

Product Brief

# VIAVI

## UAT 978 MHz Option

For the ATC-5000NG (ATCNGOPT02)

The UAT Option enables the UAT test capability which can be accessed from the Scenario Screen. UAT test capability allows the user to perform testing on their UAT receiver, including DO-282 MOPS testing.

There are several UAT Test Modes of Operation tailored for the different types of DO-282 MOPS tests. For each mode, there is a common setup requirement as well as common capabilities.

### UAT Setup Requirement

The UAT scenario requires a 1 PPS (One pulse per second) signal input in TX Mod #1 input on the back of the ATC-5000NG to run the scenario.

### UAT Test Mode Common Capabilities

- Each channel allows 32 dynamic targets and 1500 static targets. Each target can be defined as an airborne or ground link message.
- The user can modify the eye diagram horizontal spacing and also select different filters to change the transition in the eye diagram from positive to negative frequency deviation.
- The targets can be defined in reference to an Own aircraft latitude and longitude, or as a specific offset from the Message Start Opportunity (MSO).

The ATC-5000NG NextGen ATC/DME Test Set and ADS-B Target Generator tests the following:

- Transponders (Mode S/ADS-B Out)
- ADS-B In receivers
- UAT receivers
- 1090MHz DF18 Emitters (surface vehicles)
- ADS-B In Ground Station Receivers
- ADS-R, TIS-B Ground Station Transmitters
- DMEs



## UAT Test Modes

### Normal Mode

Two transmitters or channels are available. UAT RX1 is connected to the top antenna and UAT RX2 is connected to the bottom antenna.

### Overlapping Mode

For Overlapping Mode, both internal transmitters are combined to the top antenna port allowing the user to perform the DO-282 MOPS tests associated with reception of overlapping UAT messages.

### DME Fruit 12 $\mu$ S Spacing Mode

- One UAT transmitter and one pulse modulated transmitter are combined internally to the top antenna port, allowing for the DME fruit DO-282 MOPS test to be run.
- The power and frequency of the DME 12  $\mu$ S pulse pair can be selected by the user in this mode.

### Retrigger Long ADS-B Message Mode

The user can define a long ADS-B message that is re-triggerable (the UAT preamble is embedded in the message more than once) which allows for DO-282 MOPS testing of the receiver retrigger capability.

### Retrigger Long Ground Link Message Mode

This mode is similar to Retrigger Long ADS-B Message, except that it is used to test the receiver capability on retrigger ground uplink messages.

### 1090 Pulse Interference Mode

Allows for transmission of UAT messages with a pulse modulation. The user can define the power and frequency of the interference signal. This mode is used to test the 1090 pulse interference test in DO-282.

### Ground Link Message Invalid MSO Mode

Allows the user to transmit a ground link message with an invalid MSO location. This mode allows testing the DO-282 test require for ground link invalid MSO.

### Airborne Message Invalid MSO Mode

Allows the user to transmit airborne messages with an invalid MSO location. This mode allows for the testing of the DO-282 test requirement for airborne invalid MSO.

### Doppler Test Mode

Allows the user to generate a positive or negative Doppler frequency shift on the UAT modulation frequency for the DO-282 Doppler test.

### Modulation Frequency Mode

Allows the user to change the vertical spacing of the eye diagram (+/- 312.5 KHz). The modulation frequency can be changed from approximately 156 KHz to 683 KHz for DO-282 MOPS test requirements.

### DME Fruit 30 $\mu$ S Spacing Mode

- One UAT transmitter and one pulse modulated transmitter are combined internally to the top antenna port, allowing for testing of the DME fruit DO-282 MOPS test.
- The power and frequency of the DME 30  $\mu$ S pulse pair can be selected by the user in this mode.

### Doppler Modulation Frequency Mode

Allows the user to generate a positive or negative Doppler frequency shift at a specified modulation frequency allowing the user to perform the DO-282 Doppler test.

### Receiver Selectivity Mode

Allows the user to generate a UST message with a CW signal at the specified frequency and power level. This is needed for receiver selectivity testing in the DO-282 MOPS.