and test results shall be recorded in a test report as described in ATIS-0600315. Voiceband noise shall only apply to equipment with analog voiceband ports effective with GR-1089-CORE.

**Noise returned by the telecommunications load equipment** – Equipment deployed in carrier communications locations and/or outside plant locations shall not return excessive noise onto the DC power system, the equipment shall comply with the conformance criteria and test results shall be recorded in a test report as described in ATIS-0600315. Requirement 5.6.2.1, Voice Frequency Noise Requirements are no longer required effective with GR-1089-CORE Issue 6.

#### **2.2.4. Airborne Contaminants**

Equipment deployed in carrier communications locations shall meet the Airborne Contaminants requirements for indoor equipment as stated in section 4.5 of GR-63-CORE and shall conform to the MFG test performed for 14 days as detailed in Telcordia GR-63, Issue 3.

Equipment deployed in outside plant locations including Class 2, 3 and 4 OSP environments (i.e., unsealed cabinets installed on pads or poles) with no filtration shall meet GR-63-CORE, OSP Airborne Contaminants requirement R4-100, Section 4.5.2.1 for outdoor equipment.

#### **R2-30: Fan Filter Requirements**

Equipment deployed in carrier communications locations shall meet the following fan filter requirements.

- A. Equipment larger than 1U shall conform to the fan filter requirements contained in GR-63-CORE
- B. Equipment 1U or smaller will be accepted without fan filters.
- C. GR-63-CORE, Objective 04-25 for fan filter alarms shall be a requirement.

Equipment deployed in outside plant locations inside GR-487 compliant cabinets in a:

- A. GR-3108 Class 1 compliant environment shall be equipped with fan filters that meet or exceed the requirements of Telcordia GR-63-CORE Section 4.1.5.2 requirements for air filters. GR-63-CORE, Objective 04-25 for fan filter alarms shall be a requirement.
- B. GR-3108 Class 2 compliant environment shall not be equipped with fan filters.
- C. GR-3108 Class 3 compliant environment shall not be equipped with fan filters.
- D. GR-3108 Class 4 compliant environment is not applicable.

#### **2.2.5. Shock and Vibration**

##### **R2-31: Seismic - Vibration**

Equipment deployed in carrier communications locations shall be designed for service in high seismic risk locations. Equipment shall demonstrate conformance to Telcordia GR-63-CORE, or ATIS-0600329 earthquake requirements by having equipment assembly tested on shake table and submitting documentation of successful test results.

Equipment deployed in outside plant locations shall be designed for service in high seismic risk locations. Equipment shall demonstrate conformance to Telcordia GR-



63-CORE, or ATIS-0600329 earthquake requirements by having equipment assembly tested on shake table and submitting documentation of successful test results.

#### **R2-32: Positive Latching**

All network equipment deployed in carrier communications locations and/or outside plant locations shall have circuit pack latches or retainers to prevent pack and module walkout. Ejectors are not retainers and should not be used for that purpose.

#### **R2-33: Office Vibrations**

Equipment deployed in carrier communications locations shall be designed for operation under office vibration conditions specified in Telcordia document GR-63-CORE. AT&T Technology Operations may not request test documentation with the understanding that the equipment manufacturer is responsible to assure operational reliability for conditions that may exist in AT&T equipment locations.

Equipment deployed in outside plant locations shall be designed and tested in accordance to Telcordia GR-3108 paragraph 6.3.3 Low Level Vibration Resistance test procedures. The low level vibration resistance tests differ from GR-63-CORE tests, instead GR-3108 follows ETSI EN 300 019 for IEC Class 4M5 test standards.

### **2.2.6. Fiber**

#### **R2-34: Fiber Optic Cabling and Connectors**

Equipment shall meet the fiber requirements stated in section 5 of ATT-TP-76450 (available at <https://ebiznet.sbc.com/sbcnebs>).

## **3. Equipment Information Form Description**

### **3.1. General**

This section includes equipment information forms to help suppliers communicate equipment information in a way that will facilitate the equipment evaluation process. These equipment information forms may be reproduced as necessary. The equipment information forms shall be completed and provided for new equipment and for enhanced equipment already approved for use in AT&T.

### **3.2. ESP Form Description**

The engineering and space planning forms provide a detailed overview of the planning and engineering considerations associated with products being evaluated. *System Equipment* form ESP-001 applies to products comprised of multiple equipment units installed in a predefined configuration. Such products may be furnished preinstalled in an equipment framework assembly (frame level) or as shelf level products (individual units) for installation into existing equipment framework assemblies. *Equipment Unit* form ESP-002 applies to stand-alone shelf level products.

Suppliers shall complete an ESP-001 form for frame level products, each frame of multi-frame products, and for shelf level products that are optionally available preinstalled in

an equipment framework assembly. The ESP-002 form shall be completed for individual shelf level products.

### **3.3. FRM Form Description**

Form FRM-001 *Fire Resistance of Materials* shall be completed by the product supplier's representative having explicit knowledge of the subject addressed. The FRM form may be used for multi-unit products provided each individual unit comprising the product is specifically referenced in the space provided.

### **Equipment Information Forms:**

**NOTE:** See following pages:

ESP-001 Form

**EQUIPMENT ENGINEERING & SPACE PLANNING DATA  
SYSTEM LEVEL**

<b>Equipment System</b>	Manufacturer: _____ Date: _____ Product Name: _____ Equip. Functional Description and Nomenclature: _____ Floor Plan Designation: _____ Number of Frames Per System: _____ Names of Associated Frames: _____ <i>Note: One form required per each frame of multi-frame system equipment.</i>
<b>Physical Data</b>	Overall Dimensions Including Framework* Height: _____ Width**: _____ Depth: _____ Equipment Weight Approximate Installed Weight (fully equipped) _____ lbs <i>*All dimensions to be expressed in FEET and INCHES.</i> <i>**Width includes normal 1/16 inch space between adjacent frames</i>
<b>Engineering Data</b>	Framework Type/Description: _____ Manufacturer's Identifying Catalog/Part Number: _____ Minimum Aisle Spacing Requirements*: Front: _____ Rear: _____ Additional Space Requirements, if applicable, Between This Frame and An: Adjacent Like Frame: _____ End Guard: _____ Other Frames or Structure: _____ Equipment Locating Restrictions: None _____ Yes (Explain): _____ <hr/> <i>*All dimensions to be expressed in FEET and INCHES.</i>
<b>Acoustic Noise</b>	Measured acoustic values as required and defined in TP76208. Submission may be in Sound Power or Sound Pressure values. Equipment Sound Power: _____ dB <i>Maximum limit is 78 dB in attended rooms, 83 dB in unattended and power rooms.</i> Equipment Sound Pressure: _____ dBA <i>Maximum limit is 68 dBA in attended rooms, 73 dBA in unattended and power rooms.</i>

<b>Energy Efficiency</b>	<p>Energy Efficiency Results (if applicable):</p> <p>EPA Energy Star? Yes ___ or No ___</p> <p>ATIS TEER Rating _____</p>
<b>AC Power</b>	<p>120 Vac Required? Yes ___ No ___      Number of feeders: _____</p> <p>Circuit Breaker Size per feeder: _____</p> <p>Total Watts: _____</p>
<b>DC Power</b>	<p>-48 V DC Required? Yes ___ No ___      Number of feeders: _____</p> <p>Feeder 1 (Load A):    List 1 drain: _____amps at _____V                                            List 2 drain: _____amps at 42.6V                                            List 2X drain _____amps at 42.6V</p> <p>Feeder 2 (Load B):    List 1 drain: _____amps at _____V                                            List 2 drain: _____amps at 42.6V                                            List 2X drain _____amps at 42.6V</p> <p><i>(List 1, 2 &amp; 2X are defined in ATT-TP-76450, section 2.2.6)</i></p> <p>Minimum Operating Voltage _____and current _____from test in Section 7.3</p> <p>DC-C___ or DC-I ___ configuration per section 9.8.3 of GR-1089-CORE</p> <p>Total Watts: _____</p>
<b>External Cabling Data</b>	<p>Equipment Cabling Plan Reference/Drawing Number: _____</p> <p>Do Special Cable Or Cabling Requirements Apply: No ___ Yes ___ (Describe): _____</p> <p>_____</p> <p>_____</p> <p>_____</p>



- If the typical AT&T units deployed are unavailable, indicate the maximum number followed by a hyphen and the letter “U” for unknown. (e.g. 4-U)
- 5) **C: Maximum** possible is the maximum heat dissipation **PER UNIT** in Watts at full operating parameters (i.e., 100% full load/traffic)
- This entry is **NOT** the worst case draw of the power supplies. Rather it is the full measured calculated heat dissipation from a fully loaded, in operation part or system.
- 6) **D: Nominal** is the heat dissipation **PER UNIT** in Watts while within normal operating parameters (i.e., 50-74% full load/traffic)
- This entry is the Nominal (normal operating range) measured / calculated heat dissipation from a typical AT&T loaded, in operation part or system.
- 7) **E: Maximum** possible is the maximum heat dissipation **TOTAL** (# Units X Unit Heat) in Watts at full operating parameters (i.e., 100% traffic)
- This entry is **NOT** the worst case draw of the power supplies. Rather it is the full measured / calculated heat dissipation from a fully loaded, in operation part or system.
- 8) **F: Nominal** is the heat dissipation **TOTAL** (# Units X Unit Heat) in Watts while within normal operating parameters (i.e., 50-74% full load/traffic)
- This entry is the Nominal (normal operating range) measured / calculated heat from a typical AT&T loaded, in operation part or system.

ESP-002 Form

**ENGINEERING & SPACE PLANNING EQUIPMENT DATA  
UNIT LEVEL**

<b>Equipment Unit</b>	<p>Manufacturer: _____ Date: _____</p> <p>Product Name: _____</p> <p>Unit Functional Description: _____</p> <p>Product ID: _____ Nomenclature (Acronym): _____</p> <p>Names of Associated Units per Function: _____</p> <p>_____</p> <p><i>Note: One form required per each unit of a multi-unit product/system.</i></p>
<b>Physical Data</b>	<p>Overall Dimensions (inches)</p> <p>Height: _____ Width: _____ Depth*: _____</p> <p>Unit Weight _____</p> <p>Unit Installed Weight (fully equipped) _____ lbs</p> <p>Minimum Aisle Spacing Requirements (feet &amp; inches): Front: _____ Rear: _____</p> <p><i>*Overall Depth includes cable and its supporting apparatus.</i></p>
<b>Mounting Data</b>	<p>Supported Mounting Flange Hole Patterns: 1 3/4 x 19" <input type="checkbox"/> 1 3/4 x 23" <input type="checkbox"/> 2 x 23" <input type="checkbox"/></p> <p>Unit Mounts to Front of Framework Uprights: Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>List Unit Locating Restrictions/Considerations if Any: _____</p> <p>_____</p> <p>Distance Unit Extends from Framework Mounting Surface: _____ (in.)</p> <p>Heat Baffles Required: Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, Supplied With Unit: Yes <input type="checkbox"/> No <input type="checkbox"/></p>
<b>Acoustic Noise</b>	<p>Measured acoustic values as required and defined in TP76200. Submission may be in Sound Power or Sound Pressure values.</p> <p>Equipment Sound Power: _____ dB <i>Maximum limit is 78 dB in attended rooms, 83 dB in unattended and power rooms.</i></p> <p>Equipment Sound Pressure: _____ dBA <i>Maximum limit is 68 dBA in attended rooms, 73 dBA in unattended and power rooms.</i></p>

<b>Energy Efficiency</b>	<p>Energy Efficiency Results (if applicable):</p> <p>EPA Energy Star? Yes ___ or No ___</p> <p>ATIS TEER Rating _____</p>
<b>AC Power</b>	<p>120 Vac Required? Yes ___ No ___      Number of feeders: _____</p> <p>Circuit Breaker Size per feeder: _____</p> <p>Total Watts: _____</p>
<b>DC Power</b>	<p>-48 V DC Required? Yes ___ No ___      Number of feeders: _____</p> <p>Feeder 1 (Load A):    List 1 drain: _____ amps at _____ V                                            List 2 drain: _____ amps at 42.6V                                            List 2X drain _____ amps at 42.6V</p> <p>Feeder 2 (Load B):    List 1 drain: _____ amps at _____ V                                            List 2 drain: _____ amps at 42.6V                                            List 2X drain _____ amps at 42.6V</p> <p><i>(List 1, 2 &amp; 2X are defined in ATT-TP-76450, section 2.2.6)</i></p> <p>Minimum Operating Voltage _____ and current _____ from test in Section 7.3</p> <p>DC-C ___ or DC-I ___ configuration per section 9.8.3 of GR-1089-CORE</p> <p>Total Watts: _____</p>
<b>External Cabling Data</b>	<p>Unit Cabling Plan Reference/Drawing Number: _____</p> <p>Unit Is Cabled From The Rear: Yes ___ No ___ Front and Rear: _____</p> <p>Required Alarm Leads and Designations: _____</p> <p>_____</p> <p>Do Special Cable Or Cabling Requirements Apply: No ___ Yes ___ (Describe): _____</p> <p>_____</p> <p>_____</p> <p>_____</p>





- If the typical AT&T units deployed are unavailable, indicate the maximum number followed by a hyphen and the letter "U" for unknown. (e.g. 4-U)
- 5) **C: Maximum** possible is the maximum heat dissipation **PER UNIT** in Watts at full operating parameters (i.e., 100% full load/traffic)
- This entry is **NOT** the worst case draw of the power supplies. Rather it is the full measured calculated heat dissipation from a fully loaded, in operation part or system.
- 6) **D: Nominal** is the heat dissipation **PER UNIT** in Watts while within normal operating parameters (i.e., 50-74% full load/traffic)
- This entry is the Nominal (normal operating range) measured / calculated heat dissipation from a typical AT&T loaded, in operation part or system.
- 7) **E: Maximum** possible is the maximum heat dissipation **TOTAL** (# Units X Unit Heat) in Watts at full operating parameters (i.e., 100% traffic)
- This entry is **NOT** the worst case draw of the power supplies. Rather it is the full measured / calculated heat dissipation from a fully loaded, in operation part or system.
- 8) **F: Nominal** is the heat dissipation **TOTAL** (# Units X Unit Heat) in Watts while within normal operating parameters (i.e., 50-74% full load/traffic)
- This entry is the Nominal (normal operating range) measured / calculated heat from a typical AT&T loaded, in operation part or system.

FRM-001 Form

**DECLARATION OF FIRE RESISTANCE OF MATERIALS**

Manufacturer: \_\_\_\_\_ Equipment Name: \_\_\_\_\_ Date: \_\_\_\_\_

This statement of compliance applies to the following product(s) which are being considered for purchase:

The below individual having reasonable control over the fire resistance characteristics of materials and components used in the construction and manufacture of the above product(s) assures that:

1. \_\_\_ All materials and components, except those listed below, meet the fire resistance requirements contained in the current issue of ATIS-0600307 *Fire Resistance Criteria - Ignitability Requirements for Equipment Assemblies, Ancillary Non-Metallic Apparatus and Fire Spread Requirements for Wire and Cable*.
2. \_\_\_ Products having an exposed surface area < 1 ft.<sup>2</sup> (0.09 m<sup>2</sup>) shall be formed from materials classified V-0 or less flammable at its minimum rated thickness as determined by ANSI/UL 94 (ATIS-0600307 section 4.4 a).
3. \_\_\_ Products having an exposed surface area >1 ft.<sup>2</sup> (0.09 m<sup>2</sup>) to 10 ft.<sup>2</sup> (0.93 m<sup>2</sup>) shall be formed from materials classified 5VA or less flammable at its minimum rated thickness as determined by ANSI/UL 94 (ATIS-0600307 section 4.4 b).
4. \_\_\_ Products having an exposed surface area >10 ft.<sup>2</sup> (0.93 m<sup>2</sup>) shall be formed from materials classified 5VA or less flammable at its minimum rated thickness, as determined by ANSI/UL 94, and shall have a flame spread rating of <200 as determined by ANSI/UL 723 or ANSI/UL 94. (ATIS-0600307 section 4.4 c).
5. \_\_\_ Items 2, 3 and 4 are not applicable to the product(s).  
The below non-metallic components (other than LEDs, small cable ties and terminal lug insulators) do not or may not comply with Items 1 through 4 above. The combined weight of the listed components is \_\_\_\_\_ grams.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed name

\_\_\_\_\_  
Title

**MoW LOA**

**AT&T Technology Operations LETTER OF ATTESTATION  
for Equipment Deployed Outside the United States**

Completed document must be submitted for any product intended for deployment in the AT&T network outside of the United States of America.

Equipment vendor name:

Equipment model:

General technology description including drawings, pictures, etc.:

Detailed description of functionality:

**On the next page mark “Yes” or “No” to indicate compliance to homologation\* for each country, then list applicable markings received for each country.**

Equipment complies with ATT-TP-76208 Section 2 requirement R2-5, maximum acoustic noise safety level of 73 dBA sound pressure, as measured according to ANSI ASA S12.10-2010, or a comparable standard.

YES

NO

(Company name) authorizes this Letter of Attestation to be executed by its representative as of the date written below.

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**NOTE: This affidavit must be signed in front of a notary and notarized.**

Contact information to request test reports:

Name: \_\_\_\_\_

Phone number: \_\_\_\_\_

Disclosure of modifications made to this equipment which are necessary to meet requirements:

## MoW LOA (continued)

**AT&T Technology Operations LETTER OF ATTESTATION  
for Homologation\* of Equipment Deployed Outside the United States**

\*Homologation: Indicates compliance to all of a country's applicable codes and requirements, including but not limited to electrical safety, fire, electromagnetic emissions, hazardous substances, etc. for electronic equipment.

(Company name) hereby asserts that the equipment listed below has met the homologation requirements for all countries marked "Yes".

Equipment model:

Country	Homologation Compliance YES/NO	List Applicable Code/ Requirements Markings Received	Country	Homologation Compliance YES/NO	List Applicable Code/ Requirements Markings Received
ARGENTINA			MALAYSIA		
AUSTRALIA			MEXICO		
AUSTRIA			MOROCCO		
BELGIUM		CE, RoHS, WEEE	NETHERLANDS		
BRAZIL			NORWAY		
BULGARIA			PAKISTAN		
CANADA			PANAMA		
CHILE			PERU		
CHINA			PHILIPPINES		
COLOMBIA			POLAND		
CROATIA			PORTUGAL		
CYPRUS			QATAR		
CZECH REPUBLIC			ROMANIA		
DENMARK			RUSSIA		
ECUADOR			SAUDI ARABIA		
FINLAND			SINGAPORE		
FRANCE			SLOVAKIA		
GERMANY			SOUTH AFRICA		
GREECE			SOUTH KOREA		
HONG KONG			SPAIN		
HUNGARY			SWEDEN		
INDIA			SWITZERLAND		
INDONESIA			TAIWAN		
IRELAND			THAILAND		



## APPENDIX A

### ATT-TP-76208 Equipment Evaluation Process

#### Purpose

The purpose of this appendix is to assist product suppliers with preparing and furnishing equipment documentation to the company representative for product evaluation purposes.

#### Product Evaluation Documentation

Documentation verifying that the equipment has been tested and conforms to applicable ATT-TP-76200 requirements must be submitted to the company representative. There are two acceptable processes for supplying documentation verifying conformance.

#### Documentation Package

Product information shall be assimilated in an organized fashion and provided to the company representative. If available, informative product awareness brochures should also be provided.

Relative to product test reports, AT&T Technology Operations accepts test reports from any testing facility adequately equipped and capable of performing the required tests in a professional manner under the requirements. At a minimum, test reports shall contain the following information:

- Test report number
- Description of Equipment Under Test (EUT), including specific test configuration
- Location and date of test
- Description of test equipment
- Calibration dates of test equipment
- Protocol of test with stated pass/fail criteria
- Test result data
- Assessment of whether equipment passed or failed the test
- Detailed notes on any anomalies during test procedure
- Detailed notes on any modifications made to the equipment in order to pass the test and detailed plans to incorporate the modifications into the final product.

**Note:** If the documentation is being submitted electronically, the file name shall clearly identify the file's contents (e.g. GR-63 test data) and reference the ATT-TP-76200/ATT-TP-76450 Evaluation Log #.

#### Documentation package requires

Detailed test results supporting compliance to the requirements detailed in this document including the following items.

- ✓ GR-1089 test results
- ✓ GR-63 rest results
- ✓ GR-3108 test results (for OSP deployments)
- ✓ ESP form
- ✓ FRM-001 form
- ✓ ATT-TP76450 checklist
- ✓ Equipment Datasheet

**NOTE: Equipment will not be evaluated for use without receipt of correct ATT-TP-76208 Documentation or Fast Track Package.**

### **AT&T Technology Operations Documentation Package Evaluation Process**

The AT&T Technology Operations Common Systems Equipment Evaluation group will review the equipment Documentation Package. If the equipment cannot be evaluated as compliant to all applicable requirements, an Initial Letter will be sent to the company representative specifying the areas that are not evaluated in conformance and what further action is required of the equipment supplier.

Upon receipt of the Initial Letter, the equipment supplier may forward supplemental data to or contact the company representative, the AT&T Technology Operations Equipment Evaluation Group Coordinator or a specific SME regarding non-compliance resolution. Contact information for the Group Coordinator and SMEs is contained in the Initial Letter. Electronic Documentation forwarded to AT&T Technology Operations containing supplemental data in response to an Initial Letter should identify the contents of documentation and reference the Evaluation **Log number** assigned to the product, the SME who requested the data and the non-compliance requirement the data is addressing.

The SME(s) who requested the documentation will evaluate supplemental data forwarded to AT&T Technology Operations by the product supplier. If the supplemental data is sufficient to allow all open areas to be evaluated as in conformance to applicable requirements, a Notification of Conformance to ATT-TP76208 Report will be sent to the company representative notifying them that the equipment conforms to requirements. If there are still open items after supplemental data has been reviewed an Evaluation Status letter will be sent to the company representative giving the status of the product and what further action the product supplier needs to take.

### **AT&T Technology Operations Product Evaluation Fast Track Process**

See ATT-TP-76200 section 16.7 for Fast Track process and templates.