



mA-6A30
VST with 30 GHz Downconverter
Operation Manual



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Operation Manual

Rev. B0



VIAVI Solutions
1-844-GO-VIAVI
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About this Manual

This prefix explains how to use this manual. Topics discussed include the following:

- Purpose and Scope ii
- Intended Audience ii
- Product Nomenclature ii
- Related Information ii
- Contact Information iii
- Safety and Compliance Information iv
- Safety Hazards v
- Equipment Usage vii
- Electrostatic Discharge (ESD) vii
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- Electromagnetic Interference (EMI) ix

Purpose and Scope

This document contains safety information and information for installing and operating the mA-6A30 AXIe 6 GHz Vector Signal Transceiver with 30 GHz Downconverter. Refer to the mA-1302/mA-1305 AXIe Chassis Operation Manual for Chassis installation and operating instructions.

Intended Audience

This manual is intended for personnel who are familiar with AXIe systems and associated equipment and terminology.

Product Nomenclature

The terms mA-6A30, module and device are used to refer to the mA-6A30 AXIe 6 GHz Vector Signal Transceiver with 30 GHz Downconverter.

The term VST Web UI is used to refer to the mA-6A30 AXIe 6 GHz Vector Signal Transceiver with 30 GHz Downconverter Web Browser User Interface

The term VST UI Client is used to refer to the mA-6A30 AXIe 6 GHz Vector Signal Transceiver with 30 GHz Downconverter User Interface Client.

Related Information

This document and other Configurable Modular Platform (CMP) publications can be found on the VIAVI website at <https://www.viavisolutions.com/en-us/products/modular-axie>.

The following publication is referenced in this document:

- mA-1302/mA-1305 AXIe Chassis Operation Manual, #141171

Contact Information

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Safety and Compliance Information

Conventions

The following symbols and markings are used throughout documentation and on the Chassis.

Table 1 Safety Conventions






	This symbol indicates a note that includes important supplemental information or tips related to the main text.
	This symbol represents a general hazard. It may be associated with either a DANGER, WARNING, CAUTION or ALERT message. Refer to accompanying information and/or documentation.
	This symbol indicates a toxic hazard. Item should only be handled by Qualified Service Personnel. Dispose of item in accordance with local regulations.
	This symbol indicates an item is sensitive to Electrostatic Discharge (ESD). An item identified as ESD sensitive should only be handled by Qualified Service Personnel.
	This symbol indicates the item meets the requirements of the applicable European Directives.

Table 2 Safety Definitions

Term	Definition
CAUTION	Identifies conditions or activities that, if ignored, can result in equipment or property damage, e.g., Fire.
Mise en Garde	Identifiez les conditions ou les activités qui, si ignorées, peuvent entraîner des dommages à l'équipement ou aux biens, p. ex. un incendie.
WARNING	Identifies conditions or activities that, if ignored, can result in personal injury or death.
Avertissement	Identifiez les conditions ou les activités qui, si ignorées, peuvent entraîner des blessures personnelles voire mortelles.

Safety Hazards

Toxic Hazards

**WARNING**

Some of the components used in this device may include resins and other materials which give off toxic fumes if incinerated. Dispose of such items appropriately.

Avertissement

Certains des composants utilisés dans cet appareil peuvent comprendre des résines et d'autres matériaux qui produisent des émanations toxiques lorsqu'ils sont incinérés. Éliminez adéquatement de tels éléments.

Beryllia



Beryllia (beryllium oxide) is used in the construction of some of the components in this equipment.

This material, when in the form of fine dust or vapor and inhaled into the lungs, can cause a respiratory disease. In its solid form, as used here, it can be handled safely, however, avoid handling conditions which promote dust formation by surface abrasion.

Use care when removing and disposing of these components. Do not put them in the general industrial or domestic waste or dispatch them by post. They should be separately and securely packed and clearly identified to show the nature of the hazard and then disposed of in a safe manner by an authorized toxic waste contractor.

Beryllium Copper

**CAUTION**

Some mechanical components within this instrument are manufactured from beryllium copper. Beryllium copper represents no risk in normal use. The material should not be machined, welded or subjected to any process where heat is involved.

Beryllium copper must NOT be disposed of by incineration. Beryllium copper must be disposed of as "special waste" per local regulations.

Electrical Hazards

Grounding the Module

The Chassis is provided with a protective grounding lead that conforms with IEC Safety Class I. The supply lead must always be connected to the power supply via a grounded contact in order to maintain the grounding protection. The Chassis must be properly grounded to prevent damage to the device from electrostatic discharge (ESD).



WARNING

Improper grounding of equipment can result in electrical shock. To ensure proper grounding, this device should only be connected to a grounded AC Power Supply.

Avertissement

La mise à la terre inadéquate de l'équipement peut entraîner un choc électrique. Pour s'assurer d'une mise à la terre adéquate, cet appareil doit seulement être branché à une alimentation électrique CA mise à la terre.

Residual Current



WARNING

The supply filter contains capacitors that may remain charged after the device is disconnected from the power supply. The residual energy is within the approved safety requirements, however, a slight shock may be felt if the plug pins are touched immediately after removal.

Avertissement

Le filtre d'alimentation contient des condensateurs qui peuvent rester chargés une fois l'appareil débranché de l'alimentation électrique. L'énergie résiduelle est dans les limites des exigences de sécurité approuvées. Par contre, un léger choc électrique peut être ressenti si l'on touche les broches de la prise immédiatement après son débranchement.

Input Overload

Refer to product labeling and safety documentation for maximum input ratings.



CAUTION

Do not overload input connectors. Refer to product Safety and Compliance Specifications or the product data sheet for maximum input ratings.

Mise en Garde

Identifiez les conditions ou les activités qui, si ignorées, peuvent entraîner des dommages à l'équipement ou aux biens, p. ex. un incendie.

Equipment Usage

This device is designed and tested to comply with the requirements of 'IEC/EN 61010-1, 3rd Edition Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use' for Class I portable equipment and is for use in a pollution degree 2 environment..



WARNING

Operating this device in a manner not specified in accompanying documentation may impair the safety protection built into the device.

Avertissement

Utiliser cet appareil de manière non spécifiée dans la documentation d'accompagnement peut nuire au dispositif de protection de sécurité intégré dans l'appareil.

Electrostatic Discharge (ESD)



CAUTION

Modules are ESD sensitive and should only be installed, removed and/or serviced by Qualified Service Personnel.

Mise en Garde

Les modules sont sensibles aux DES et ils doivent seulement être installés, enlevés ou entretenus par du personnel de service qualifié.

Case/Cover Removal



CAUTION

This device does not contain user serviceable parts. Servicing should only be performed by Qualified Service Personnel.

Mise en Garde

Cet appareil ne contient pas de pièces pouvant être entretenues par l'utilisateur. L'entretien doit seulement être effectué par du personnel de service qualifié.

Ventilation Requirements

The Chassis is cooled by the unit's internal fans which pull air across the modules from right to left. Failure to provide proper ventilation may result in damage to the Chassis and any modules installed in the Chassis. Observe the following precautions when operating the Chassis:



CAUTION

Do not operate the Chassis with empty slots. Install Filler modules in empty slots to ensure proper airflow through the Chassis.

Do not obstruct air flow to the air vents.

Do not place the Chassis on or close to other heat-generating equipment.

Mise en Gardee

N'utilisez pas le châssis avec des fentes vides. Installez des modules de remplissage dans les fentes vides afin d'assurer un écoulement d'air adéquat dans le châssis.

N'obstruez pas l'écoulement d'air vers les événements.

Ne placez pas le châssis sur ou près de tout autre équipement générant de la chaleur.

Electromagnetic Interference (EMI)

This product complies with Part 15 of the FCC Rules for a Class A device. Operation is subject to the following two conditions: (1) this product may not cause harmful interferences, and (2) this product must accept any interferences received, including interference that may cause undesired operation.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this product does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Use properly shielded and grounded cables and connectors in order to meet FCC emission limits.



CAUTION

Signal generators can be a source of Electromagnetic Interference (EMI) to communication receivers. Some transmitted signals can cause disruption and interference to communication services out to a distance of several miles. Users of this equipment should scrutinize any operation that results in radiation of a signal (directly or indirectly) and should take necessary precautions to avoid potential communication interference problems.

Mise en Garde

Les générateurs de signaux peuvent constituer une source d'interférences électromagnétiques (IME) pour les récepteurs radio. Certains signaux émis peuvent provoquer des interférences et des interruptions des communications sur une distance de plusieurs kilomètres. Les utilisateurs de cet équipement doivent examiner soigneusement tout fonctionnement provoquant le rayonnement d'un signal (direct ou indirect) et ils doivent prendre les dispositions nécessaires afin d'éviter des problèmes potentiels d'interférences sur les communications.

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Overview of the mA-6A30

This chapter provides a general description of the mA-6A30 VST with 30 GHz Downconverter. Topics discussed in this chapter include the following:

- About the mA-6A30 1-2
- Features and Capabilities 1-2
- Principles of Operation 1-3
 - Hardware Components 1-3
 - mA-6A30 Theory of Operation 1-4
 - Module Firmware 1-6

About the mA-6A30

The mA-6A30 combines the capabilities of a 6 GHz Vector Signal Generator (VSG) and a 30 GHz Vector Signal Analyzer (VSA) in a single-slot AXIe module. The mA-6A30 provides the RF performance, triggering, and data transfer capabilities needed to generate, capture, and stream over 160 MHz of signal bandwidth with precision timing. Extended frequency range and pre-select filtering allows the mA-6A30 to analyze high-frequency signals, harmonics, and out of-band spurious products.

Figure 1-1 mA-6A30 VST with 30 GHz Downconverter



The mA-6A30 Module supports capture and playback of I/Q data to the module's onboard 4 GB memory as well as real-time streaming of the full I/Q bandwidth via the PCIe interface. Remote applications are supported via the Gigabit Ethernet (GbE) interface located on the Chassis.

Features and Capabilities

The following are key features and capabilities of the mA-6A30:

- VSA frequency range 1 MHz - 30 GHz
- VSG frequency range 1 MHz - 6 GHz
- Maximum signal bandwidth 200 MHz
- 30 GHz CW signal generator
- Selectable low noise amplifier
- Output harmonic filters
- Input pre-select filtering
- Hardware digital downconverter
- Hardware resampling engine
- Hardware-based fast power and phase measurements

Refer to the product data sheet for a complete list and detailed description of product features, capabilities and performance specifications.

Principles of Operation

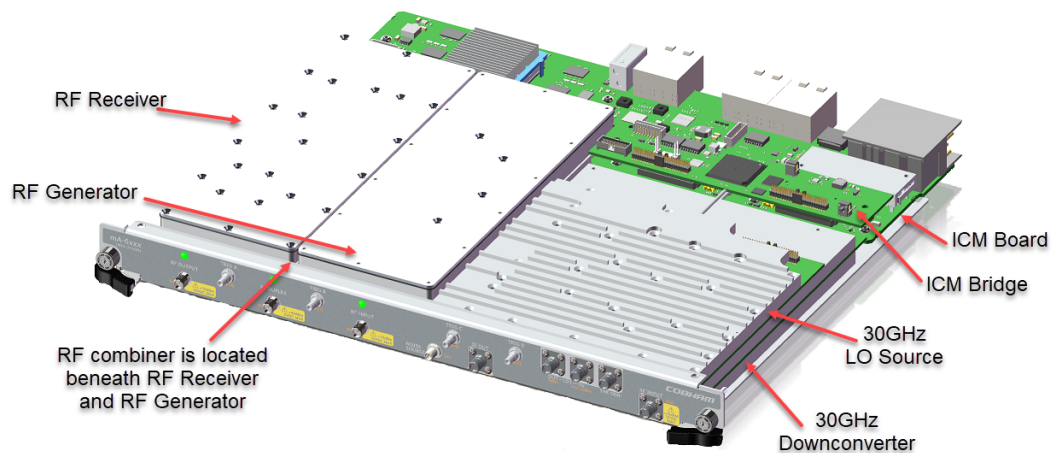
This section provides an overview of the signal routing and operation of the mA-6A30 module. Block diagrams are provided for each of the mA-6A30's main hardware components.

Hardware Components

The mA-6A30 is a full width, single height AXIe tray that contains the following hardware components (see [Figure 1-2 on page 1-3](#)):

- RF Module
 - RF Combiner Assembly
 - RF Receiver Assembly
 - RF Generator Assembly
- 30 GHz Downconverter Module
 - 30 GHz Downconverter Assembly (30 GHz DC)
 - 30 GHz Local Oscillator (LO) Assembly (30 GHz LO)
- Instrument Carrier Module (ICM)
- Instrument Carrier Module (ICM) Bridge

Figure 1-2 mA-6A30 Mechanical Layout



mA-6A30 Theory of Operation

See [Figure 1-3 on page 1-7](#) for a block diagram of the mA-6A30.

The RF Combiner Assembly, RF Receiver Assembly, and RF Generator Assembly are combined to create the RF portion of the mA-6A30. The 30 GHz Downconverter and Local Oscillator (30 GHz DC/LO) Module consists of the 30 GHz Downconverter Assembly and the 30 GHz LO Assembly.

Incoming signals are processed through the mA-6A30 according to frequency range of the incoming signal. Incoming signals < 6 GHz are routed directly to the RF Module for processing. Incoming signals between 6 and 30 GHz are routed to the 30 GHz DC/LO Module for processing. The 30 GHz Downconverter Assembly downconverts the incoming frequency, then routes the downconverted signal to the RF Module for further downconversion and sampling.

30 GHZ LO Assembly

See [Figure 1-6 on page 1-10](#) for a block diagram of the mA-6A30's 30 GHz LO Assembly.

The 30 GHz LO Assembly provides two distinct signals: an LO signal that is routed to the 30 GHz DC Assembly and a Continuous Wave RF Generator Signal. The LO signal that is routed to the DC Assembly is used to support the downconversion process. It is also routed directly out of the assembly to an RF connector so that it can be used for a second 30 GHz DC assembly.

The 30 GHz LO Assembly supports a 100 MHz Reference Input signal supplied by the ICM Bridge. This reference signal allows the 30 GHz LO to be frequency locked to the entire AXIe chassis.

30 GHz Downconverter Assembly

See [Figure 1-7 on page 1-11](#) for a block diagram of the mA-6A30's 30 GHz Downconverter Assembly.

The 30 GHz Downconverter (30 GHz DC) Assembly supports an incoming signal from 6 GHz to 30 GHz. Incoming signals are downconverted and conditioned to provide an appropriate Intermediate Frequency (IF) signal which is routed to the RF Receiver Assembly. In normal operation, input signals below 6 GHz will be routed through the Bypass Path which routes the signal directly to the RF Receiver Assembly without any downconversion.

The 30 GHz DC uses the LO signal provided by the 30 GHz LO Assembly for the downconversion process. For an RF input signal in the range of 6 to 8 GHz, the IF output frequency is 3.1 GHz. For an RF input signal in the range of 8 to 30 GHz, the IF output frequency is 5.625 GHz.

RF Receiver Assembly

See [Figure 1-9 on page 1-13](#) for a block diagram of the mA-6A30's RF Receiver Assembly.

The RF Receiver Assembly contains an embedded SoC device for device control and path switching. The RF Receiver Assembly interfaces to a dedicated Synthesizer Assembly which provides the necessary LO. The RF Receiver Assembly provides a zero-IF down conversion architecture with up to 200 MHz of instantaneous bandwidth.

RF Generator Assembly

See [Figure 1-10 on page 1-14](#) for a block diagram of the mA-6A30's RF Generator Assembly.

The RF Generator Assembly contains an embedded SoC device for device control, path setup, and RF output Automatic Leveling Control (ALC). The RF Generator Assembly interfaces to a dedicated Synthesizer Assembly which provides the necessary LO. The RF Generator Assembly provides a zero-IF up conversion with up to 200 MHz of instantaneous bandwidth.

RF Combiner Assembly

See [Figure 1-8 on page 1-12](#) for a block diagram of the mA-6A30's RF Combiner Assembly.

The RF Combiner Assembly serves as an interface between the RF Receiver and RF Generator Assemblies to route the RF Input and Output signals to and from the RF Generator and Receiver Assemblies to the RF Combiner's input/output connectors.

Instrument Carrier Module

See [Figure 1-4 on page 1-8](#) for a block diagram of the mA-6A30's ICM.

The Instrument Carrier Module (ICM) contains a System-on-Chip (SoC) device that provides local processing, storage and interfaces to the RF hardware while controlling and communicating with the RF hardware via a set of specialized Serial Peripheral Interface (SPI) buses. The ICM also provides interfaces to the Backplane GbE, PCIe, trigger, and timing buses as well as power supply conditioning from the chassis backplane.

Instrument Carrier Module Bridge

See [Figure 1-5 on page 1-9](#) for a block diagram of the mA-6A30's Instrument Carrier Module (ICM) Bridge Assembly.

The 30 GHz Downconverter and LO (30 GHz DC/LO) assemblies are controlled by software that resides on the ICM Bridge. The software runs on a System-on-Chip (SoC) Field Programmable Gate Array (FPGA) that hosts the control software. The ICM Bridge provides the physical interface to the 30 GHz DC/LO Assembly via a combination of Serial Peripheral Interface (SPI) buses and an I2C bus which are routed over two separate ribbon cables (one for each of the assemblies).

The ICM Bridge board also contains voltage regulators that are used to supply power to the 30 GHz DC/LO Assembly. In addition, the ICM Bridge board receives the 100 MHz Ref signal from the ICM, buffers it, and supplies it to the 30 GHz DC/LO assembly.

Module Firmware

The module contains several SoC devices which host their respective firmware capabilities. The ICM SoC acts as a bridge for user control via the software Application Programming Interface (API) to the lower-level industrial IO (IIO) command set used to communicate with the FPGA and RF hardware. The ICM SoC manages on board memory for IQ capture and playback as well as setting up RF configuration lists and providing necessary calibration data to the various elements used for RF level correction. The ICM SoC communicates with the RF modules via a message signaled SPI interface.

The RF modules contain embedded SoC devices that directly manage their respective hardware elements based upon commands received from the ICM SoC via the message signaled SPI interface. The RF module configurations are executed via list mode semantics, which are managed by the individual modules.

Figure 1-3 mA-6A30 Block Diagram

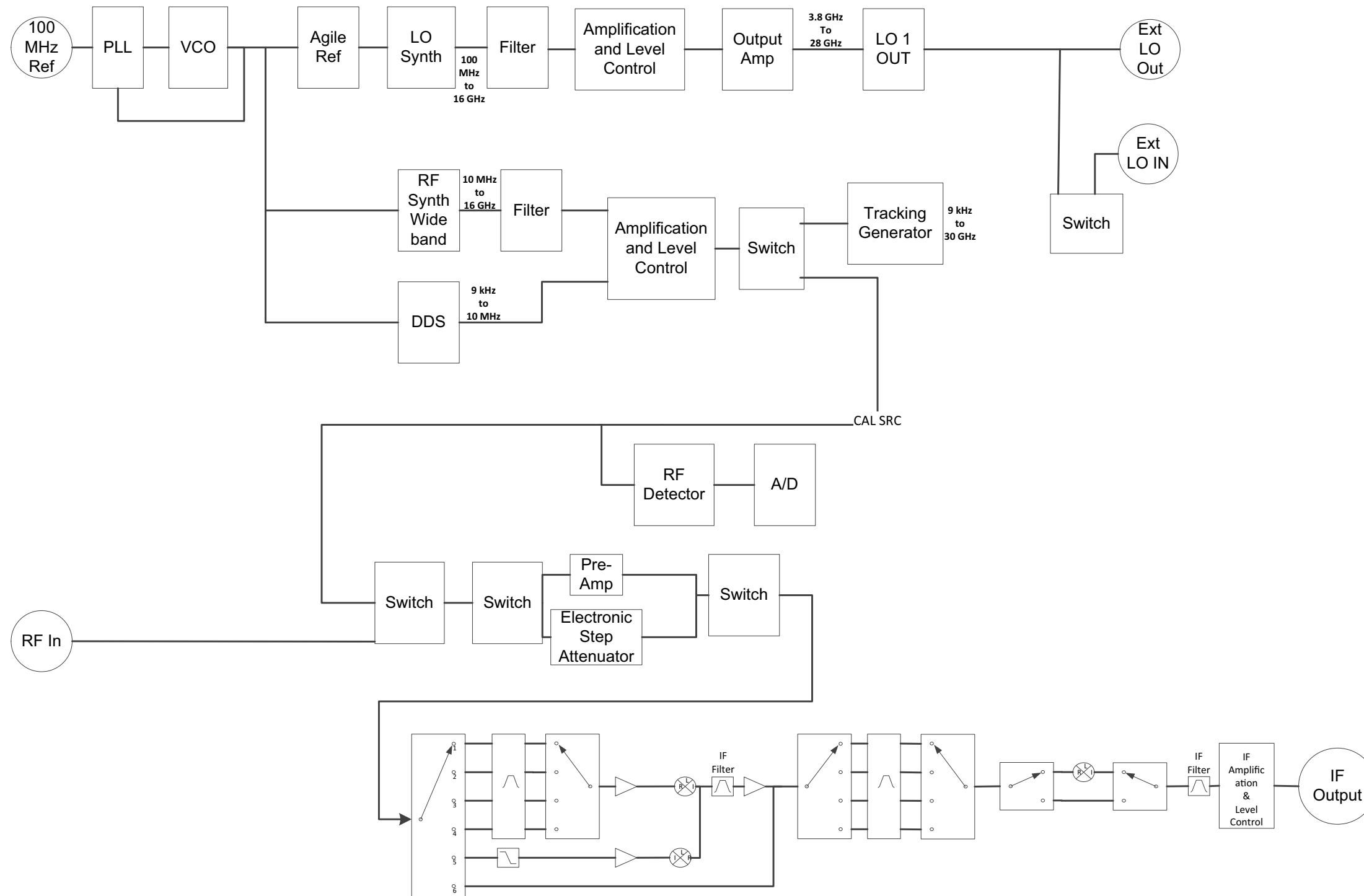


Figure 1-4 mA-6A30 ICM Block Diagram

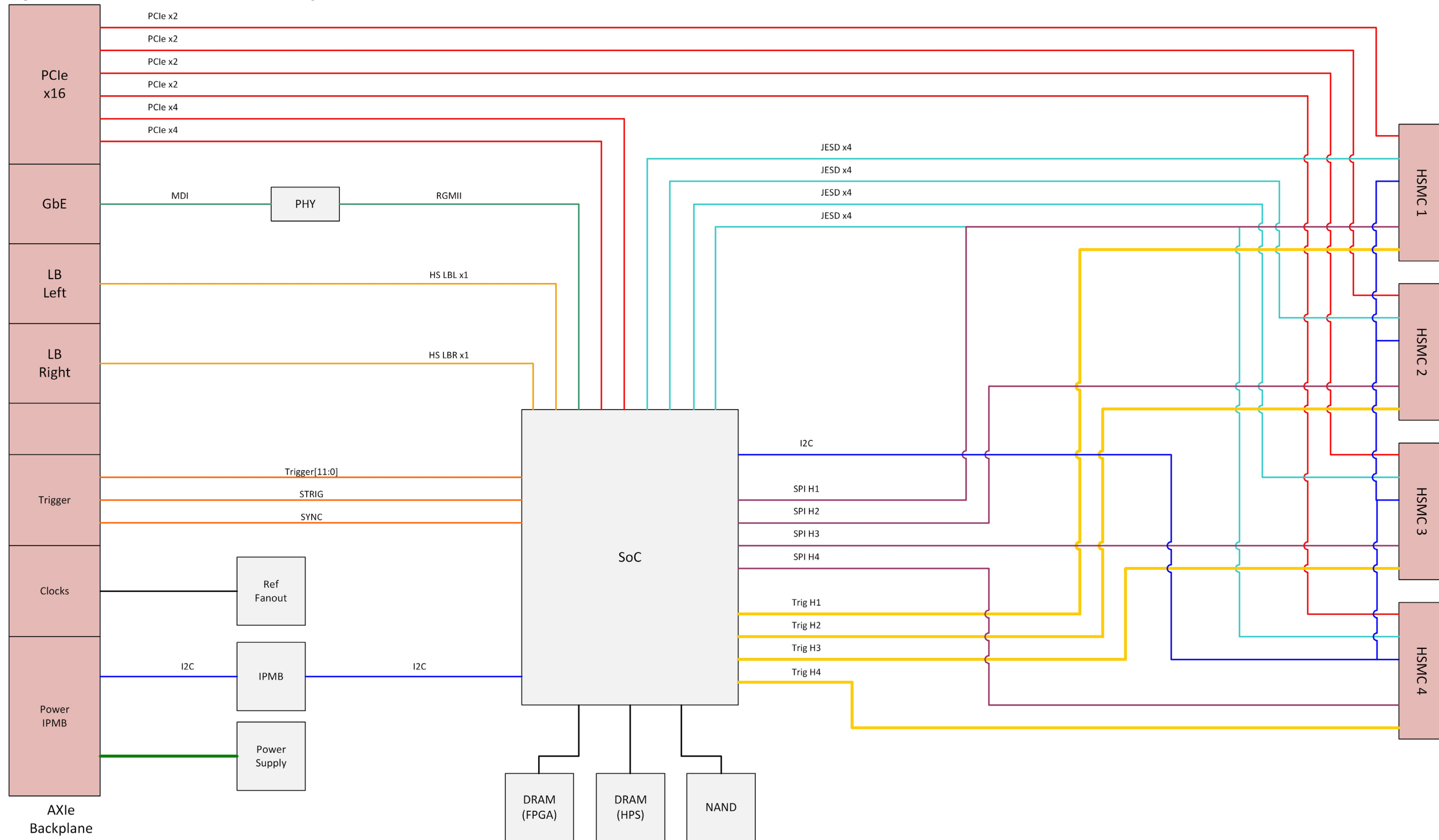


Figure 1-5 mA-6A30 ICM Bridge Block Diagram

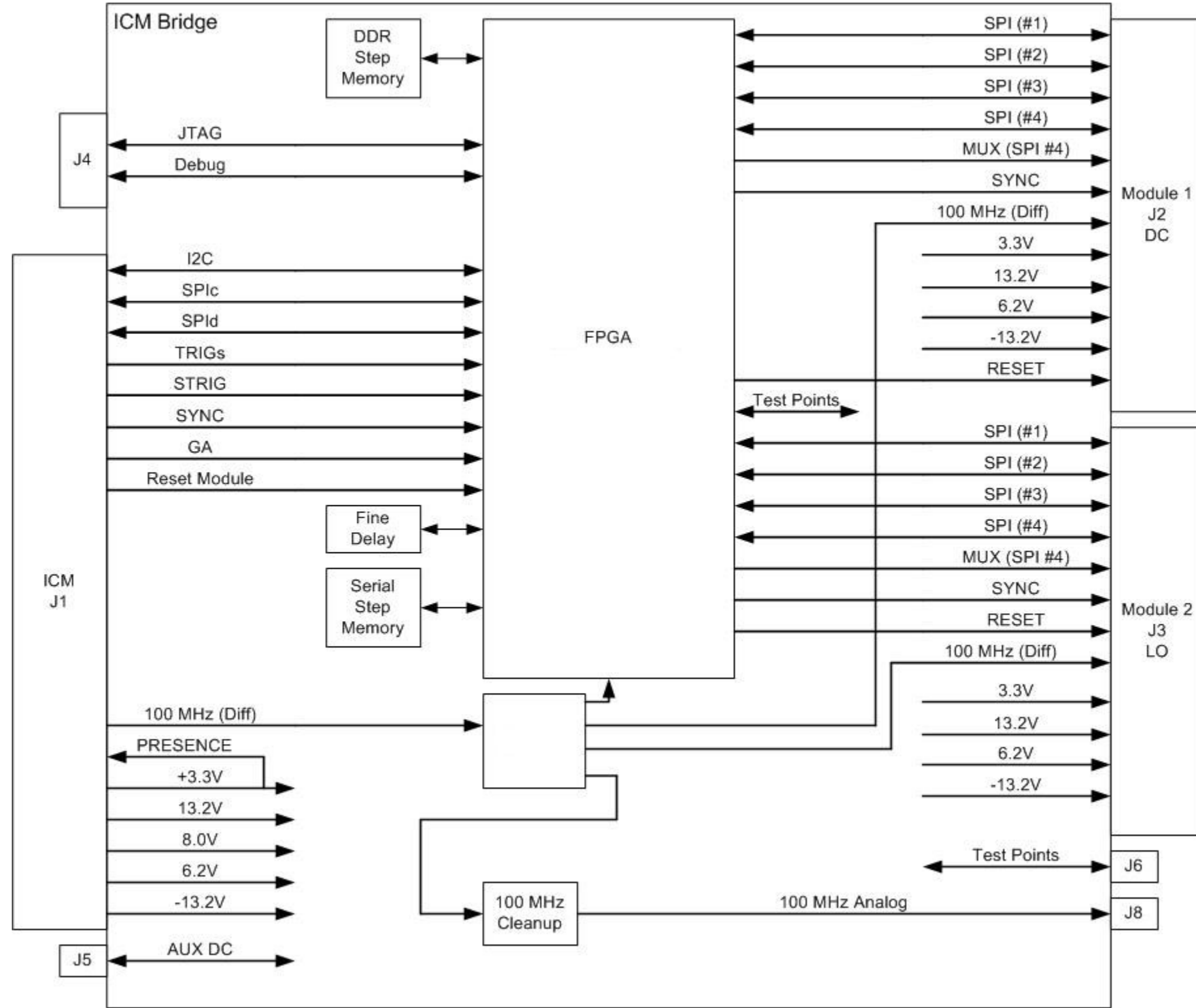


Figure 1-6 mA-6A30 30 GHz LO Block Diagram

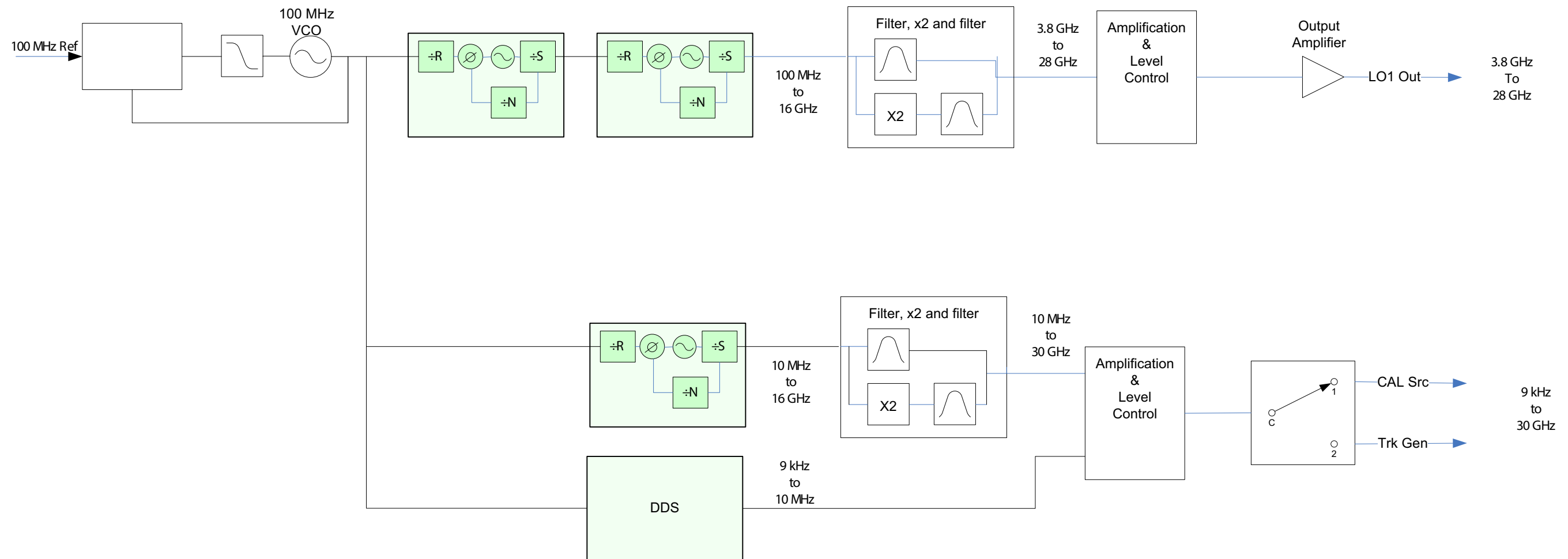


Figure 1-7 mA-6A30 30 GHz Downconverter Block Diagram

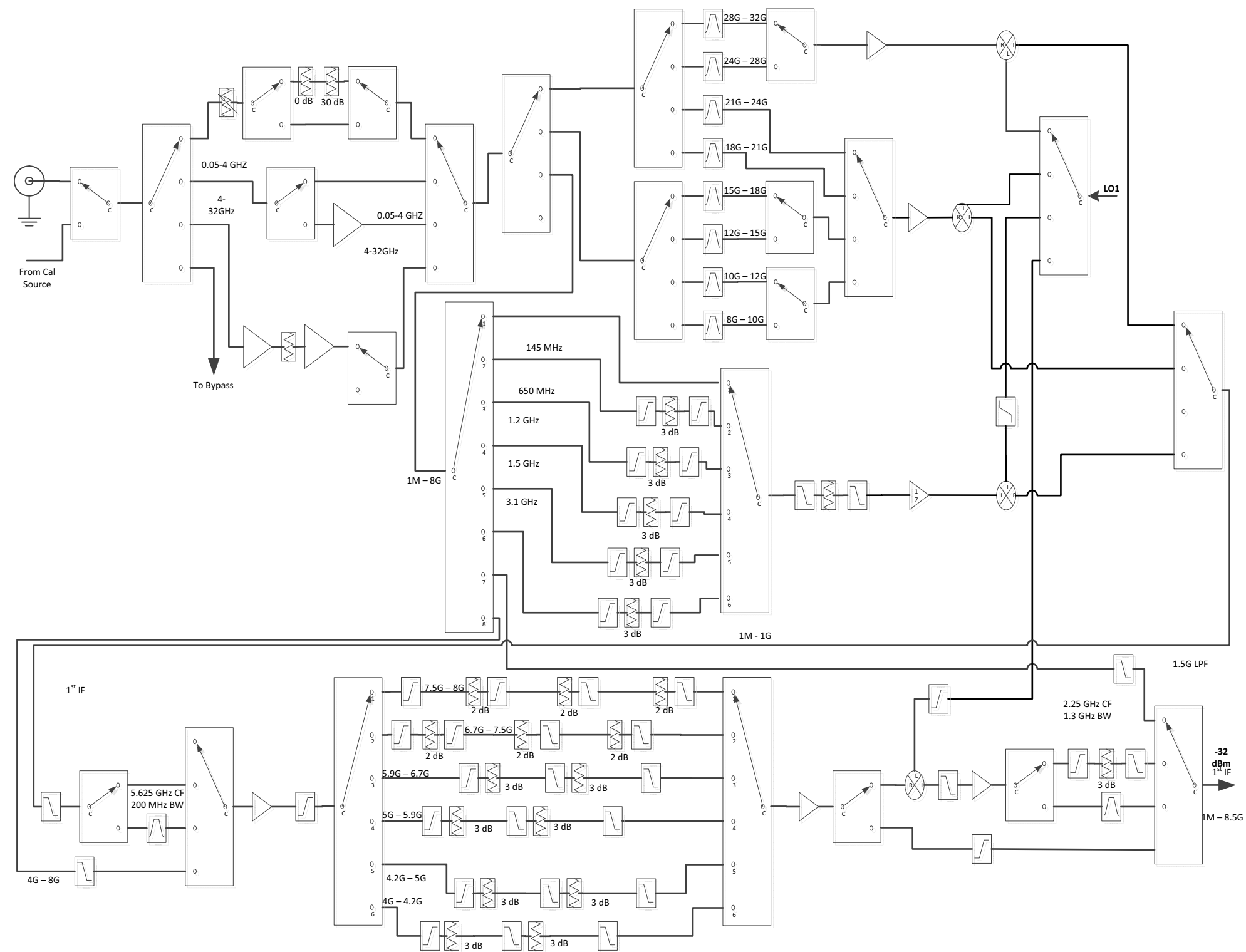


Figure 1-8 mA-6A30 RF Combiner Block Diagram

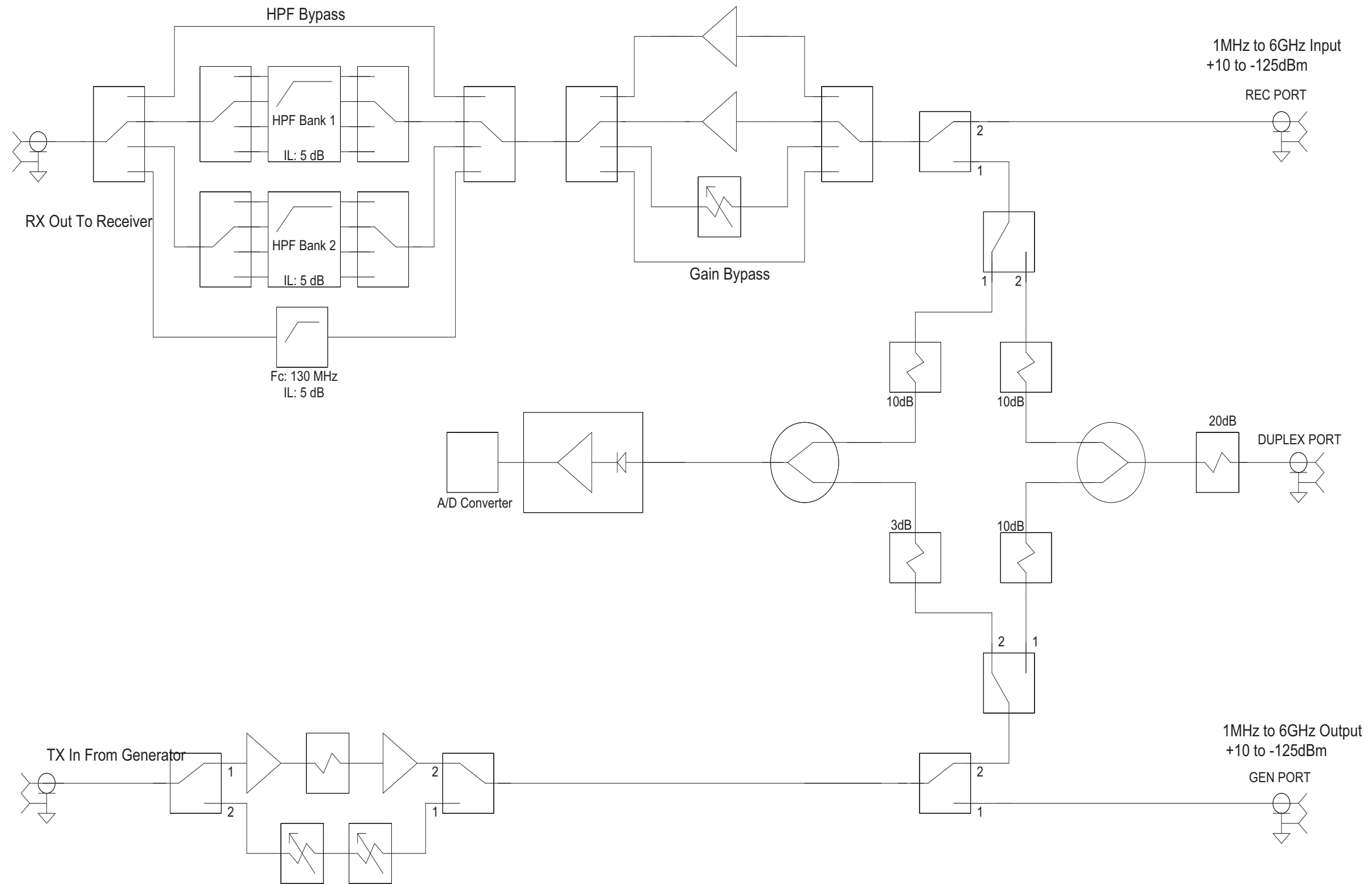


Figure 1-9 mA-6A30 RF Receiver Block Diagram

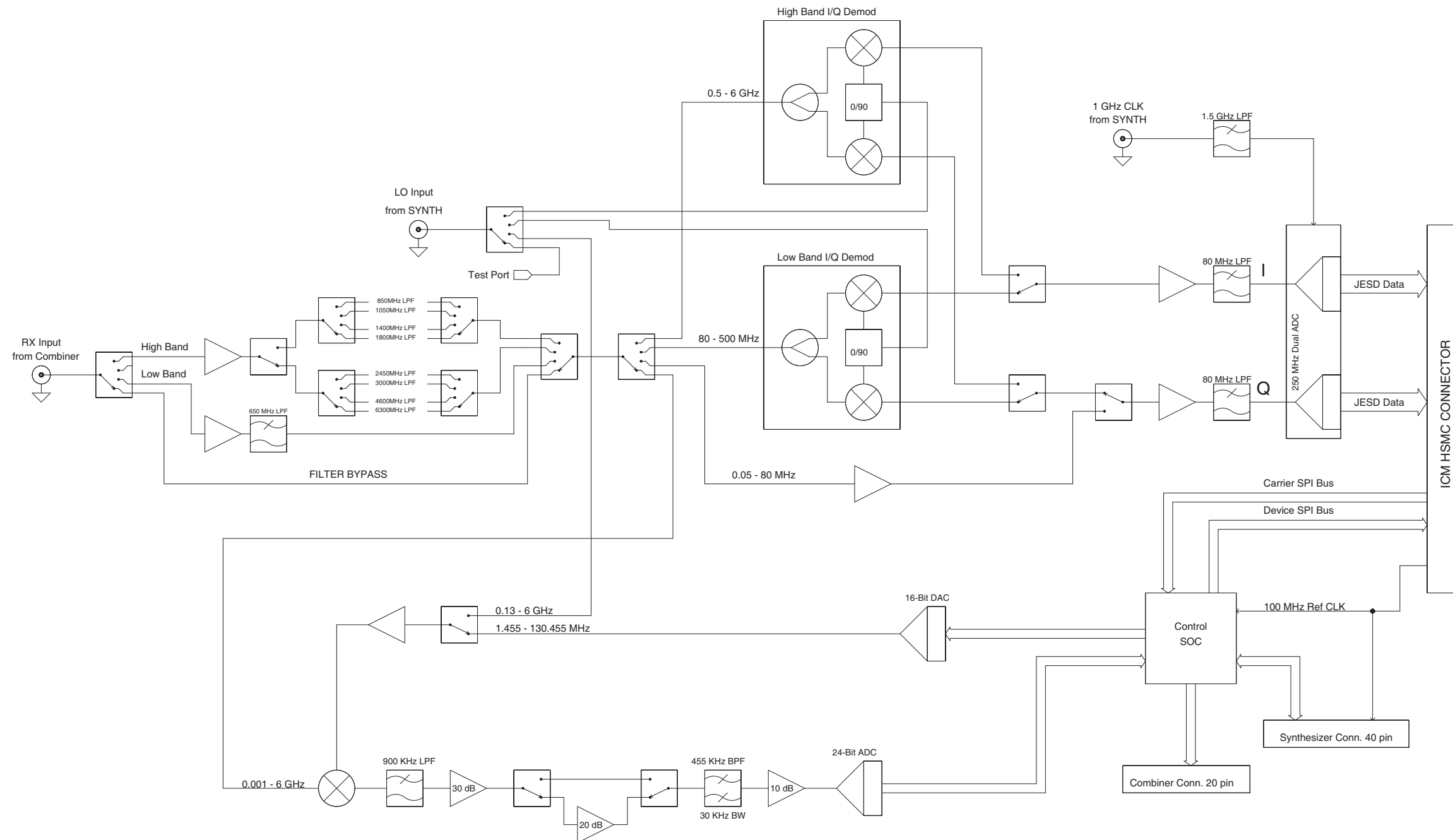
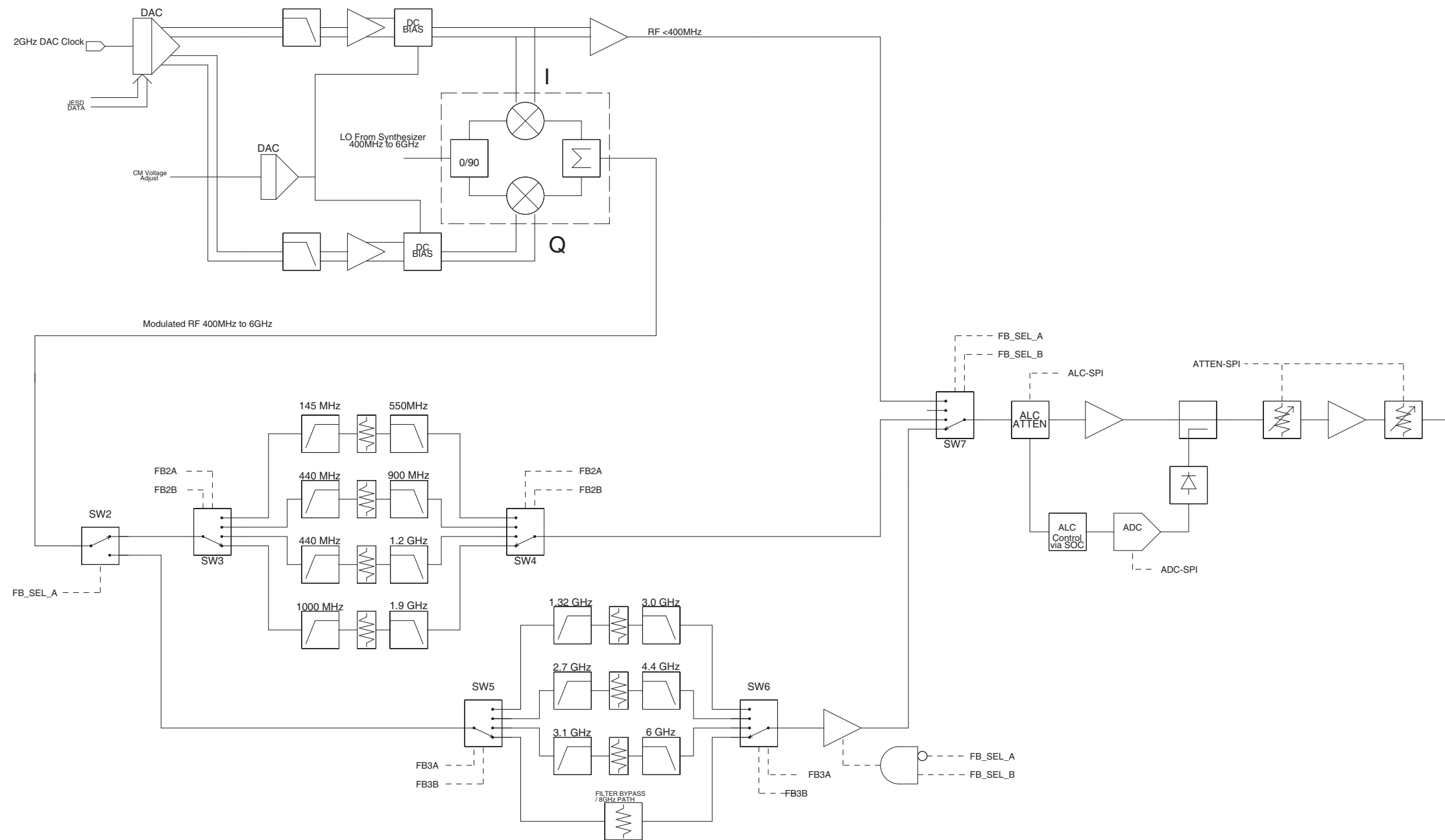


Figure 1-10 mA-6A30 RF Generator Block Diagram



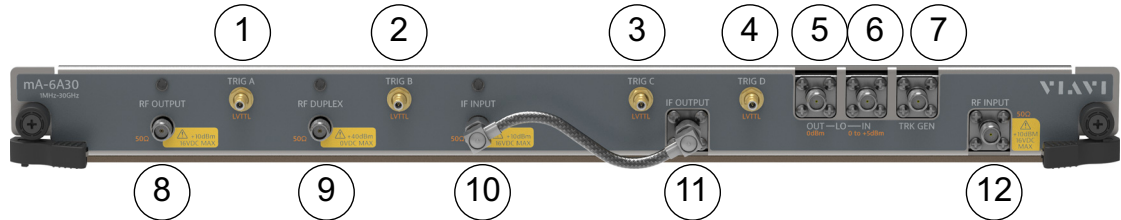
mA-6A30 Connectors

This chapter identifies and describes the mA-6A30 connectors.

- mA-6A30 Connectors 2-2
- Trigger Connectors (1:4) 2-2
- RF Input/Output Connectors (5:12) 2-2
 - LO Output Connector (5) 2-2
 - LO Input Connector (6) 2-3
 - Tracking Generator Connector (7) 2-3
 - RF Output Connector (8) 2-3
 - RF Duplex Connector (9) 2-3
 - RF Input Connector (12) 2-3
 - IF Input Connector (10) 2-4
 - IF Output Connector (11) 2-4

mA-6A30 Connectors

Figure 2-1 mA-6A30 Front Panel Connectors



CAUTION

Do not overload input connectors. Refer to product Safety and Compliance Specifications or the product data sheet for maximum input ratings.

Mise en Garde

Identifiez les conditions ou les activités qui, si ignorées, peuvent entraîner des dommages à l'équipement ou aux biens, p. ex. un incendie.

Trigger Connectors (1:4)

The mA-6A30 contains four independent trigger connectors. Trigger inputs/outputs are selected and configured using the VST User Interface (UI) Client or one of the other tools available for operating the mA-6A30 module. See [“mA-6A30 Operation and Control” on page 4-1](#) for information.

Refer to [“Maximum Input Level” on page A-3](#), product data sheet or front panel labeling for maximum input ratings.

RF Input/Output Connectors (5:12)

LO Output Connector (5)

This is the LO1 external output (LO1-Out). The LO1-Out provides a buffered LO output signal at a level suitable for input to another mA-6A30 module for coherent multi-channel operation.

LO Input Connector (6)

This is an external LO1 input. The LO1-IN provides the capability for the user to supply their own signal generator as the LO source to the mA-6A30 rather than the internal LO signal.

Tracking Generator Connector (7)

The TRK-GEN connector provides an RF output signal that can be used to measure the frequency response of the device under test.

Refer to product data sheet or front panel labeling for RF output specifications.

RF Output Connector (8)

The RF Output Connector is the mA-6A30 dedicated RF Output port. The RF Output connector provides the maximum RF output level from the RF Generator.

RF Duplex Connector (9)

The RF Duplex connector has an in-line 20 dB, 10 W attenuator and is used for high power simplex or duplex operation. The Duplex Port is used for RF input and RF output simultaneously. This is typically used for testing using a single direct connection to the unit under test. It can also be used for over-the-air testing when only a single antenna is available.

Refer to product data sheet, [“Maximum Input Level” on page A-3](#), or front panel labeling for maximum input ratings.

RF Input Connector (12)

The RF Input connector is the VST's dedicated RF Input port. The RF Input Connector should be used when measuring low level RF signals.

Refer to product data sheet, [“Maximum Input Level” on page A-3](#), or front panel labeling for maximum input ratings.

IF Input Connector (10)

The IF Input connector routes the signal coming from the IF Output connector to the mA-6A30's RF Receiver. The IF output connector and IF Input connector should always be connected by the calibrated coaxial cable.



CAUTION

Do not loosen the connectors, or disconnect coaxial cable connected to the mA-6A30 IF Input and IF Output connectors; removing this coaxial cable voids the module's calibration.

IF Output Connector (11)

The IF Output connector routes the signal from the mA-6A30 downconverter assembly to the mA-6A30 IF Input connector, which routes the signal to the RF Receiver. The IF output connector and IF Input connector should always be connected by the calibrated coaxial cable.



CAUTION

Do not loosen the connectors, or disconnect coaxial cable connected to the mA-6A30 IF Input and IF Output connectors; removing this coaxial cable voids the module's calibration.

mA-6A30 Setup and Installation

This chapter contains setup and installation instructions for the mA-6A30 module.

- Upon Receipt 3-2
 - Unpack the Module 3-2
 - Verify Contents 3-2
 - Inspect the Module 3-2
- Module Installation Procedure 3-3
- Module Operation Verification Procedure 3-3

**NOTE**

Refer to the mA-1302/mA-1305 AXIe Chassis Operation Manual for Chassis setup and operating instructions.

Upon Receipt

This section identifies tasks that should be performed when the module is received from the factory.

Unpack the Module

Specially designed packing material protects the device during shipping. Avoid damaging the shipping container and packing material when unpacking the device; if necessary the shipping container and packing material can be reused to ship the device.



CAUTION

This device is ESD sensitive and should only be unpacked by qualified personnel.

Mise en Garde

Cet appareil est sensible aux DES et il doit seulement être déballé par un personnel qualifié.

How to Unpack the Module

- 1 Cut and remove sealing tape on top of shipping container.
- 2 Open shipping container. Remove foam insert and module from shipping container.
- 3 Remove module from between foam inserts.
- 4 Remove module from ESD protective packaging.
- 5 Store packing material and shipping container for possible future use.



NOTE

Refer to Packing Procedure ([“Packing Procedure” on page 7-9](#)) for information and instructions for shipping the module.

Verify Contents

Refer to the packing list to verify shipment is complete. Report any discrepancies to VIAVI Customer Service.

Inspect the Module

Inspect the device for possible damage incurred during shipment. Report any damage to VIAVI Solutions Customer Service.

Module Installation Procedure

The mA-6A30 is designed for installation in AXIe Chassis that meet AXIe-1 Revision 2.0, Base Architecture Specification. See [“Module Installation Procedure” on page 7-6](#) for module installation instructions.

Module Operation Verification Procedure

The following procedure is intended to verify basic module operation. This procedure does not verify that the module is operating within product specifications.



NOTE

The following procedure is intended to verify basic module operation. This procedure does not verify that the module is operating within product specifications.

How to Verify Module Operation

- 1 Complete [“Module Installation Procedure” on page 3-3](#).
- 2 Complete Chassis Installation Procedure (refer to the mA-1302/mA-1305 AXIe Chassis Operation Manual).
- 3 Power on the Chassis (refer to the mA-1302/mA-1305 AXIe Chassis Operation Manual).
- 4 [“Open the mA-6A30 Web UI” on page 5-2](#).
- 5 Open the [“Self Test Page” on page 5-6](#).
- 6 Run the [“VST Self Test Procedure” on page 7-4](#).

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mA-6A30 Operation and Control

This chapter describes how to operate and control the mA-6A30.

- Module Software/Drivers 4-2
- Module Power On/Off Procedures 4-2
 - Power On Procedure 4-2
 - Power Off Procedure 4-3
- Module Control and Operation 4-3
 - mA-6A30 Web Browser UI 4-3
 - Chassis Web Browser UI 4-3
 - VST UI Client 4-4
 - External Software Applications 4-4
- mA-6A30 Network Settings 4-4
 - mA-6A30 Default IP Address 4-5
 - Locate mA-6A30 IP Address 4-5
 - mA-6A30 Network Mode 4-7

Module Software/Drivers

The drivers and software required to support streaming from the mA-6A30 to other Chassis modules depends on the type of Host Controller used in the system, the software applications installed in the host controller and the other modules installed in the Chassis.

If the mA-6A30 shipped from the factory as part of a CMP System that contains an Embedded Host Module, the required drivers and software were installed in the CMP System prior to shipment.

If the mA-6A30 module was purchased separately from a CMP System, drivers and software applications (when applicable) need to be downloaded and installed in the Host Controller per system configuration requirements. Contact VIAVI Customer Service for technical support to determine system driver and software requirements.

See [“Firmware/Software Updates” on page 7-3](#) for information about updating mA-6A30 firmware, software and drivers.

Module Power On/Off Procedures

The module is powered on during the Chassis power up process. When the Chassis is powered on, power is routed from the AC power supply to the module via the module's connection to the Chassis Backplane. Refer to the mA-1302/mA-1305 AXIe Chassis Operation Manual for the Chassis power up procedure.

Power On Procedure

The module is powered on during the Chassis power up process. When the Chassis is powered on, power is routed from the AC power supply to the module via the module's connection to the Chassis Backplane. To ensure proper module identification and enumeration, do not change external connections or interrupt the Chassis power up process. Refer to the mA-1302/mA-1305 AXIe Chassis Operation Manual for the Chassis power up procedure.

Power Off Procedure

The module is powered down during the Chassis power down procedure. Refer to the mA-1302/mA-1305 AXIe Chassis Operation Manual for proper power down procedure.



CAUTION

Do not power down the module by disconnecting the Chassis from the AC Power Supply. Failure to properly power down the module may result in lost data and/or damage to the module's operating system.

Mise en Garde

Ne mettez pas le module hors tension en débranchant le châssis de l'alimentation électrique CA. Une mise hors tension inadéquate du module peut entraîner des pertes de données ou endommager le système d'exploitation du module.

Module Control and Operation

The means of controlling the mA-6A30 module depends on the System's hardware and software configuration. This section identifies the tools available to access and/or control the mA-6A30 module.

mA-6A30 Web Browser UI

The mA-6A30 Web Browser User Interface (Web UI) is a basic interface that displays module information, module operational status and provides user's with the ability to update the module's operating system.

The Web Browser UI's do not support operational or configuration capabilities. Configuration and operational capabilities are supported by external software applications such as the VST UI Client or Signal WorkShop™ Analysis Suite.

Refer to [“mA-6A30 Web Browser UI” on page 5-1](#) for information about how to access the mA-6A30 Web UI.

Chassis Web Browser UI

The Chassis Web Browser UI provides access to mA-6A30 module information and readings. Refer to the mA-1302/mA-1305 AXIe Chassis Operation Manual for instructions to access the Chassis Web Browser UI.

VST UI Client

The Vector Signal Transceiver User Interface Client (VST UI Client) is packaged and distributed as part of the mA-6A30's firmware. The VST UI Client is a basic software interface that is used to configure the Transceiver to generate live signals, playback waveform files and to display and/or record incoming signals.



NOTE

Refer to the section titled “VST UI Client” on page 6-1 for information about how to access and operate the VST UI Client.

External Software Applications

VIAVI has developed several software applications such as Signal WorkShop™ Analysis Suite for use with the mA-6A30 VST with 30 GHz Downconverter.

Refer to the CMP product web page on the VIAVI Solutions website at <https://www.viavisolutions.com/en-us/products/modular-axie> for information about the software applications that are available for use with CMP hardware.

mA-6A30 Network Settings

This section contains instructions to connect to the mA-6A30 via a network connection. See “Introduction” on page 5-2 for information about web browser access, controls and settings.



DEFAULT STATIC IP NOTICE

The module ships from the factory with an assigned Static IP Address. Do not connect the module to your local area network (LAN) without contacting your IT department to determine if the module's default IP Address is already in use. If the module's default IP Address is already in use by a device on the network, connecting the module to the network will cause a network conflict.

It is recommended that the module be reconfigured to use a Static IP address assigned by your IT department before connecting the device to a LAN.

mA-6A30 Default IP Address

The mA-6A30's IP Address is needed to access the module using external user interface tools and software applications. In the event the module's IP Address has been changed, see the section below ("Locate mA-6A30 IP Address")

The mA-6A30 default IP Address is: 10.105.8.36



NOTE - DUAL SYSTEMS

When a new CMP system containing two mA-6A30 modules is received from the factory, the default IP address of the second mA-6A30 is 10.105.8.35.

Chassis default Network Settings:

- Network Mode: Static IP
- Static IP Address: 10.105.8.32

Locate mA-6A30 IP Address

In the event the mA-6A30's IP Address has been changed, the mA-6A30's IP Address can be identified using the following procedure:



NOTE

This procedure applies to a CMP Chassis that contains an mA-3011 AXIe Embedded Host Module.

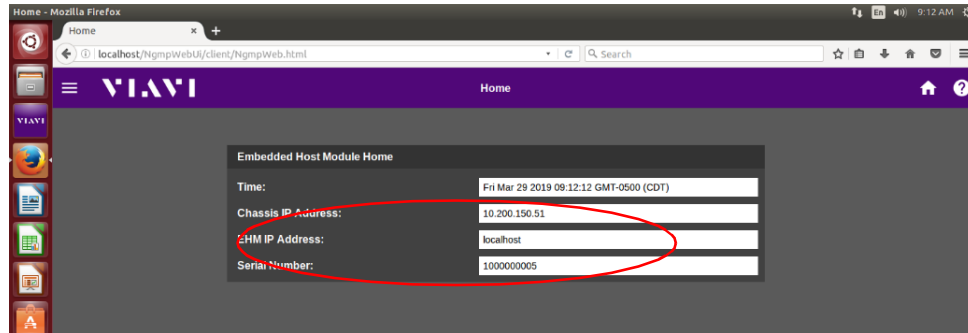
If the mA-6A30 is installed in a VIAVI CMP AXIe Chassis that does not contain an mA-3011 AXIe Embedded Host Module, the mA-6A30's IP Address can be located from the Chassis Web UI. Refer to the mA-1302/mA-1305 AXIE Chassis Operation Manual for instructions.

If the mA-6A30 is installed in a chassis that is not part of the VIAVI CMP AXIe product line, refer to the user documentation that accompanied the chassis for information about identifying module information.

To Identify IP Address:

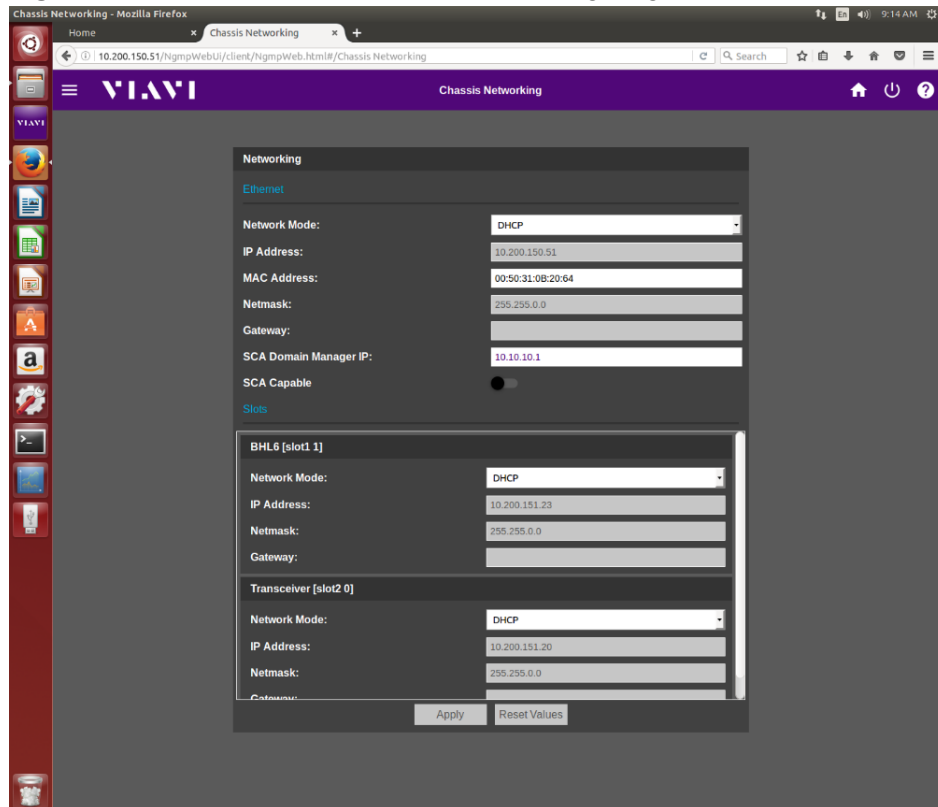
- 1 Power on the CMP System.
- 2 Open a web browser window.
- 3 Enter "localhost" in the browser's URL field.
- 4 The mA-3011 Embedded Host Module web browser will be displayed.

Figure 4-1 Local Host Web UI homepage



- 5 Record the Chassis IP Address from the mA-3011 Web UI Home page.
- 6 Open another browser window.
- 7 Enter the Chassis IP address in the browser URL field.
- 8 The Chassis Web Browser UI is displayed.
- 9 Select the System Main menu button (upper left corner).
- 10 Select the Chassis Networking button from the System Main menu.
- 11 The Chassis Networking page displays the IP Address for each module in the system.

Figure 4-2 Chassis Web UI Networking Page



mA-6A30 Network Mode

The procedures in this section describe how to configure the mA-6A30 network settings using the Web UI.

The mA-6A30 network settings can also be configured using the Chassis Web UI. Refer to the mA-1302/mA-1305 AXIe Operation Manual for instructions to configure the mA-6A30 network mode of operation using the Chassis Web UI.

NOTE

When the mA-6A30 Network Mode is changed, the current Web Browser UI connection will be lost. A new Web Browser connection will need to be established with the updated mA-6A30 IP Address.

Configure Network Using Web UI

The procedures in this section require the mA-6A30's IP Address. If you do not know the mA-6A30's IP Address, see [“Locate VST IP Address” on page 4-5](#).

Set Module to Use a Static IP Address

- 1 Power on the CMP System.
- 2 Open a web browser window.
- 3 Enter the mA-6A30 IP address in the browser window URL field.
- 4 Navigate to the mA-6A30 Networking page (see [“mA-6A30 Networking Page” on page 5-4](#)).
- 5 Set the module Network Mode to **Static**.
- 6 Enter desired IP address for the mA-6A30.
- 7 Select the Apply button.
- 8 At user prompt, select the Apply and Reboot button.

NOTE

The system will initiate an auto reboot sequence that takes approximately 10 to 15 seconds. If the system does not auto reboot within one minute, press the Power On/Standby button and refer to the following:

- If the Power On/Standby button turns green, the system has initiated the reboot sequence. Wait while the system completes the power up process.
- If the Power On/Standby button turns yellow, the system failed to initiate the power on sequence. Press the Power On/Standby button again to initiate the power on sequence and wait while the systems completes the power up process.

Set Module to Use DHCP IP Address



NOTE

When DHCP Configuration is initiated, the mA-6A30 IP Address updates and the Web Browser UI connection will be lost. Refer to section [“Locate VST IP Address” on page 4-5](#).

- 1 Power on the CMP System.
- 2 Open a web browser window.
- 3 Enter the mA-6A30 IP address in the browser window URL field.
- 4 Navigate to the mA-6A30 Networking page (see [“mA-6A30 Networking Page” on page 5-4](#)).
- 5 Set the module Network Mode to **DHCP**.
- 6 Select DHCP Mode.
- 7 Select the Apply button. At user prompt, select the Apply and Reboot button.



NOTE

The system will initiate an auto reboot sequence that takes approximately 10 to 15 seconds. If the system does not auto reboot within one minute, press the Power On/Standby button and refer to the following:

- If the Power On/Standby button turns green, the system has initiated the reboot sequence. Wait while the system completes the power up process.
- If the Power On/Standby button turns yellow, the system failed to initiate the power on sequence. Press the Power On/Standby button again to initiate the power on sequence and wait while the systems completes the power up process.

mA-6A30 Web Browser UI

This chapter describes the mA-6A30 Web browser User Interface (Web UI) tool.

- Introduction 5-2
- Recommended Browsers. 5-2
- Open the mA-6A30 Web UI 5-2
 - mA-6A30 Web UI Components 5-3
- Web UI Pages 5-4
 - mA-6A30 Networking Page 5-4
 - System Updates Page 5-5
 - Self Test Page 5-6

Introduction

The Web Browser User Interface, referred to as the mA-6A30 Web UI, is a basic interface that displays module information and operational status. The mA-6A30 Web UI also provides user's with the ability to update the module's operating system and perform a module self test.



NOTE

The mA-6A30 Web UI does not support operational or configuration capabilities. Configuration and operational capabilities are supported by external software applications such as the mA-6A30 UI Client (refer to [“VST UI Client” on page 6-1](#)).

Recommended Browsers

Recommended browsers for viewing CMP AXIe Web Browser User Interfaces:

- Google Chrome Version 53.0.2785.116 m (64-bit) or later
- Firefox Version 48.0.1 or later
- Internet Explorer 11 or later

Open the mA-6A30 Web UI

The mA-6A30's IP Address is required to open a mA-6A30 Web UI session. Refer to the section titled [“mA-6A30 Default IP Address” on page 4-5](#) if needed.

How to Open the mA-6A30 Web UI

- 1 Open a web browser window (refer to section titled [“Recommended Browsers” on page 5-2](#).)
- 2 Enter the module's IP Address in the browser's URL field.
- 3 The module's Web Browser UI opens and will resemble the example in [Figure 5-1 on page 5-3](#).

mA-6A30 Web UI Components



Main Menu Button

The Main Menu is used to access module information and configuration pages.



Home Button

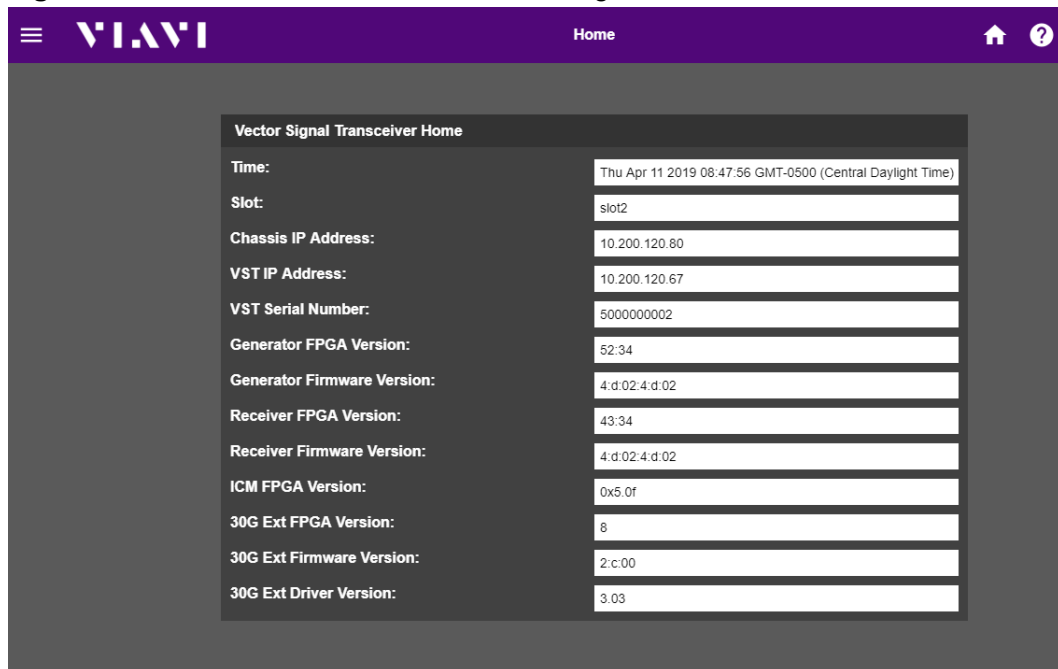
Pressing the Home Button returns to the mA-6A30 Web UI Home Page.



Help Button

Pressing the Help Button displays information for accessing mA-6A30 User Documentation.

Figure 5-1 mA-6A30 Web UI Home Page



Web UI Pages

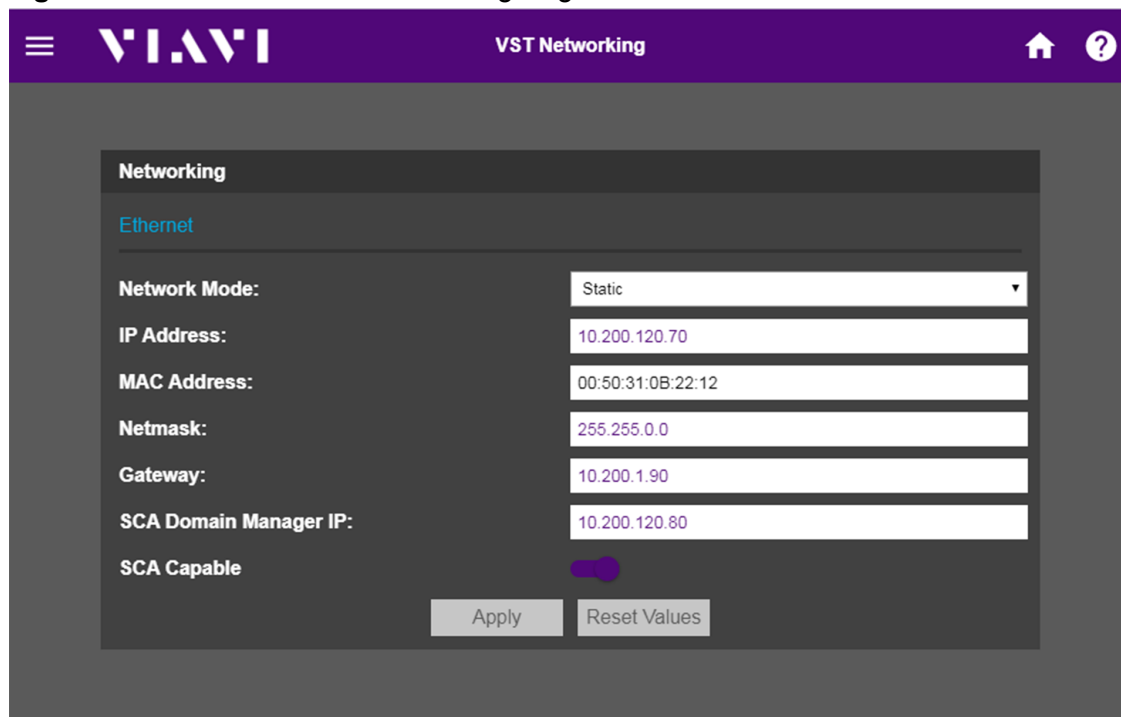


This section describes the pages found in the mA-6A30 Web Browser UI. The Web UI pages are accessed from the Main Menu.

mA-6A30 Networking Page

The mA-6A30 Networking Page is used to configure the module's network connection. Refer to [“mA-6A30 Network Settings” on page 4-4](#) for information about how to configure the mA-6A30 for network use.

Figure 5-2 mA-6A30 Networking Page



System Updates Page

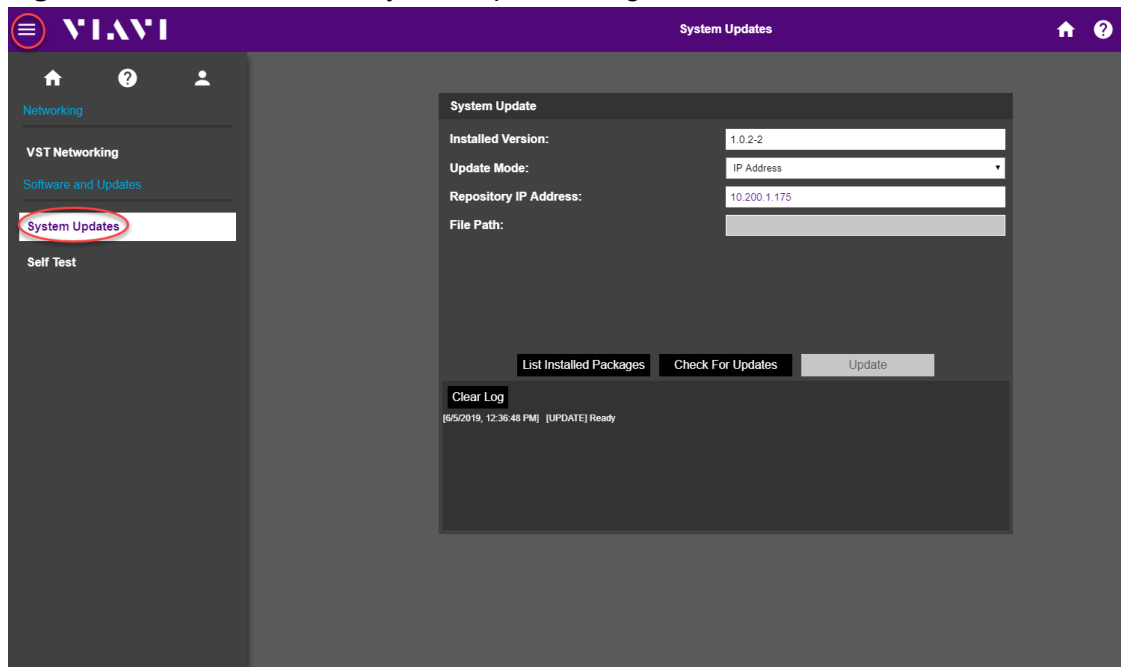
The System Update Page displays and accesses the following information or functions:

- View current version of mA-6A30 firmware
- Check for available updates
- List currently installed packages
- Update firmware

Update mA-6A30 firmware

Refer to the section titled “[Firmware/Software Updates](#)” on page 7-3 for mA-6A30 firmware update procedures.

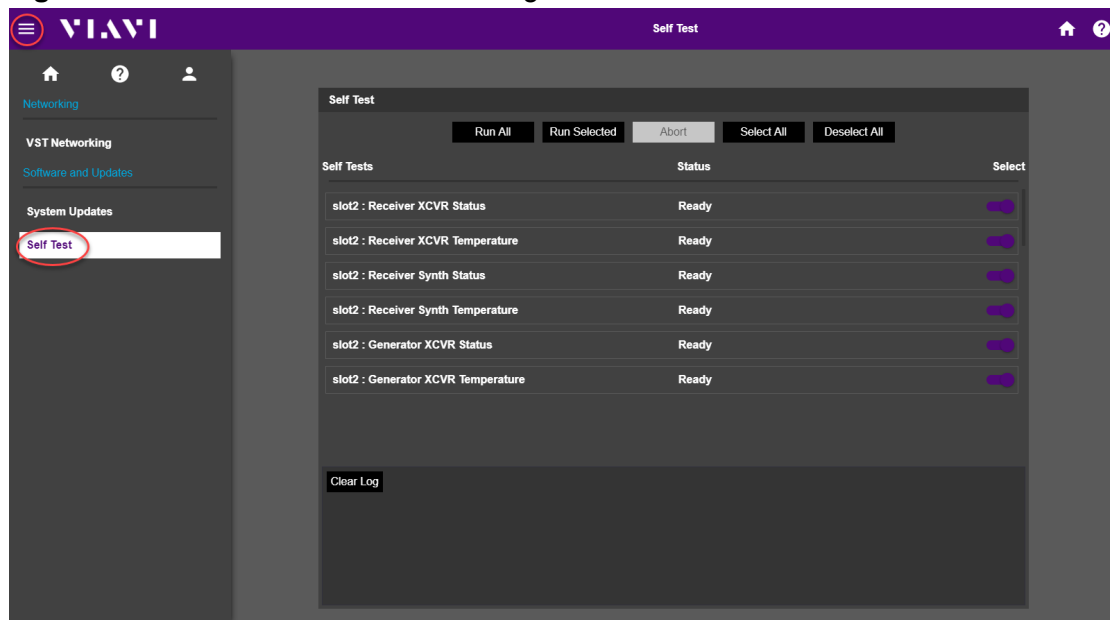
Figure 5-3 mA-6A30 System Updates Page



Self Test Page

The Self Test Page accesses the mA-6A30 Self Test procedures. The mA-6A30 Self Test is an automated process that evaluates the module's operational status to verify that module temperature and power readings are within tolerance.

Figure 5-4 mA-6A30 Self Test Page



Refer to the [“VST Self Test Procedure”](#) on page 7-4, for instructions on running the mA-6A30 Self Test.

Self Test Controls

The following describes the function of the buttons seen on the self test page.

Run All Button

Pressing the Run All Button enables and runs all Self Test procedures.

Run Selected Button

The Run Selected Button runs the selected Self Test procedures.

Abort Button

The Abort Button is enabled when a Self Test Procedure is initiated. When running multiple Self Tests, pressing the Abort Button will stop the series of Self Test procedures as soon as the test that is in process is completed.

Select All Button

The Select All Button enables all Self Test procedures. Use case: to select all but one or two test procedures by enabling all procedures, then deselecting the one or two test procedures that you do not wish to run, then press the Run Selected Button.

Deselect All Button

The De-select All Button disables all Self Test procedures. Use case: to select only one or two test procedures by disabling all procedures, then selecting the one or two test procedures that you wish to run, then press the Run Selected Button.

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VST UI Client

This chapter describes the VST User Interface (UI) Client software application.

• Managing Software	6-2
• VST UI Client Distribution	6-2
• Downloading and Installing Software	6-2
• Updating Software	6-3
• Software Version Information	6-3
• UI Overview	6-4
• Introduction	6-4
• Opening the VST UI Client	6-4
• VST UI Client Layout	6-7
• Application Title Bar	6-7
• VST UI Display Area 8	
• UI Control and Operation	6-9
• VST Receiver	6-10
• Receiver Staging Area	6-10
• Receiver UI Components	6-11
• Receiver Functions	6-14
• VST Generator	6-23
• Generator Staging Area	6-23
• Generator UI Components	6-24
• Generator Functions	6-29
• Trigger Panel	6-30
• Normalize Function	6-32
• Using the VST	6-35
• Receiver Functions	6-35
• Generator Functions	6-35
• Using Markers	6-36

Managing Software

VST UI Client Distribution

VST UI Client software is distributed with each mA-6A30 module. When an mA-6A30 module is purchased as part of a new CMP System that contains the mA-3011 AXIe Embedded Host Module, the VST UI Client is installed in the mA-3011 AXIe Embedded Host Module prior to shipment and a backup CD is shipped with the module.



NOTE

When a mA-6A30 module is purchased separately from a CMP System, or if the system does not contain the mA-3011 AXIe Embedded Host Module, the VST UI Client is distributed with the mA-6A30 module on a CD. The VST UI Client must be installed in the Host Controller per system configuration requirements. Refer to the section below for download and installation information and instructions.

Downloading and Installing Software

The VST UI Client software is an installation executable that guides users through downloading and installing the software.

Downloading Software

The software download is a guided download process. When the software download is initiated, users are given the option to download the software or to download and install the software.

- If you choose the download and install option, follow the guided download and installation procedure.
- If you choose the download only option, (i.e., download to a USB storage device to install on multiple non-network devices) follow the guided download procedure.

Installation Procedure

The VST UI Client is installed using procedures applicable to the Host Controller on which the software is being installed. Refer to the user documentation provided with the Host Controller for software installation instructions.

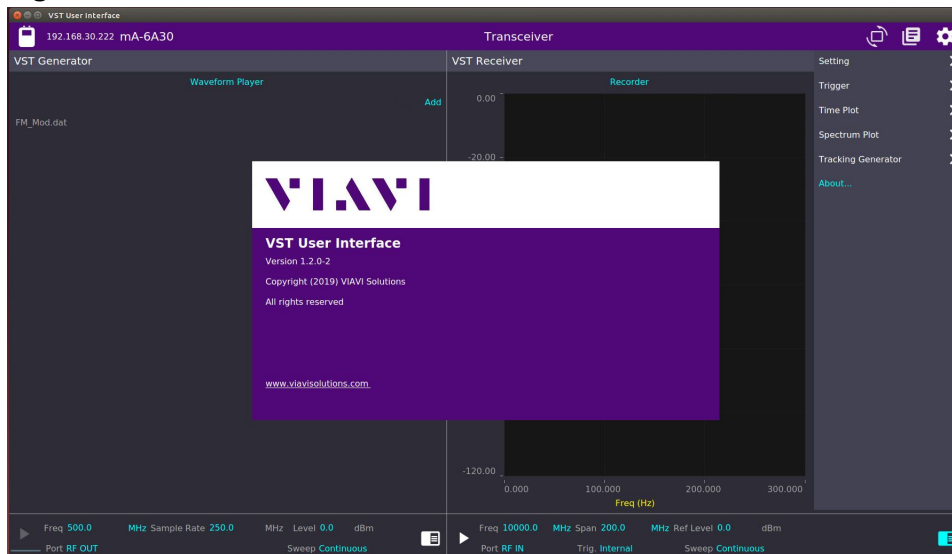
Updating Software

Software may be updated periodically to include feature enhancements, additional functionality, or to address any identified software issues. Users should perform routine checks to verify they are using the most recent software version available for the device. See “[Firmware/Software Updates](#)” on page 7-3 for details and instructions.

Software Version Information

VST UI Client version information is displayed in the About Window. The About Window is accessed from the Receiver Functions Menu.

Figure 6-1 VST UI Client About Window



UI Overview

Introduction

The Vector Signal Transceiver User Interface Client, referred to as the VST UI Client, is a free software interface with the functional ability to configure and operate the mA-6A30. The VST UI Client operates in Simulation Mode to simulate a hardware connection, or Hardware Mode which requires a connection between the mA-6A30 and Host Controller.

Simulation Mode provides the user with the ability to familiarize themselves with the VST UI Client without the need for a hardware connection, or when connected to a device, without interfering with device operation.

Opening the VST UI Client

The VST UI Client is opened using techniques native to the Host Controller on which the software has been installed (i.e., Start Menu or Desktop Icon). When the VST UI Client is launched for the first time, the application loads the User Interface (UI) default settings for the selected mode of operation. When the VST UI Client is opened on subsequent occasions, the UI is loaded in the last known state for the selected mode of operation. Verify correct IP address of mA-6A30 before attempting to connect.



Mode Button

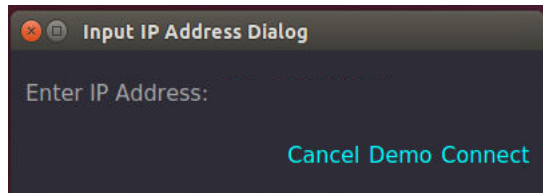
The Mode Button located in the top left corner of the UI is used to change the VST UI Client mode of operation.

Demo Mode

To open the VST UI Client in Demo Mode:

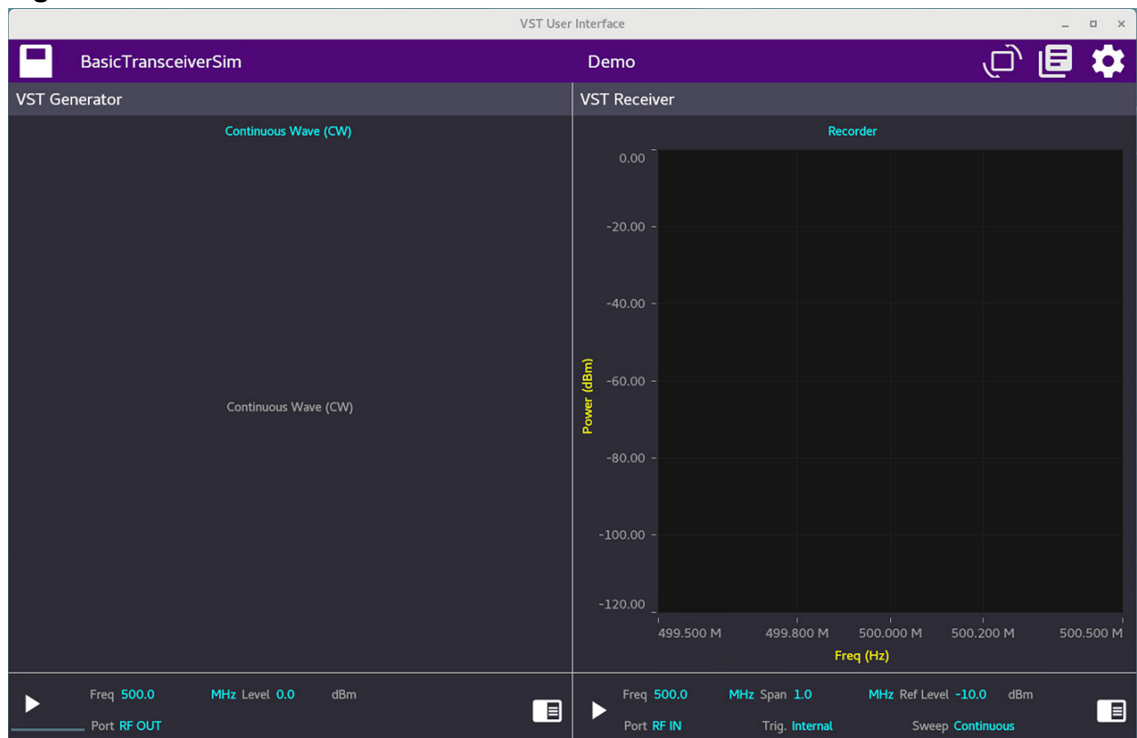
- 1 Open VST UI Client.
- 2 At prompt, select Demo Button.
- 3 Wait while the VST UI Client is opened.

Figure 6-2 VST UI Client Launch Window



The image below shows an example of the VST UI Client as it appears when the application is opened for the first time in Demo Mode.

Figure 6-3 Demo Mode - Initial View

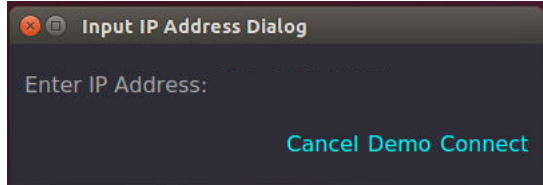


Hardware Mode

To connect the VST UI Client to a mA-6A30

- 1 Open VST UI Client.
- 2 At prompt, enter the mA-6A30 IP Address (refer to “mA-6A30 Default IP Address” on page 4-5) and press the Connect Button.

Figure 6-4 mA-6A30 UI Client Connection Dialog Window



- 3 Wait while the VST UI Client establishes a connection with the mA-6A30. When the connection is established with the Transceiver, the Application Title Bar updates to display the IP Address of the VST and the device name as shown in Figure 6-5 on page 6-7.

VST UI Client Layout

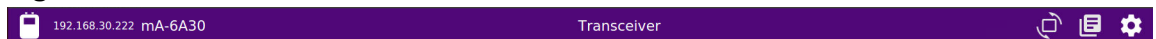
The VST UI Client consists of the Application Title Bar and the Main Display Area. The Main Display Area is divided into a Generator Panel and a Receiver Panel.

Application Title Bar

The appearance of the Application Title Bar depends on the selected mode of operation.

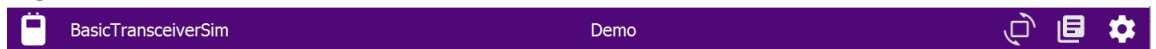
When the VST UI Client is connected to a Transceiver (Hardware Mode), the Application Title Bar displays the Mode Button, the IP Address of the VST and the device name.

Figure 6-5 Hardware Mode - Title Bar



When Simulation Mode is selected, the Application Title Bar displays the Mode Button and the selected mode of operation.

Figure 6-6 Simulation Mode - Title Bar



Toggle Button

This button toggles between multiple mA-6A30 modules if more than one is installed in the Chassis.



List Button

This button lists all mA-6A30 modules currently installed in the chassis.



Utility Menu

This button is used to access the Normalize Function and the File browser.

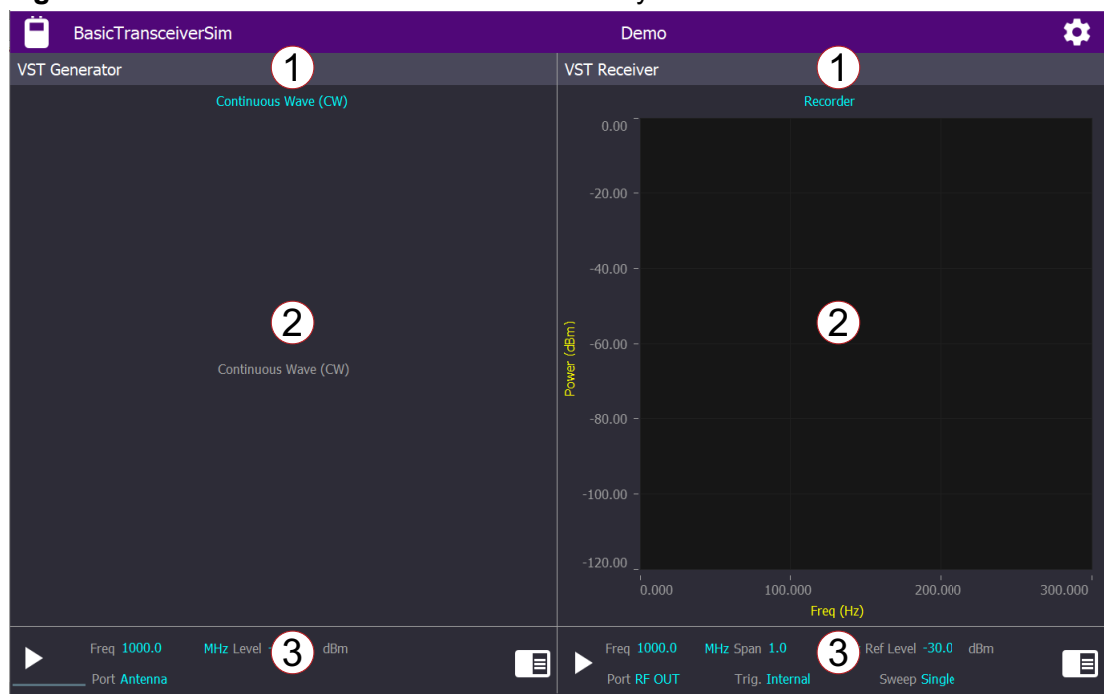
VST UI Display Area

The Display Area of the VST UI is divided into two sections. The left side of the UI contains Generator settings and functions; the right side of the UI contains Receiver settings and functions. The width of these areas can be adjusted by selecting and dragging the vertical line that divides the two sections of the UI.

The Generator and Receiver sections of the UI contain a Title Bar, a Staging Area and a Function Toolbar. Refer to the image below for reference. Refer to the following sections for information about the controls, settings and functions associated with the VST Generator and Receiver:

- [VST Receiver](#) 6-10
- [VST Generator](#) 6-23

Figure 6-7 VST Generator/Receiver UI Layout



Function Title Bar (1)

The Function Title Bar identifies the Transceiver Function (Generator or Receiver).

Function Staging Area (2)

The Function Staging Area is a dynamic area that changes depending on the selected Generator or Receiver mode of operation as well as the Generator and Receiver functions being performed.

Function Toolbar (3)

The Function Toolbar contains settings and controls that are used to configure and operate the VST Generator and Receiver.

UI Control and Operation

The VST UI Client has been developed to maintain a consistent look and feel when viewed on different Host Controllers and different operating systems. For the most part, the UI looks the same when viewed on a tablet, laptop computer or desktop computer; however there may be slight differences depending on the operating specifications and user settings of the Host Controller.

The behavior of the VST UI Client operates in a manner similar to software applications found in many of today's electronic devices. The VST UI Client is navigated using techniques native to the Host Controller on which the software is installed. For example, touch-screen devices are navigated using techniques like press to select, swiping, pinching to zoom in, pushing to zoom out; desktop devices are controlled using a mouse or keyboard.

The VST UI Client consists of screen components such as menus, text fields, file browser windows, navigation buttons and scroll bars. Host controllers that support hover functionality allow the users to hover over UI Components which will display a component label and in some cases a small description.

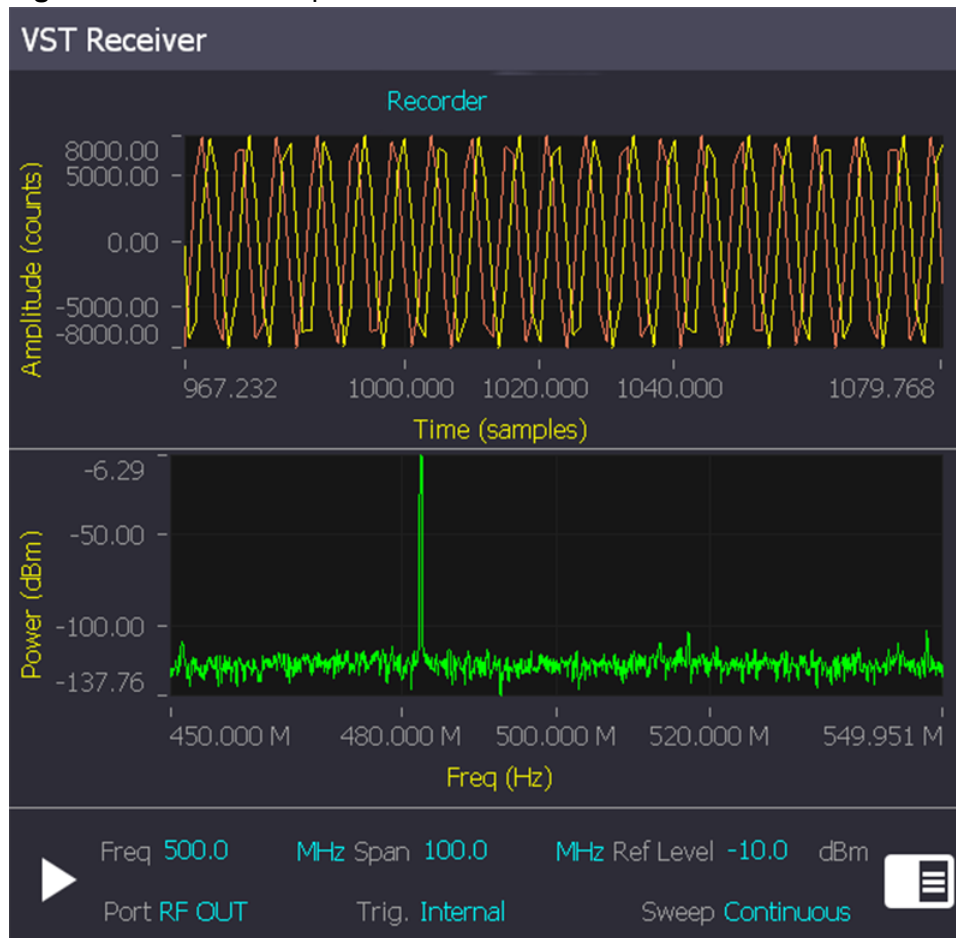
VST Receiver

This section describes the UI components, screen layout and functions of the VST Receiver.

Receiver Staging Area

The Receiver Staging Area is a dynamic area that changes according to the selected Receiver mode of operation as well as functions that are enabled on the Receiver. Figure 6-8 shows an example of how the Receiver Staging Area may be configured when using the Receiver.

Figure 6-8 Example: Receiver Recorder Screen



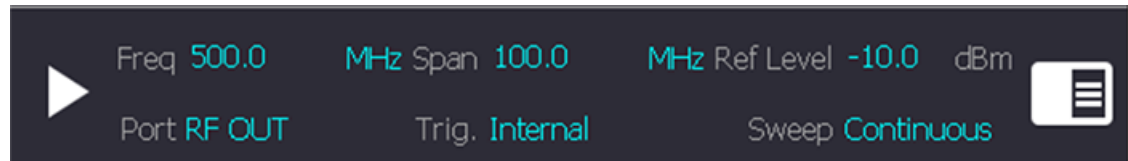
Receiver UI Components

This section describes the controls and settings that are used to configure the VST Receiver.

Recorder Controls and Settings

Recorder controls and settings are used to configure and control the received signal.

Figure 6-9 Recorder Function Toolbar



Signal Control Button

The Signal Control Button starts and stops acquisition of a live signal.



Press to start signal acquisition.



Press to stop signal acquisition.

Frequency (Freq) Field

The Freq field defines the center frequency for the signal acquisition being performed. Refer to the mA-6A30 Data Sheet for supported frequency ranges and other performance specifications.

Reference Level (Ref Level) Field

The Ref Level defines the expected power level of the signal being received by the VST. The Ref Level is used to adjust the gain of the RF Receiver. Refer to [“Maximum Input Level” on page A-3](#) or front panel labeling for maximum input ratings.

Port Menu

The Port menu is used to select the connector at which the mA-6A30 is receiving a signal. The Receive Port should be selected based on the type of signal being received.



CAUTION

Do not overload input connectors. Refer to product Safety and Compliance Specifications or the product data sheet for maximum input ratings.

Mise en Garde

Identifiez les conditions ou les activités qui, si ignorées, peuvent entraîner des dommages à l'équipement ou aux biens, p. ex. un incendie.

RF In

The RF Input Connector is used to measure low-power RF signals. Refer to product data sheet for input frequency range.

DUPLEX

The RF Duplex Connector is used to measure high-power RF signals. This connector is capable of simultaneously generating and receiving RF signals. Refer to product data sheet for valid frequency range.

Trigger Source Menu

This menu selects the signal source that the mA-6A30 uses for trigger events. Trigger settings are configured on the Trigger Panel (see [“Trigger Panel” on page 6-30](#)).

Internal

When Internal is selected the mA-6A30 uses a signal that is routed from the Chassis as a trigger source.

External

When External is selected the mA-6A30 uses an external trigger source that is connected to one of the mA-6A30 Trigger Input Connectors. Trigger Input connectors are selected on the Trigger Panel (see [“Trigger Panel” on page 6-30](#)).

Sweep Menu

This menu selects the mode used to display the signal trace on the Plot Field.

Single

A single signal sweep is performed. Acquisition stops after the initial sweep is completed.

Continuous

Continuous sweeps are performed until the Signal Control Button is used to stop the acquisition.

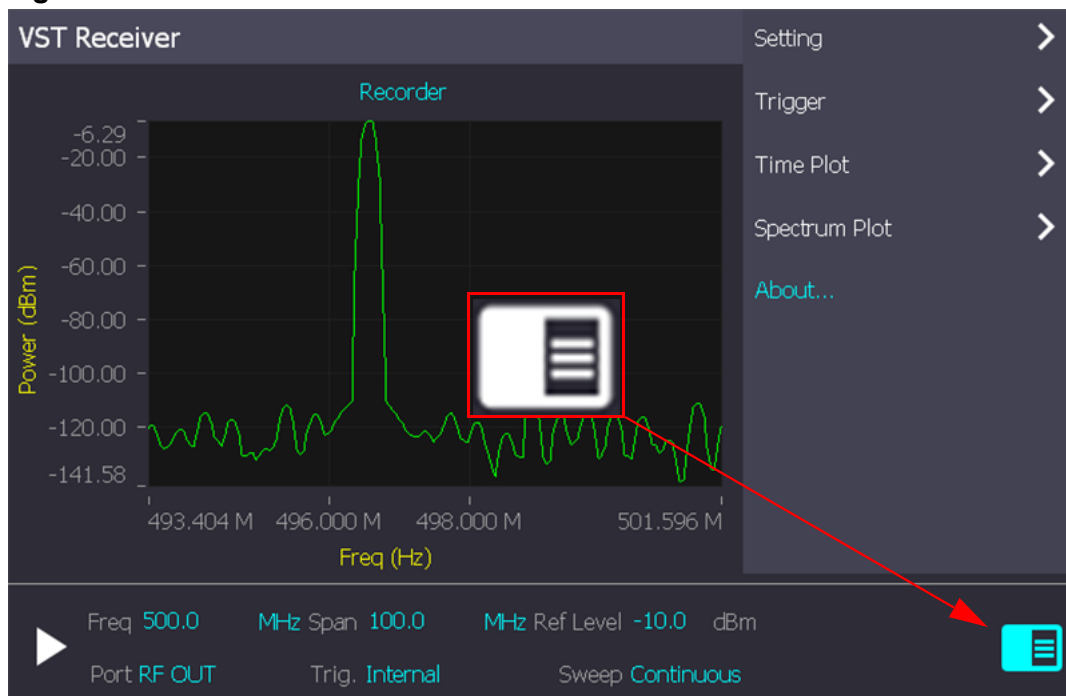


Receiver Functions Button/Menu

The Functions Menu Button opens and closes the Receiver Functions Menu. The Receiver Functions Menu accesses additional settings, controls and functions that are used to configure and operate the VST Receiver.

Refer to the section titled “[Receiver Functions](#)” on page 6-14 for additional information.

Figure 6-10 Receiver Functions Menu

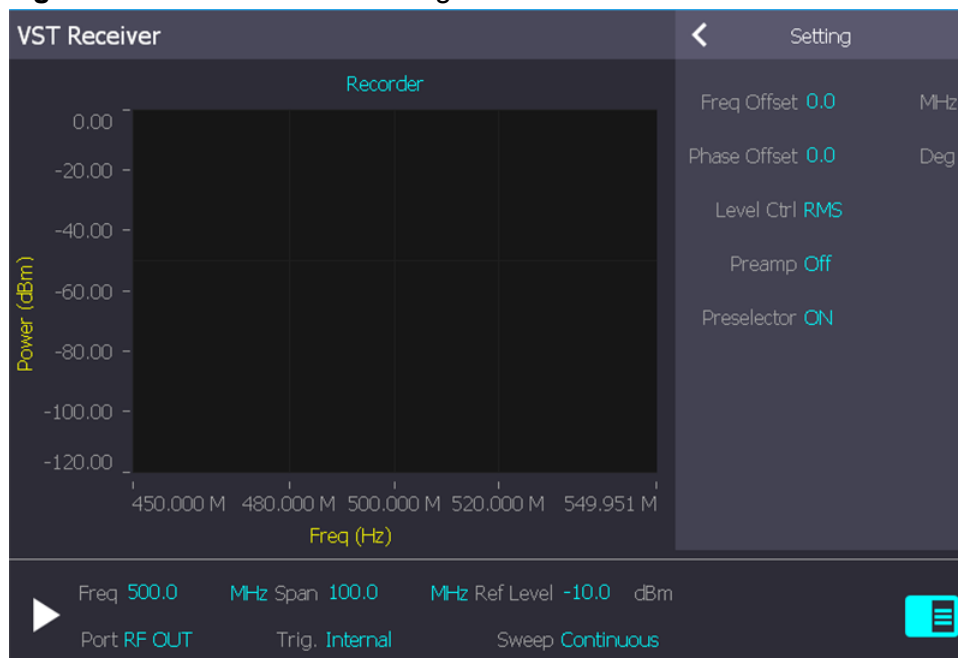


Receiver Functions

Settings Panel

The Receiver Settings Panel is accessed from the Receiver Functions Menu (see [Figure 6-10 on page 6-13](#)). The Settings Panel contains parameters that are used to configure how the VST Receiver processes a signal. These parameters should be set according to the specifications of the receive signal (either live or recorded).

Figure 6-11 Receiver Setting Panel



Frequency Offset Field

Defines the value by which the receiver tuning frequency is shifted in reference to the Frequency Field setting. The acquired data will be digitally corrected to display the correct frequency. A frequency offset can be applied to observe signal content that may be obscured by the carrier null located at the center of the captured spectrum.



NOTE

The application of a frequency offset will limit the available instantaneous bandwidth.

Phase Offset Field

Defines the value by which the phase of the measured signal will be shifted (in degrees).

Level CTRL Menu

The Level CTRL menu selects the measurement method the Receiver uses to account for any power fluctuations which may be present in the incoming signal.

AUTO

Automatically detects the level.

Preamplifier Control

This menu enables (ON) or disables (OFF) the Receiver's built-in pre-amplifier. Enabling the pre-amplifier lowers the noise floor level which increases the Receiver's sensitivity.

Pre-selector Menu

This menu enables or disables the Receiver's pre-selector. When the pre-selector is enabled (ON), the Receiver's band-pass filter blocks unwanted frequencies from the receive signal.

Trigger Panel

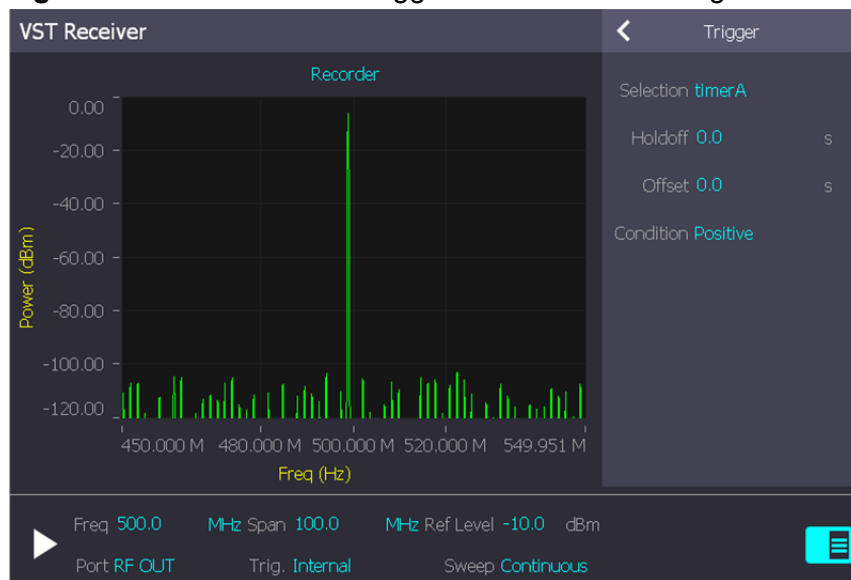
The Trigger Panel contains parameters that are used to configure how the VST Receiver processes trigger signals used to start a signal acquisition.



NOTE

The trigger signal source is selected from the Trigger Menu which is located on the Receiver Controls and Settings Bar.

Figure 6-12 Receiver Trigger Controls and Settings



Selection Menu

This menu selects which mA-6A30 Trigger Input Connector is being used as a trigger source.

Holdoff Field

Specifies the time between the trigger event and the start of a signal acquisition

Offset Field

This field works in the same manner as the Holdoff field, with the exception that the user can enter a negative value to define pre-trigger data acquisition.

Edge Menu

The Edge Menu selects trigger mode used to trigger an event.

Negative Edge

Negative (falling) edge of the trigger signal is used to trigger an event.

Positive Edge

Positive (rising) edge of the trigger signal is used to trigger an event.

Immediate

Receiver acquisition is started immediately; not tied to a trigger event.

Time Plot Panel

The Time Plot displays a representation of the variation of the amplitude of the signal over time; where Amplitude (count) is a number that is proportional to the input voltage and Time (samples) indicates an index number of a single measurement within an array of measured data. The VST Receiver Time Plot is enabled and configured on the Time Plot Panel.

Figure 6-13 Receiver Time Plot Panel



Visible Tick Box

This tick box enables or disables the plot field on the display.

Y AutoScale Tick Box

This tick box enables or disables the auto-scaling for the vertical scale (Y-axis) of the plot field. When AutoScale is enabled, the plot field's vertical scale is adjusted to values that display the entire vertical range of the waveform.

Marker Controls

Refer to the section titled [“Plot Markers” on page 6-19](#) for information about marker functions.

Spectrum Plot Panel

The Spectrum Plot displays the spectrum of the received signal. The VST Receiver Spectrum Plot is enabled and configured on the Spectrum Plot Panel. By default, the Spectrum Plot is visible on the Receiver Panel unless it is disabled.

Figure 6-14 Receiver Spectrum Plot Panel



Visible Tick Box

This tick box enables or disables the plot field on the display.

Y AutoScale Tick Box

This tick box enables or disables the auto-scaling for the vertical scale (Y-axis) of the plot field. When AutoScale is enabled, the plot field's vertical scale is adjusted to values that display the entire vertical range of the waveform.

Marker Controls

Refer to the section titled “Plot Markers” on page 6-19 for information about marker functions.

Plot Markers

The Time Plot and Spectrum Plot support basic marker functions. Time Plot Markers are added and configured on the Time Plot Panel; Spectrum Plot Markers are added and configured on the Spectrum Plot Panel. When a marker is added to the Plot Field the area below the Plot Field updates to display that Marker Measurement Bar and other marker controls and functions are enabled. The image below shows an example of Time Plot Markers.

Figure 6-15 Time Plot with Markers Enabled

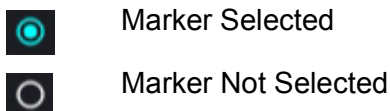


Marker Measurement Bar

The Marker Measurement Bar contains the following components and information:

Marker Tick Box

The Marker Tick Box selects a marker when more than one marker has been added to the plot. Verify the desired marker is selected before pressing any of the Marker Control Buttons.



Marker Color Bar

The Marker Color Bar is used to change the color of the selected marker. When a marker is deleted from the Plot Field any changed color settings are not stored.

Time Plot Marker Readings

The Time Plot marker readings display the sample point at which the amplitude measurement was acquired, followed by the amplitude measurement at the indicated sample point.

Figure 6-16 Marker Measurement Bar (Time Plot)

<input type="radio"/>	1	—	2300.0	-12.0	Δ: 253.0 , -44.0	×
<input checked="" type="radio"/>	2	—	2635.0	0.0	Δ: 1076.0 , 24.0	×

Spectrum Plot Marker Readings

The Spectrum Plot marker readings display the frequency at which the power measurement was acquired, followed by the power measurement at the indicated frequency.

Figure 6-17 Marker Measurement Bar (Spectrum Plot)

<input checked="" type="radio"/>	1	—	402.587259 MHz	-95.06 dB	Δ: 2.587259 MHz, 0.34 dB	×
<input type="radio"/>	2	—	401.269221 MHz	-95.90 dB	Δ: 1.269221 MHz, -0.51 dB	×



Delta Indicator

The Marker Delta Indicator is displayed when a Marker Delta has been created. Marker Deltas are removed by deleting the marker. Refer to the section titled [“Using Markers” on page 6-36](#) for information about how to create and delete Marker Deltas.

Delta Measurements

The Delta readings display the differences between the Marker position and the Marker Delta Reference Point. Refer to the section titled [“Using Markers” on page 6-36](#) for information about how to create and delete Marker Deltas.

Marker Controls

Add Marker Button

The Add Marker Button is used to add markers to the plot field. When the maximum number of supported markers have been added to the Plot Field the Add Marker Button is disabled.

Marker Positioning

When a marker is added to the Plot Field, the marker is placed at the center frequency. Markers are moved using the Marker Navigation Buttons or by dragging and dropping the marker to another location on the trace. Refer to the section titled [“Using Markers” on page 6-36](#) for information about how to move markers.

(Marker) Delta Button

The Delta Button is enabled when a marker has been added to the Plot Field. The Delta Button is used to create delta marker measurements.

Refer to the section titled [“Using Markers” on page 6-36](#) for information about how to create and delete Marker Deltas.

Marker Navigation Buttons

The Marker Navigation Arrow Buttons are enabled when a marker has been added to the Plot Field.



Left Arrow Button moves the selected marker to the next data point to the left of the marker's current position.



Right Arrow Button moves the selected marker to the next data point to the right of the marker's current position.



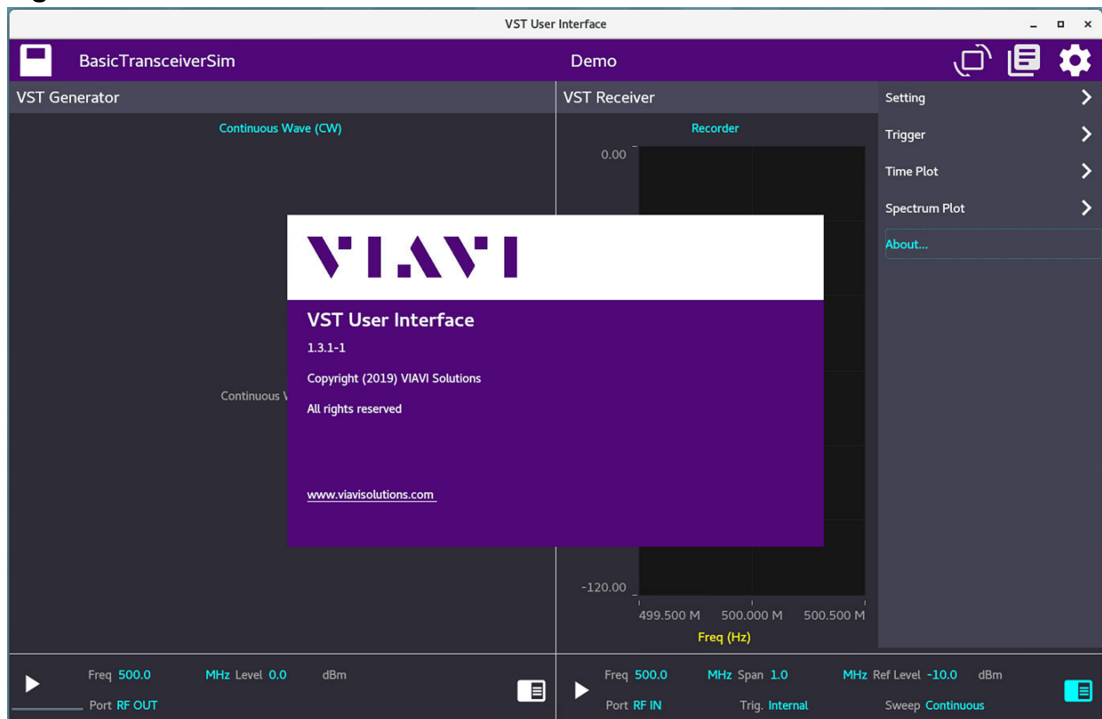
Marker Delete Button

The Marker Delete button is displayed when a marker is added to the Plot Field. Pressing this button deletes the marker from the plot.

About Window

The About Window displays information about VST UI Client software. The About Window is opened by selecting the About Button from the Receiver Functions Menu. The About Window is closed by pressing the About Button or by clicking/selecting the About Window.

Figure 6-18 VST UI Client About Window



VST Generator

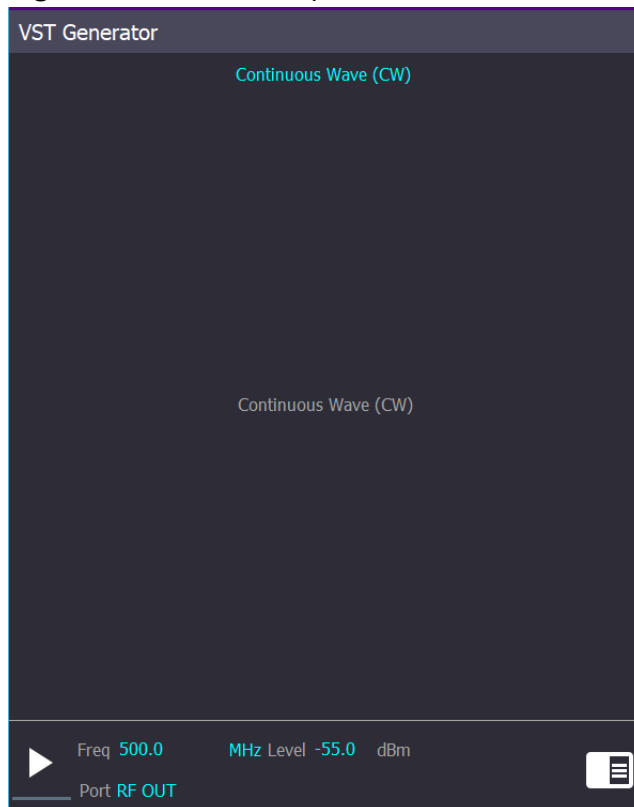
This section describes Generator controls, settings and operation.

Generator Staging Area

The Generator Staging Area is a dynamic area that changes according to the selected mode of operation as well as functions that are enabled on the Generator. The following images show examples of layouts users may encounter when configuring the Generator.

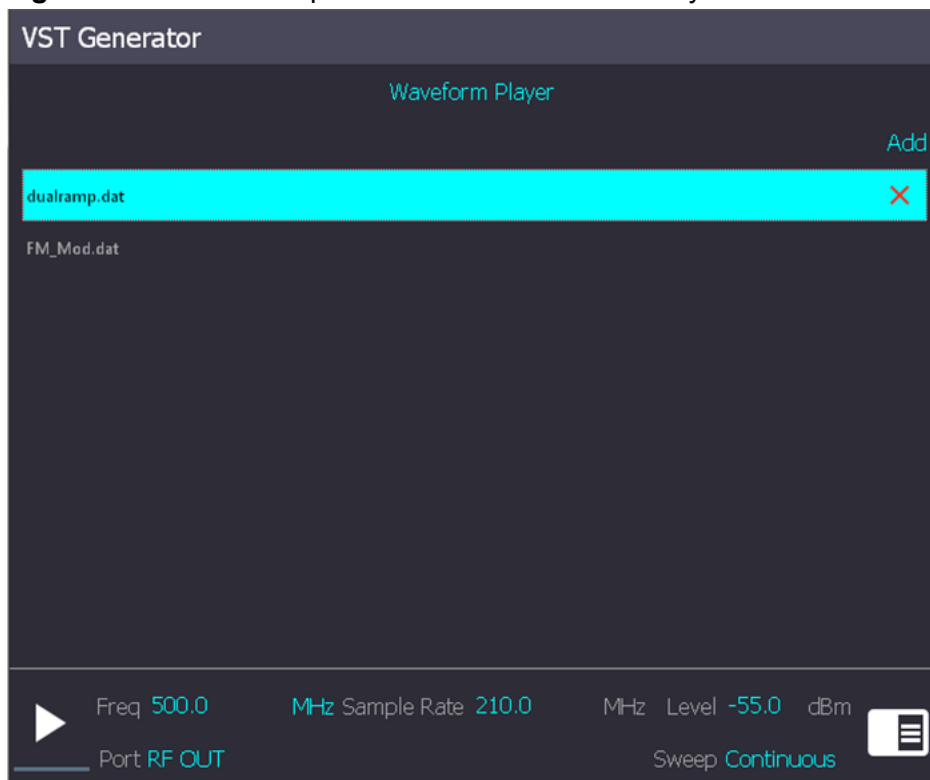
Figure 6-19 shows an example of the Generator Staging Area when Continuous Wave (CW) Mode is selected.

Figure 6-19 Example: Generator Continuous Wave (CW) Mode



The second image shows an example of the Generator when Waveform Mode is selected.

Figure 6-20 Example: Generator Waveform Player Mode



Generator UI Components

This section describe the controls and settings which are used to configure the VST's generator functions.

Mode Menu

The Mode Menu located at the top of the Generator Panel selects the Generator's mode of operation. When a mode is selected, the Staging Area updates to display controls and settings for the selected mode.

Continuous Wave (CW) Mode

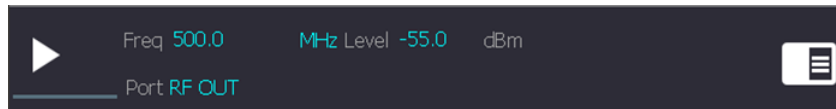
CW Mode is used to output a simple, single-frequency CW tone signal.

Waveform Player Mode

Waveform Player Mode is used to output a signal from a waveform file.

Continuous Wave Controls and Settings

Figure 6-21 Continuous Wave (CW) Function Toolbar



Signal Control Button

The Signal Control Button starts and stops the playback of a Continuous Wave signal (CW Mode) or waveform file (Waveform Player Mode).



Press to play the CW signal (CW Mode) or waveform file (Waveform Player Mode).



Press to stop playing the CW signal (CW Mode) or waveform file (Waveform Player Mode).

Frequency (Freq) Field

The Freq field defines the frequency of the outgoing CW signal.

Level Field

This Level field defines the power level of the outgoing CW signal.

Port Menu

The Port Menu selects the Generator RF Output Connector where the signal is being output. The Generator Output Port should be selected based on the type of signal being generated.

RF Out

The RF Output Connector provides the maximum RF output level from the RF Generator.

DUPLEX

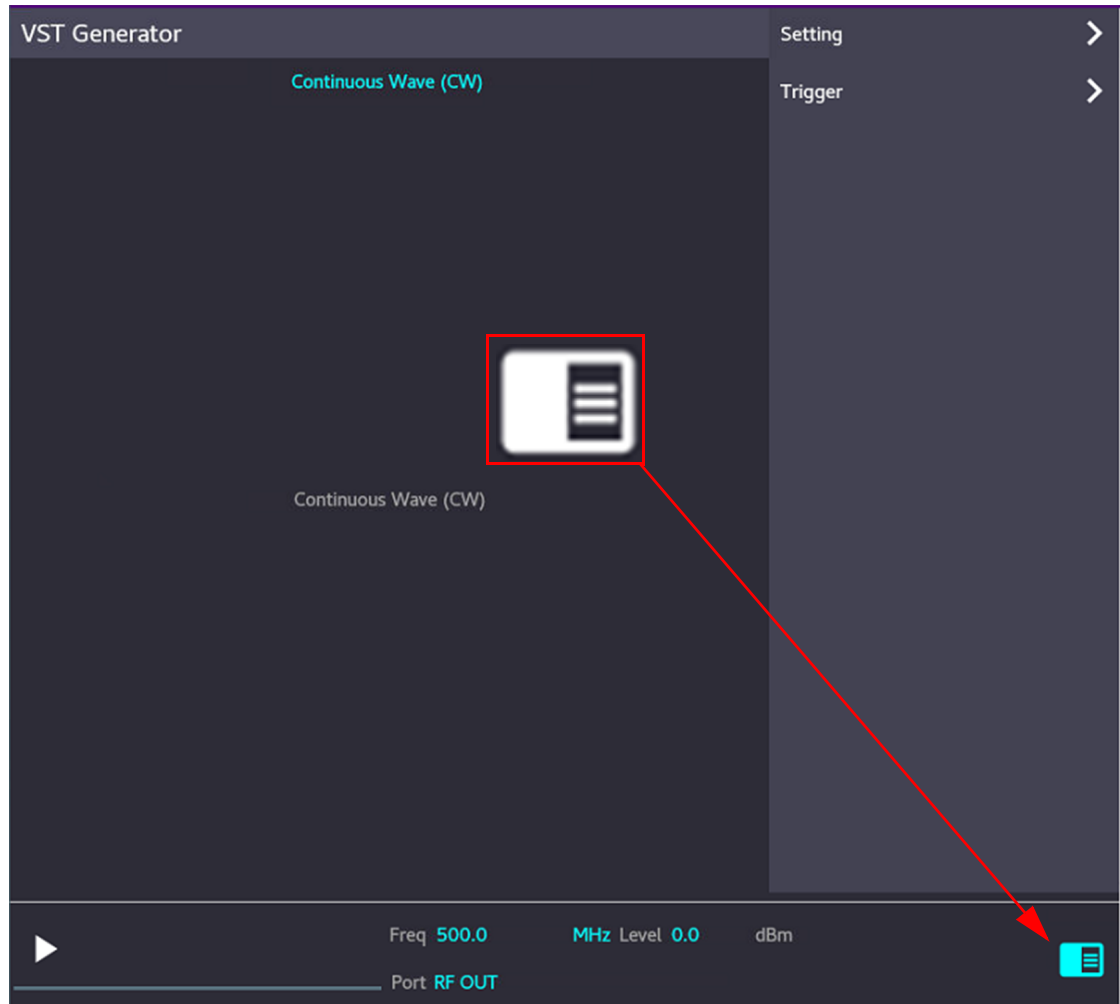
The RF Duplex Connector is used to measure high-power RF signals. This connector is capable of simultaneously generating and receiving RF signals. Refer to product data sheet for valid frequency range.



Generator Functions Button/Menu

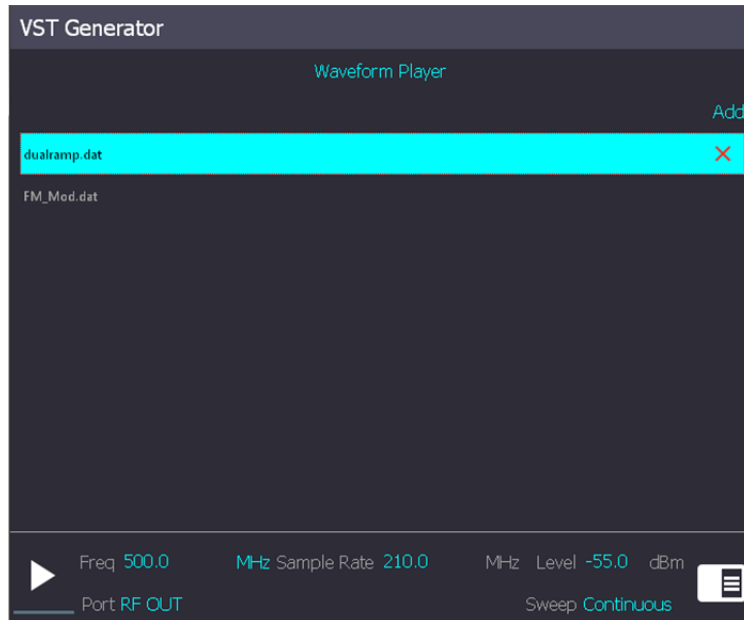
The Functions Menu Button opens and closes the Generator Functions Menu. The Generator Functions Menu accesses additional settings, controls and functions that are used to configure and operate the mA-6A30 Generator. Refer to the [“Generator Functions” on page 6-29](#), for details.

Figure 6-22 Generator Functions Menu



Waveform Player Controls and Settings

Figure 6-23 Waveform Player Controls and Settings



Add Button

Pressing the Add Button opens a window that allows the user to select waveform files that can be added to the Waveform Player File List.

A file is removed from the file list by clicking on the "X" button.

File List Table

This table displays the waveform files that have been added to the Waveform Player File List. A file must be added to the File List before it can be played using the VST Generator Waveform Player.

Sample Rate

The Sample Rate Field defines the Sample Rate at which the waveform will be played. Sample Rate defines number of data points generated per second: value is displayed as a frequency value. For example, 210 samples/second means that 210 discrete data points are generated every second which is displayed as a 210 MHz sample frequency

Time Domain Consideration

To produce an accurate representation of the correct peak amplitude of the signal in the time domain, the Sample Rate should be set to at least 10 times faster than the highest frequency of interest. For example, for a 5 MHz sine wave, the minimum recommended sampling rate would be 50 MHz.

Frequency Domain Considerations

To produce an accurate representation of the correct peak amplitude of the signal in the frequency domain, the Sample Rate should be set to at a minimum of two times faster than the highest frequency of interest. For example, for a 10 MHz sine wave, the minimum recommended sampling rate would be 20 MHz.

Frequency (Freq) Field

The Freq field defines the frequency at which a waveform is played.

Level Field

The Level field defines the power level at which a waveform is played.

Sweep Mode Menu

This menu selects the mode used to output the signal.

Single

The generator will play the waveform only one time.

Continuous

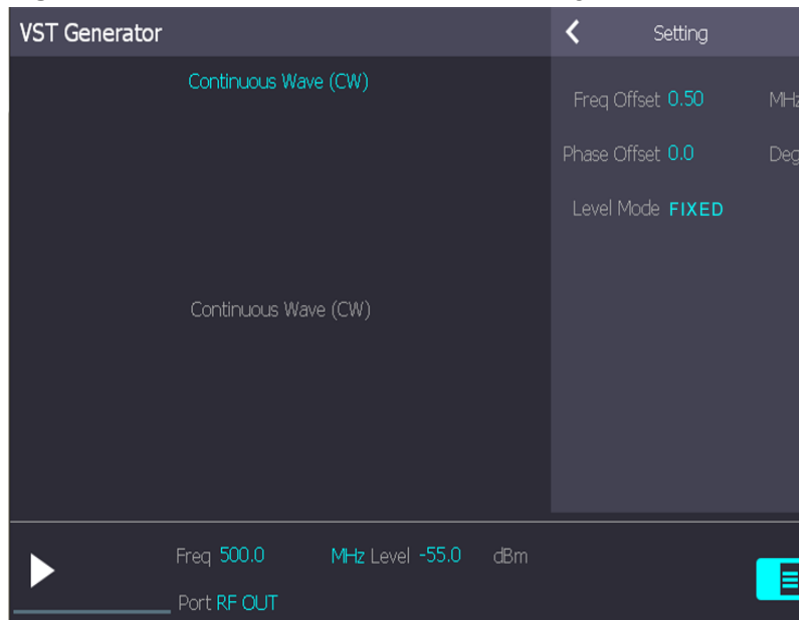
The generator will play the waveform to completion and repeat in a continuous loop until the stop button is activated (see [“Signal Control Button” on page 6-25](#))

Generator Functions

Setting Panel

The Settings Panel contains parameters that are used to configure the waveform that is generated (Continuous Wave (CW) Mode) or played back (Waveform Player Mode) by the mA-6A30 Generator.

Figure 6-24 Generator Function Settings Panel



Frequency Offset Field

The Frequency (Freq) Offset field defines the value by which the Generator tuning frequency is shifted in reference to the Generator FreqContinuous Waveuency field. The output signal will be digitally corrected to output at the correct frequency. Offsets can be applied to avoid the carrier null at the center of the Generator bandwidth.



NOTE

Applying a frequency offset will reduce maximum Generator instantaneous bandwidth.

Phase Offset Field

Specifies the phase shift (in degrees) of the Generator frequency in reference to center frequency specified.

Level Mode Menu

The Level Mode menu selects the RF level type for the generated signal.

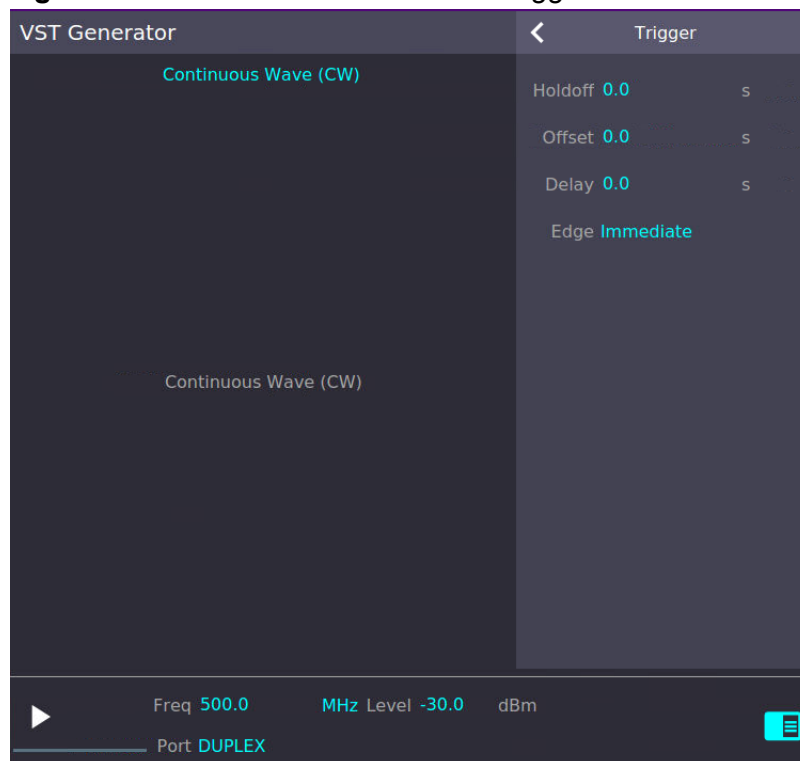
Fixed

The level is a constant value configured by the user in the Level field.

Trigger Panel

Trigger Panel settings and parameters are used to configure how the Generator responds following a trigger event.

Figure 6-25 Generator Function Trigger Panel



Holdoff Field

This field defines the length of time between when a trigger event occurs and when the Generator initiates signal output. When a trigger event occurs, the Generator pauses the defined length of time before outputting a signal (CW or waveform file).

Offset / Delay Fields

The Offset and Delay fields work in the same manner as the Holdoff setting and create a post trigger delay.

Edge Menu

Defines which edge of the trigger signal is used to initiate signal output.

Negative Edge

The negative (falling) edge of the trigger initiates the Generator's signal output.

Positive Edge

The positive (rising) edge of the trigger initiates the Generator's signal output.

Immediate

Generator output is started immediately when the trigger event occurs.

Normalize Function

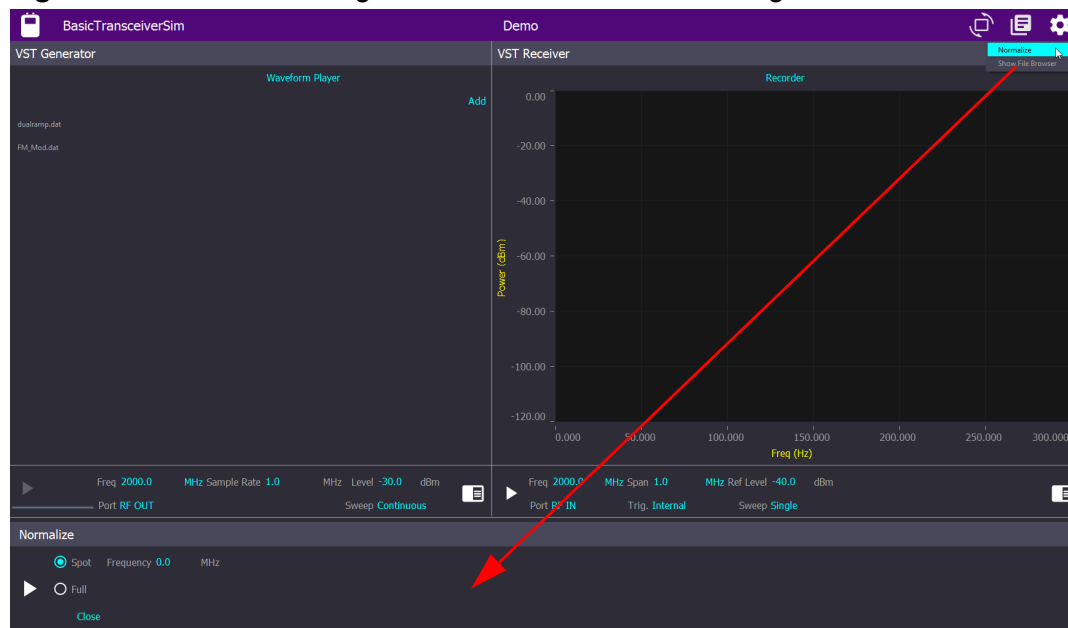
The Normalize function performs a series of internal measurements and corrections to reduce measurement inaccuracies which may occur due to environmental conditions. Normalize optimizes various performance parameters, including carrier leakage, IQ gain and balance, Third Order Intercept (IP3), and level correction. Normalize should be performed as often as desired by the user to correct for temperature and time drift (typically at the start of the day, after the equipment has been powered on long enough to reach thermal stability).

Accessing Normalize



The Normalize controls and settings are accessed using the Utility Button. When Normalize is selected, the bottom of the VST UI updates to display a panel that contains the Normalize controls and settings.

Figure 6-26 Accessing Normalize Controls and Settings



Normalize Power Warning

A dialog window will be generated to prompt the user to disconnect any connections from the VST before running normalize. To ensure proper normalization, prior to running the Normalize procedure, remove all external connections from the RF IN, RF OUT, and DUPLEX connectors on the VST.



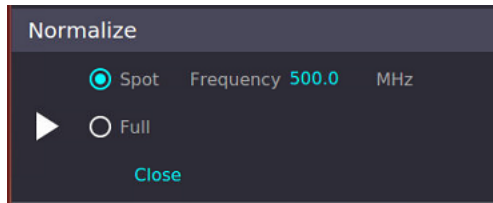
NOTE

Failure to remove external signal sources may introduce inaccuracy in the normalize procedure due to leakage of the incident signal adding or subtracting in phase with the internal normalization source signal.

Spot Normalize

Spot Normalize performs a Normalization to optimize performance at a single frequency. Spot Normalization will only remain valid until it is performed again at a different frequency.

Figure 6-27 Spot Normalize Controls and Settings



Frequency

Defines the frequency at which Spot Normalize will be performed.

Play Button

Starts the Spot Normalize process.

Stop Button

Stops the Spot Normalize process.

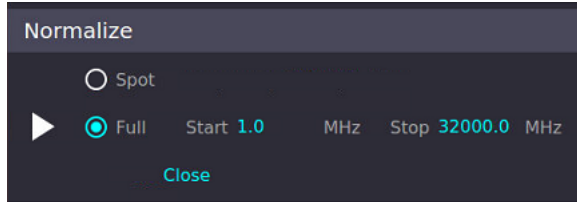
Close

Closes the Normalize control settings panel.

Full Normalize

Full Normalize performs a Normalization designed to re-align performance over the full frequency range of the VST.

Figure 6-28 Full Normalize Controls and Settings



Start

Read-only field that defines the start frequency for Full Normalize.

Stop

Read-only field that defines the stop frequency for Full Normalize.

Play Button

Starts the Full Normalize process.

Stop Button

Stops the Full Normalize process.

Close

Closes the Normalize control settings panel.



NOTE

Do not interrupt system during Normalization, as this will cause a serious error and prevent proper function. The message "Normalize is in Process..." will be displayed while the normalize function is being performed.

Using the VST

Receiver Functions

This section describes how to configure the mA-6A30 to perform the following functions:

- Display an incoming signal.

How to Display an Incoming Signal

- 1 Connect the cable with the incoming signal to the mA-6A30 RF Input or RF Duplex port. See “RF Input/Output Connectors (5:12)” for more information.
- 2 Open the VST UI Client. See “Opening the VST UI Client” for more information.
- 3 Set recorder frequency, span and level to match the incoming signal. See “Receiver Functions” for more information.
- 4 Select desired input port. See “Receiver Functions” for more information.
- 5 Set trigger to internal, and sweep to continuous. See “Receiver Functions” for more information.
- 6 Press play.

Generator Functions

This section describes how to configure the mA-6A30 to perform the following functions:

- Output a Continuous Wave Signal.
- Output a waveform file.

How to Output a Continuous Wave (CW) Signal

- 1 Connect cable from the RF Output or RF Duplex port to the desired device.
- 2 Open the VST UI Client.
- 3 Select Continuous Wave (CW) from Generator Mode Menu. See “Waveform Player Controls and Settings”.
- 4 Configure the Generator output freq and level parameters. See “Generator Functions” for more information.
- 5 Select the desired output port. See “Generator Functions” for more information.
- 6 Press play.

How to Output Waveform File

- 1 Connect cable from the RF Output or RF Duplex port to the desired device.
- 2 Open the VST UI Client.
- 3 Select Waveform Player from Generator Mode Menu. See “Waveform Player Controls and Settings” for more information.
- 4 Select waveform from list, or add desired waveform from file. See “Waveform Player Controls and Settings” for more information.
- 5 Configure the Generator output freq level and sample rate parameters. See “Generator Functions” for more information.
- 6 Select the desired output port. See “Receiver Functions” for more information.
- 7 Set sweep to continuous. See “Generator Functions” for more information.
- 8 Press play.



NOTE

Waveform files must be .dat to be generated from VST UI client.

Using Markers

Adding a Marker

A marker is added to a Plot Field by pressing the Add Marker Button.

Deleting Markers

A marker is deleted by pressing the "X" Button located on the Marker Measurement Bar.

Moving Markers

How to move a marker

- 1 Add a marker to the Plot Field. If more than one marker is present on the Plot Field, select the Marker that you wish to move.
- 2 Press the Left or Right Arrow Button to move the marker to the desired location on the signal trace.



NOTE

Markers can also be positioned on the plot field by selecting the marker and dragging and dropping the marker to a position on the plot field.

How to create a marker delta

- 1 Add a marker to the Plot Field. If more than one marker is present on the Plot Field, select the Marker that you wish to use as a reference point to create a marker delta.
- 2 Use the Marker Navigation Buttons to move the marker to the first point of the marker delta (delta reference point).



NOTE

The Delta Reference Point cannot be changed once the Delta has been created. To change a defined Delta Reference Point, delete the Marker from the Plot Field and restart the steps to Create a Marker Delta.

- 3 Press the Delta Button to establish the Marker's position as the delta reference point. The Marker Measurement Bar updates to display Delta Measurements.
- 4 Use the Marker Navigation Buttons to move the marker the desired distance from the Delta Reference Point.

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mA-6A30 Care and Maintenance

This chapter contains instructions for the care and maintenance of the mA-6A30. Contents include the following:

- Maintaining the Device 7-2
 - Storing the Device 7-2
 - Visual Inspections 7-2
 - External cleaning 7-3
- Firmware/Software Updates 7-3
 - Methods of Updating Firmware/Software 7-3
- VST Self Test Procedure 7-4
- Module Removal/Installation Procedures 7-5
 - Removing the Module 7-5
 - Module Installation Procedure 7-6
- Shipping the mA-6A30 7-8
 - Return Authorization (RA) 7-8
 - Tagging the Device 7-8
 - Shipping Containers 7-8
 - Freight Costs 7-8
 - Packing Procedure 7-9

Maintaining the Device

The following procedures are operator level procedures that can be performed by the user. All other service must be performed by Qualified Service Personnel.



CAUTION

This device does not contain user serviceable parts. Servicing should only be performed by Qualified Service Personnel.

Mise en Garde

Cet appareil ne contient pas de pièces pouvant être entretenues par l'utilisateur. L'entretien doit seulement être effectué par du personnel de service qualifié.

Storing the Device

Module Installed in Chassis

To prepare the Chassis and module for long-term storage:

- Disconnect all accessory cords from Front and Rear Panel Connectors.
- Cover the connectors with suitable dust cover to prevent tarnishing of connector contacts.
- Refer to Chassis and module specifications for proper storage environment.

Module Removed from Chassis

To prepare the module for long-term storage:

- Remove module from Chassis.
- Place module in ESD protective packaging.
- Refer to module specifications for proper storage environment.

Visual Inspections

Visual inspections should be performed periodically depending on operating environment, maintenance and use.

- Inspect connectors for dirt, dust, corrosion or rust.
- Check the presence and condition of all warning labels and markings and supplied safety information.

External cleaning

The following procedure contains routine instructions for cleaning the exterior of the module.

- Remove grease, fungus and ground-in dirt from surfaces with soft lint-free cloth dampened (not soaked) with isopropyl alcohol.
- Remove dust and dirt from connectors with soft-bristled brush.

Firmware/Software Updates

The mA-6A30 is shipped from the factory with the latest firmware/software installed in the module. Regular checks should be performed to ensure all system hardware contains the most current software, drivers and or firmware.

Contact VIAVI Customer Service to check for the latest version of software, firmware and/or drivers.

Methods of Updating Firmware/Software

VIAVI Software Upgrade Tool

The recommended method of updating the mA-6A30's firmware/ software is to update the CMP System using the VIAVI Software Upgrade Tool. The VIAVI Software Upgrade Tool is used to update CMP Systems that contain, at minimum, an mA-1302/mA-1305 AXIe Chassis and an mA-3011 AXIe Embedded Host Module.

Refer to the mA-1302/mA-1305 AXIe Chassis Operation Manual for instructions for updating the VST as part of a CMP System update.

VST Web Browser UI

If the VST is installed in a chassis manufactured by a company other than VIAVI, the module must be updated using the VST Web Browser UI. Refer to [Appendix B "mA-6A30 Web UI Update Procedure"](#) for instructions to update the VST using the Web Browser UI.

VST Self Test Procedure

Refer to the section titled “[Self Test Page](#)” on [page 5-6](#) for a detailed description of Self Test controls and settings.

Run All Self Test Procedures

- 1 Navigate to the Self Test Page (see [Page 5-6](#)).
- 2 Press the Run All Button.
- 3 Wait while the module performs the self test procedure.

Run Specific Self Test Procedure

- 1 Navigate to the Self Test Page (see [Page 5-6](#)).
- 2 Select the test(s) to be performed.
- 3 Press the Run Selected Button.
- 4 Wait while the module performs the selected self test procedure.

Module Removal/Installation Procedures

This section contains procedures for removing and installing the module. The procedures in this section are intended for Qualified Service Personnel.



CAUTION

Modules are ESD sensitive and should only be installed, removed and/or serviced by Qualified Service Personnel.

Mise en Garde

Les modules sont sensibles aux DES et ils doivent seulement être installés, enlevés ou entretenus par du personnel de service qualifié.

Removing the Module

How to Remove Module

- 1 Power down the Chassis.
- 2 Fully loosen the captive screws on each side of the module.
- 3 Grasp the module Securing Latches and pull the Latches outwards and away from the module to disconnect the module from the Backplane Connectors.
- 4 Pull until the Securing Latches are at a 90° angle with the front of the module. See [Figure 7-2 on page 7-7](#).
- 5 Grasp the module and pull to remove the module from the Chassis.

If the module is being returned to the factory for service, refer to section [“Shipping the mA-6A30” on page 7-8](#) for important information.

Module Installation Procedure

The mA-3A01 is designed for installation in an AXIe Chassis compliant to AXIe-1 Base Architecture Specification, Revision 3.0.



CAUTION

Modules are not "hot-swappable." The Chassis must be powered down before installing or removing modules from the Chassis.

Mise en Garde

Les modules ne peuvent pas être « changés lorsque sous tension. » Le châssis doit être mis hors tension avant d'installer ou d'enlever des modules du châssis.



CAUTION

Use care when installing modules to avoid damaging any modules already installed in the Chassis.

Mise en Garde

Faites attention lors de l'installation de modules afin d'éviter d'endommager les modules déjà installés dans le châssis.



CAUTION

Modules are ESD sensitive and should only be installed, removed and/or serviced by Qualified Service Personnel.

Mise en Garde

Les modules sont sensibles aux DES et ils doivent seulement être installés, enlevés ou entretenus par du personnel de service qualifié.

Preliminary Procedures

Verify the following before beginning installation:

- Slot does not contain foreign objects or debris.
- Chassis Backplane connector pins are not bent or damaged.

How to Install the Module

- 1 Power down the Chassis.
- 2 If the module has securing latches, position the latches at a 90° angle to the front of the module.



NOTE

The securing latch must be placed in the unlocked position - pulled out and away from the latch mechanism - or module cannot be properly inserted and seated with the Chassis backplane connectors.

Figure 7-1 Securing Latch - Locked Position



Figure 7-2 Securing Latch - Unlocked Position



Figure 7-3 Securing Latch - Unlocked and Unlatched



- 3 Position the module on the Chassis Side Rails. Slide the module into the card cage.



NOTE

If the module does not slide smoothly along the side rails, remove the module, realign and reinsert the module.

- 4 Fully insert the module into Card Cage. Press firmly to securely connect module pins with Backplane Assembly Connectors.
- 5 Press the securing latches into the Locked Position.
- 6 Hand tighten the captive screw on each side of module. Securely tighten each captive screw to ensure module is properly grounded via the Chassis.

Shipping the mA-6A30

Any device returned to factory for calibration, service or repair must be repackaged and shipped subject to the following conditions:

Return Authorization (RA)

Do not return any products to the factory without prior authorization from VIAVI Customer Service.

Tagging the Device

All items shipped to VIAVI must be tagged with:

- Owner's Identification and contact information
- Nature of service or repair needed
- Model Number and Serial Number
- Return Authorization (RA) Number

Shipping Containers

Devices must be repackaged in original shipping containers using VIAVI packing materials. If original shipping containers and materials are not available, contact VIAVI Customer Service for shipping instructions.

Freight Costs

All freight costs on non-warranty shipments are assumed by the customer. VIAVI recommends that customers obtain freight insurance with the freight carrier when shipping the device.

**NOTE**

VIAVI is not responsible for the cost of repairs for damages that occur during shipment on warranty or non-warranty items.

Packing Procedure

Devices must be repackaged in original shipping containers using VIAVI packing materials. If original shipping containers and materials are not available, contact VIAVI Customer Service for shipping instructions.



NOTE

VIAVI is not responsible for the cost of repairs for damages that occur during shipment on warranty or non-warranty items.

Contact Customer Service to obtain a Return Authorization number, return address and for questions about proper packaging.

Packaging Procedure

- 1 Place module in ESD protective packaging/envelope.
- 2 Place module between foam inserts.
- 3 Place secured module in shipping container
- 4 Seal shipping container for shipment.

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mA-6A30 Safety and Compliance Specifications

This section contains safety and compliance specifications for the mA-6A30 VST with 30 GHz Downconverter. Refer to the mA-6A30 Data Sheet for complete product specifications.

- [Unit Specifications](#) A-2
- [Environmental Specifications](#) A-2
- [Electrical Specifications](#) A-3
- [Regulatory Standards and Compliance](#) A-3

Unit Specifications

Table A-1 mA-6A30 Physical specifications

Parameter	Specification
Height	30 mm
Width	280 mm
Depth	322.5 mm
Weight	1.9 kg
Form Factor	1 slot AXIe

Environmental Specifications

Tested in accordance with VIAVI Solutions internal test plan. Test limits align with MIL-PRF-25500.

Table A-2 Operating and storage environment

Parameter	Specification
Operating Temperature	0°C to 50°C
Storage Temperature	-40°C to 71°C
Warm-up Time	30 minutes
Humidity	50% at 40°C
Altitude	4600m (15091ft)
Functional Shock	15G Tested in accordance with IWEC 680068-2-27
Random Vibration	5 to 500Hz random

Electrical Specifications

Table A-3 Power Requirements

Connector	Specification
Operating Voltage	48 VDC
Power Dissipation	≤ 100 W

Table A-4 Maximum Input Level

Connector	Specification
RF Input Connector	SMA Type Connector +10 dBm, ±16 Vdc
RF Duplex Input Connector	SMA Type Connector +40 dBm, ±0 Vdc
Trigger Input Connectors	SMB Type Connectors Specifications apply to Trigger Input Connectors A:D +3.3 V CMOS,-0.2 to +5 V Tolerant

Regulatory Standards and Compliance

Table A-5 Compliance Standards

AXIe-1 Base Architecture Specification, Revision 3
ATCA PICMG 3.0 Revision 3.0 Specification

Table A-6 EMC Compliance

47 CFR, Part 15, Class A Device
EMC Directive 2004/108/EC
IEC/EN 61326-1

Table A-7 Safety Standards

IEC/EN 61010-1 - 1:2010 3rd Edition

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mA-6A30 Web UI Update Procedure

The following procedure is used to update the firmware/software of the mA-6A30 VST with 30 GHz Downconverter when the module is installed in a chassis that is not part of the VIAVI Configurable Modular Platform (CMP) product line.

Read this procedure in its entirety before proceeding.

- [Firmware/Software Distribution Methods](#) B-2
- [Procedure Requirements](#) B-2
- [Web UI Update Procedure](#) B-3

Firmware/Software Distribution Methods

Firmware and software update distribution methods vary based on the export classification of the software as well as customer requirements. Firmware and software updates are distributed as a tar.gz file.

- The tar.gz file will be distributed to customers on a USB device or CD.
-OR-
- An email will be sent to the end user with a link to download the tar.gz file from a secure file exchange server.



NOTE

The distributed tar.gz file will contain the latest version of software and firmware for the VST, Chassis and other CMP instruments which may be installed in the Chassis.

Procedure Requirements

The mA-6A30's IP Address is required to perform the update procedure. If you do not know the module's IP Address, refer to the section titled "[Locate mA-6A30 IP Address](#)" on [page 4-5](#)) for instructions.

Web UI Update Procedure

This procedure describes how to update module firmware/software using the VST Web Browser UI. This procedure is based on the expectation that the software will be copied to a directory on the AXIe systems' host controller. The update can also be performed by copying the update file to a USB storage device.

To update via VST Web UI

- 1 Copy or download the tar.gz or .tgz file to a local directory on the systems host controller.
- 2 Open a web browser on the system's Host Controller.
- 3 Enter the mA-6A30's IP Address in the web browser URL field to display the VST Web UI.
- 4 Navigate to System Update Page:
 - Access: Main Menu > System Update
- 5 Change Update Mode to File Path.
- 6 Update the file path to point to the directory containing the update file.
- 7 Press the Check for Update Button. Wait while the Chassis shelf manager queries the software source location.
- 8 If a more current version of software is identified, the Update Button is enabled. Press the Update Button.
- 9 Wait while the Chassis Shelf Manager performs the update. Do not interrupt this process.
- 10 When the update is complete, reboot the system.

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Glossary

A - C

ADC — Analog to Digital Converter

ALC — Automatic Level Control

API — Application Programming Interface

CMP — Configurable Modular Platform

CW — Continuous Wave

D - F

DAC — Digital to Analog Converter

dB — decibel

DHCP — Dynamic Host Configuration Protocol

EMI — Electromagnetic Interference

ESD — Electrostatic Discharge

FPGA — Field Programmable Gate Array

G - I

- GB** — gigabyte
- GbE** — Gigabit Ethernet
- GHZ** — gigahertz
- IBW** — Instantaneous Bandwidth
- ICM** — Instrument Carrier Module
- IF** — Intermediate Frequency

L - M

- LO** — Local Oscillator
- MHz** — megahertz

P - S

- PCIe** — Peripheral Component Interconnect Express
- RA** — Return Authorization
- RF** — Radio Frequency
- SPI** — Serial Peripheral Interface
- SoC** — System-on-Chip

T - U

- UI** — User Interface
- VSA** — Vector Signal Analyzer
- VSG** — Vector Signal Generator
- VST** — Vector Signal Transceiver



22130631 Rev. B0
May 2020
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