LibertyGT 1211B
“Benchtop ATS”

The RADX® LibertyGT® 1211B (LGT1211B) is a modular, COTS, multifunction, programmable, benchtop Automated Test System (ATS) that supports an incredibly broad range of realtime RF and Microwave Stimulus, Test and Measurement (T&M) applications. Featuring a unique, modular Software Defined Synthetic Instrument (SDSI®) architecture, intuitive touchscreen interface and industry leading programmability, one LGT1211B can replace over a dozen “Boxed” T&M Instruments and other test system components to significantly reduce Size, Weight and Power (SWaP) and Total Cost of Ownership (TCO), while dramatically improving Measurement Throughput.

Developed in collaboration with National Instruments® and selected by Frost & Sullivan for a 2014 Global New Product Innovation Leadership of the Year Award, the LGT1211B supports applications from 100 kHz to 6 GHz with “in-the-box” upgrades that extend the measurement upper frequency range to 26.5 GHz.

The LGT1211B sets a new standard for cost-effective, high-throughput, multifunction, parametric test of commercial and military radios, avionics, wireless communications and other RF systems where the combination of user programmability, flexibility, performance, throughput, long life cycle support and low total cost of ownership is of paramount importance. The LGT1211B, when fully configured, provides the following capabilities:

- Ergonomic, Touch Screen Interface
- Built-In Test Executive Computer
- RF Vector Signal Generator
- Vector Signal Analyzer
- Bit Error Rate Tester
- RF Digitizer
- Spectrum Analyzer
- 2-Channel Digital Storage Oscilloscope
- RF Power Meter
- 2-Channel Audio Analyzer (SINAD, THD, AF Gen)
- Frequency Counter
- Frequency Error Meter
- Arbitrary Waveform Generator
- Digital Multi-meter (DMM)

- Integrated Radio Tester with RF Receiver, RF Signal Generator, Mod/Modem and Low Frequency Functions
- Application Programming Interface (API)
- Performance Verification Test (PVT)
- Test Procedure Set (TPS) Framework, Database and Scripting App
- UUT Control Application (Uses TPS Framework)
- Standard TCP/IP-Based Remote Interface App
- Optional IVI Compliant Remote Interface App
- Optional Radio Test Emulator (RTE) for TPS Dev
- Optional High Density UUT Interface (ZIF) with Programmable I/O, Serial I/O, Ethernet and USB I/F
- Optional Mil-Std-1553B UUT I/F

Replace MULTIPLE T&M “Box Instruments” with ONE LibertyGT Benchtop ATS to REDUCE SWaP & TCO and IMPROVE Throughput
LGT1211B ATS Key Features and Benefits

- **Modular, COTS ATS Solution**
  - RADX Patented and Patent-Pending Realtime Measurement Science Firmware and Software (MSFS)
  - Extensive Set of NI PXIe RF Stimulus and Measurement Modules
  - NI LabVIEW®, LabVIEW FPGA and TestStand™ Software Framework
  - Support for 100 kHz to 6 GHz Apps (Upgradeable to 26.5 GHz)
  - RADX Patent-Pending Modular PXIe Benchtop Enclosure with Front-to-Back Filtered Air Cooling, Advanced I/O, Touchscreen HD Display and Hinged Front Panel optimized for flexibility and module level field serviceability

- **RFIU for Consistent I/O**
  RADX RF Interface Unit (RFIU) provides repeatable, reproducible & traceable I/F for ATS Calibration and Alignment and easy & repeatable Interfacing to UUTs

- **Intuitive & User Friendly**
  State-of-the-Art Touchscreen UI with support for Primary & Auxiliary Displays

- **High-Performance and Realtime**
  Industry leading multi-function throughput via RADX Patented Realtime MSFS that provides optimal use of FPGA and Compute Resources

- **Extremely Cost Effective**
  - RADX SDSI-based ATS Architecture eliminates multiple, “box instruments” by leveraging high performance NI PXIe modules with RADX MSFS and TPS Framework re-use to reduce Life Cycle Costs (LCC) and Size, Weight & Power (SwAP)
  - SDSI Architecture eliminates EOL Lifetime Buys by synthesizing instruments on replacement modules
  - RADX MSFS Bundles For Comprehensive Measurement & Functionality at Value Prices
  - Modular PXIe architecture and RADX Patent-Pending Enclosure with hinged front panel enables field level replacement, reconfiguration, upgrades and tech insertion at the module level for optimal TCO

- **Open Architecture, Programmable & 3rd Party Friendly**
  - Standard Local Test Program Set (TPS) Framework with Open Source, Python-based Scripting API and UI Template enables cost effective End User and Integrator TPS development and optimal TPS re-use
  - Support for TPS development and programming via popular standards including LabVIEW, XML & TestStand
  - Optional IVI Compliant Driver Set for Traditional ATE Applications
  - Support for 3rd Party Measurement Science using popular programming tools: LabVIEW, C, C++, C# and Java

**LGT1211B ATS: Realtime Measurement Science with APIs and Intuitive Touchscreen UI**

The LGT1211B features an extensive suite of tightly integrated RADX Realtime Measurement Science Firmware and Software (MSFS) modules that includes patented and patent-pending realtime Synthetic Instrumentation technology exclusively licensed to RADX by BAE Systems®.

RADX MSFS features a state-of-the-art, intuitive user interface that is optimized for the LGT1211B’s 1080p touchscreen interface and auxiliary displays. Every function, app and instrument within the LGT1211B includes a comprehensive Application Programming Interface (API). These APIs, coupled with RADX MSFS’ open source, Python-based Test Program Set (TPS) Framework enables end users and integrators to easily develop, share and re-use TPS that can automatically sequence hundreds of measurements and store the results for pass/fail and further diagnostics. The combination of the RADX MSFS and TPS Framework with advanced NI PXIe modules and NI LabVIEW® and TestStand™ Software enables the LGT1211B to deliver the most comprehensive and cost effective benchtop ATS capability available in the market today.

For more info visit [www.radxtech.com/lgt1211b](http://www.radxtech.com/lgt1211b), email RADX Sales at [info@radxtech.com](mailto:info@radxtech.com) or call +1 (619) 677-1849 x 1

The LGT1211B is configured to provide comprehensive, multifunction support for a wide range of wireless communications, RF and microwave stimulus, test and measurement functions from 100 kHz to 6 GHz—right out of the box. The LGT1211B may be ordered directly from RADX and customer specific configurations are available for volume orders. The LGT1211B is available with the following capabilities— all of which are subject to change and tech refreshment and which are integrated and tested by RADX and Core Systems USA prior to shipment:

• RADX Compact Aluminum PXIe Enclosure with Hinged Front Panel and HD Touchscreen LCD Display
  - RADX Patent Pending Design
  - NI PXIe-1086 18-Slot PXI/PXIe Backplane and Card Cage
  - Modular, Autosensing, Int'l Power Supply: 100-240VAC, 50-60Hz, 6-12A with 15A CB
  - Front-to-Back Filtered Air Cooling
  - Rack Mount Kit
  - Hinged Front Panel for Serviceability
  - 1080p HD Touchscreen LCD Display
  - Auxiliary Display Support via DP
  - Dimensions: 8.75” (222.3 mm) H x 19” (482.6 mm) W x 20.5” (520.7 mm) D
  - Operating Weight: 55 Pounds (25 kg)
  - LGTE-RF1 OEM PXIe Enclosure also sold separately

• RADX Internal Connector Panel (ICP) for Routing of RF Signals to/from Front to Rear of Enclosure

• Comprehensive RFIU with Front (FP) and Rear Panel (RP) I/O for Repeatable UUT I/F, Cal & Alignment
  - 2-CH Audio Frequency I/O (FP)
  - Full Duplex Transmit, Receive or Dedicated RF I/O (FP)
  - 2-CH DSO Input with Ext Triggering (FP)
  - DMM Input (FP)
  - Modulation Inputs: Analog & Dig I/Q (RP)
  - Demod Output: Analog (RP)
  - Internal 10 MHz Ref or 10 MHz Ref Input with PLL Ref Output (RP)
  - SINAD/BER I/O (RP)
  - BER Digital Data I/O (RP)
  - Flux Capacitor I/O with Optional Time Dilation Support (RP)

• Standard NI PXIe Modules
  - NI PXIe-8135 Embedded Controller with 8 GB DDR3 and 250+ GB Removable SSD
  - NI PXIe-5644R Vector Signal Transceiver (VST) for 100 MHz – 6 GHz VSA, VSG, Receiver and Transmitter Functions
  - NI PXIe-7975R FlexRIO with NI 5782 250 MSPS Transceiver with Reconfigurable FPGA Capability for Realtime Apps and Sub-100 MHz VSA & VSG
  - NI PXIe-5160 2-Ch, 10-bit, 2.5 GSPS DSO / Digitizer with 2 GB On-board Memory
  - NI PXI-7851R Multifunction Digital Acquisition Module with Reconfigurable FPGA Capability for Audio Frequency Analyzer & High Density UUT I/F Support
  - NI PXI-4065 Digital Multi-Meter (DMM)

• RADX LibertyGT Base Measurement Science Firmware and Software (Base MSFS) Bundle
  - LGT1211B Basic Operating Environment for MS Win7 64-bit OS with LabVIEW and LabVIEW FPGA and RADX LGT UI
  - Base MSFS
  - Realtime Spectrum Analyzer Module
  - Realtime RF Signal Generator Module (Modulation Modules Sold Separately)
  - 2-Channel DSO Module
  - Local Test Program Set (TPS) Framework with Python Scripting API and UI Template (per Module)
  - Touchscreen UI & RFIU I/F (per Module)
  - Commercial Performance Verification Test (PVT) (per Module)
  - Standard TCP/IP Remote Interface
  - USB Software Media, Binary Software License, License Key and User Docs
  - 1 Year Maintenance and Bug Fixes

• RADX LibertyGT Analog Radio Test Toolbox MSFS Bundle
  - Realtime RF Receiver Module (Demod Modules Sold Separately)
  - RF Power Meter
  - RF Counter & Freq. Error Module
  - Realtime Internal Waveform Modulation Module (AM, FM, PM Pulse Included; Other Internal Digital Mods Sold Separately)
  - Realtime External Waveform Modulation Module
  - Realtime Internal Demod Module (AM, FM, PM Pulse Included; Other Demodulations Sold Separately)
  - Realtime External Analog Demod Port
  - Bit Error Rate Tester Module (BER Tester, BER Pattern Generator, BER Pattern Receiver)
  - Realtime 2-Channel Audio Analyzer Module (Audio Frequency [AF] Signal Generator, AF Digitizer, AF Counter, AF Level Meter, SINAD and Distortion Meter)
  - Local TPS Framework with Python Scripting API and UI Template (per Module)
  - Touchscreen UI & RFIU I/F (per Module)
  - Commercial PVT per App or Instrument
  - Standard TCP/IP Remote Interface
  - USB Software Media, Binary Software License Addendum, License Key and User Documentation
  - 1 Year Maintenance and Bug Fixes

• Key LGT1211B Options
  - IVI Remote I/F App
  - Power Meter (for Alignment)
  - Radio Test Emulator System (Software Included with Analog Radio Test Toolbox)
  - NI PXIe-5442 Arbitrary Waveform Generator
  - High Density UUT I/F with 168-Pin ZIF Connector (FP), Cable Assembly and Switching
  - MIL-STD-1553B UUT Control I/F & App
  - SIO UUT Control I/F & App Interface
  - GPIB UUT Control I/F & App Interface
  - Precision +/- 2 PBPB 10 MHz Time Base Reference for Enhanced Phase Noise Performance
  - Upgrade to 26.5 GHz VSA
  - Transit Case
  - Extended Warranty
  - Customer Specific Models, MSFS & TPS available

• Designed to Comply with Key Safety, EMI/EMC and Environmental Standards (Certifications Pending)
  - FCC A, CE, UL, IEC 60068-2-1 & -2
  - MIL-PRF-28800F Class 3, Low Temp Limit and Class 2 High Temp Limit
  - Double Wall Shipping Container

• Flexible, Value-Added Business Model
  - System available as Turnkey, Integrated System with NI PXIe Modules Include
  - System also available in “Kit” Form excluding NI PXIe Modules for OEM, System Integrator or Customer Integration with RADX Integration Assistance

• Turnkey, Integrated Systems Assembled in the USA
  - Assembled by RADX and Core Systems USA—an ISO9001:2008 Certified Company
  - 1 Year Standard RTF Warranty

• LGT1211B Export Information
  - LibertyGT 1211B ECCN 9A992, license exception NLR
  - LibertyGT MSFS: ECCN 3D991, license exception NLR

For more info visit [www.radxttech.com/lgt1211b](http://www.radxttech.com/lgt1211b), email RADX Sales at [info@radxtech.com](mailto:info@radxtech.com) or call +1 (619) 677-1849 x 1
LGT1211B ATS: Patent-Pending, Touchscreen PXie Enclosure with RF Interface Unit (RFIU)

Housed in a patent-pending PXie enclosure with 1080p HD touchscreen designed by RADX and Core Systems™, the LGT1211B features front-to-back cooling with filtered air, a modular power supply and a unique Internal Connector Panel (ICP) that enables convenient routing of analog and digital signals from the front to the rear of the enclosure for rack-mount, ATE applications. The LGT1211B enclosure also includes a unique hinged front panel that’s optimized for field-level service, upgrades and tech insertion at the module level.

The RADX LGT1211B RF Interface Unit (RFIU) enables consistent, repeatable, reproducible SDSI calibration and alignment and “Unit Under Test” (UUT) interfacing. The RFIU provides MSFS software controlled switching and filtering between the LGT1211B’s PXie modules, rear and front bulkhead connectors and UUTs—either via discrete RF connections or via the High Density UUT ZIF Connector Option (with ZIF connector, cable assembly and switching). Each RADX MSFS module includes support for the RFIU and an associated GUI screen, so that when a given measurement is selected, its personality is reflected in both the GUI and the RFIU control.

LGTE-RF1 PXie Touchscreen Enclosure for OEMs, SIs and End Users

RADX has developed a version of the LibertyGT 1211B PXie touchscreen enclosure for instrumentation OEMs, System Integrators (SIs) and End Users. The LGTE-RF1 includes important patent-pending features from the LGT1211B enclosure that enables DIY integration of high-performance, touchscreen, PXie-based RF instrumentation applications:

- Filtered Front to Back Cooling
- Integrated HD 1080p Touchscreen with Display Port and USB I/F
- Standard Rear and Front Panel I/O for NI PXie-8135 (and other) ECs
- Modular, International Power Supply
- 1 Year RTF Warranty (warranted to be compatible with NI PXie-1085)
- Hinged Front Panel for Easy Access to PXie Modules for Reconfiguration, Repair and Replacement
- Internal Cable Plenum for Routing RF Signals to/from Rear I/O Panel
- User Definable Front and Rear I/O Panels and Rack Mount Kit

Contact RADX for more details on the LGTE-RF1

About RADX Technologies, Inc.

RADX Technologies, Inc., is a DSP-focused tech start-up that provides cost-effective, high-performance, COTS products, technologies, software, solutions and services to end-users, OEMs and system integrators at multiple levels of integration. As both a National Instruments Silver Alliance Partner with RF and Wireless Specialty Alliance Partner designation and a Xilinx Alliance Partner, RADX has a solid team of experts with decades of experience developing advanced FPGA, multi-core, and GPU-based DSP COTS solutions for consumer, commercial, aerospace, and defense applications in Software Defined Synthetic Instrumentation (SDSI), Software Defined Radio (SDR), Cognitive Radio (CR) and other high-performance communications-related applications.

For more info, please visit www.radxtech.com, contact RADX Sales at info@radxtech.com or call +1 (619) 677-1849 x 1

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