

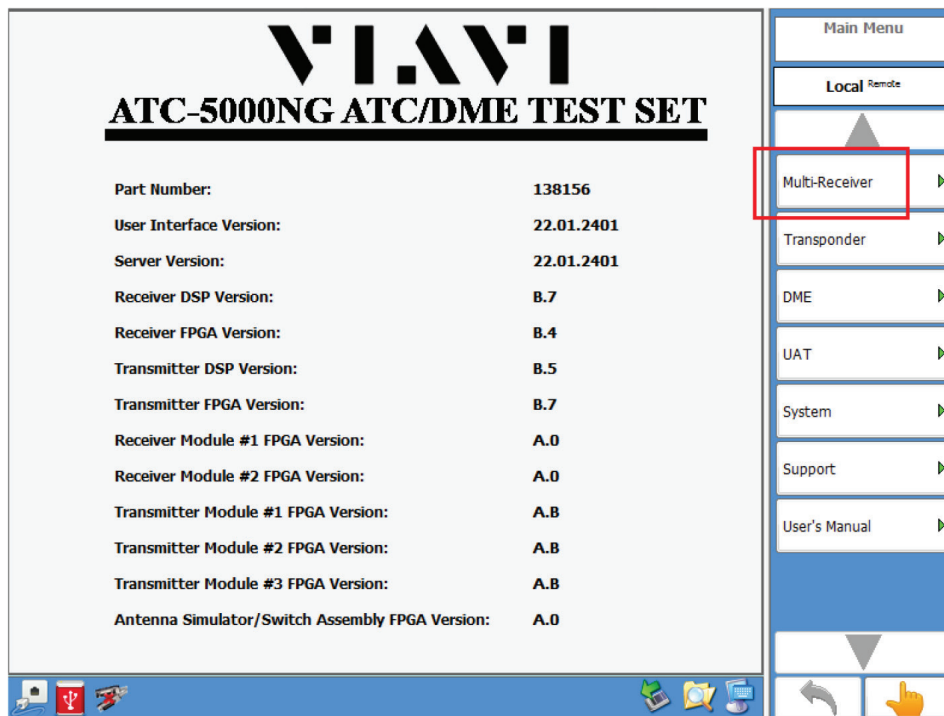
# Instructions for Generating ADS-B Messages on ATC-5000NG

This app note has been created for the purpose of guiding the user through the steps required to configure the ATC-5000NG to transmit squitter messages to test an ADS-B receiver. The squitters are as defined in the RTCA DO-260B MOPS.

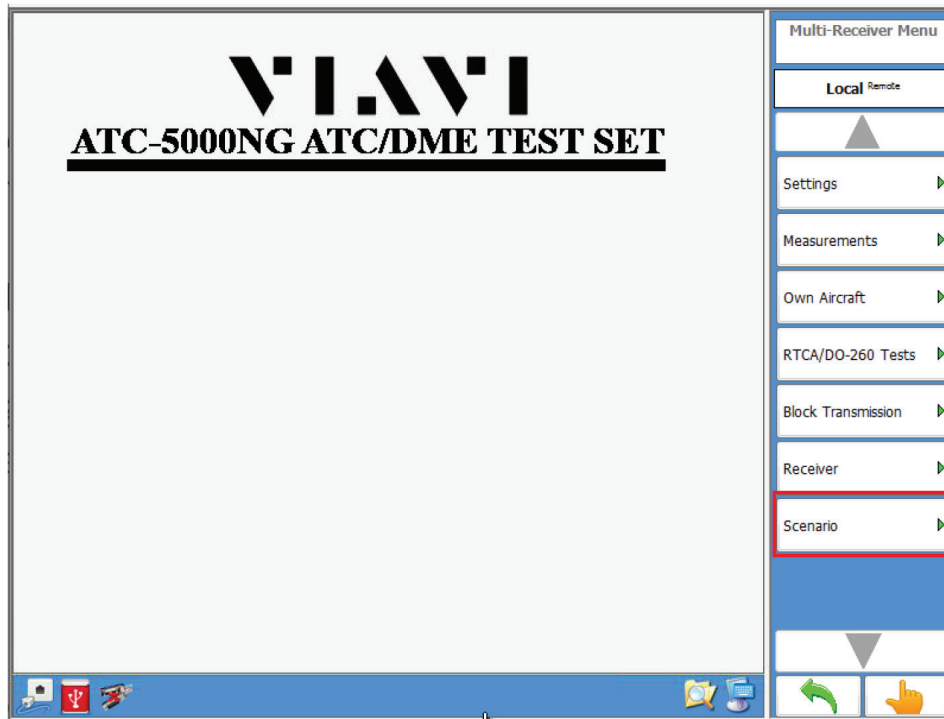
Note: Ports number 1 and number 6 on the back of the unit must be connected together using a BNC to BNC cable for the scenario to run.

## Block Scenario:

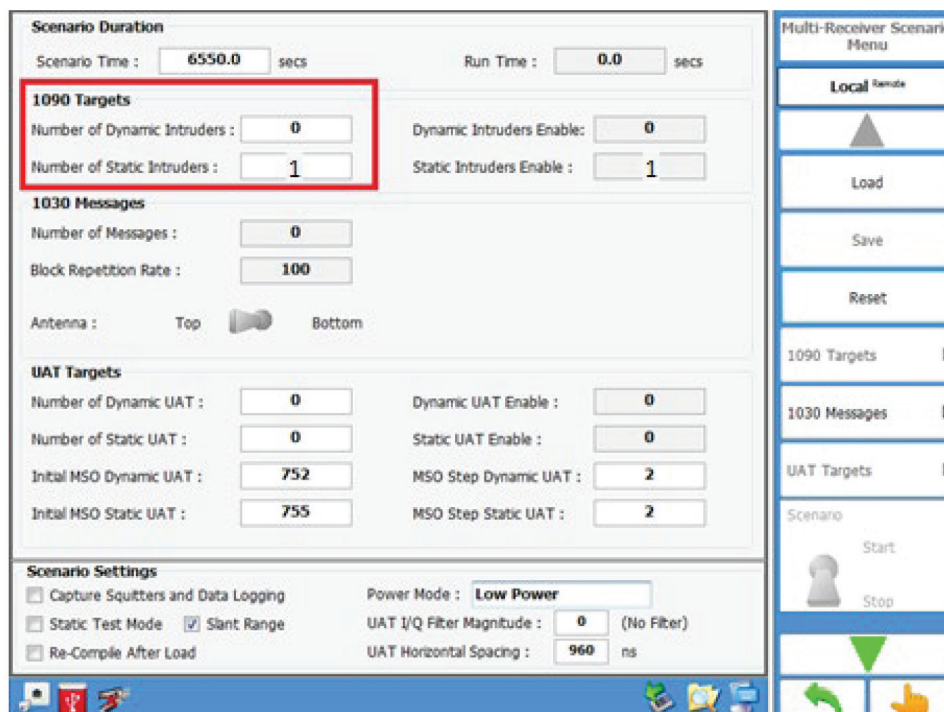
1. Select to the **"Multi-Receiver"** menu option from the Main Menu.



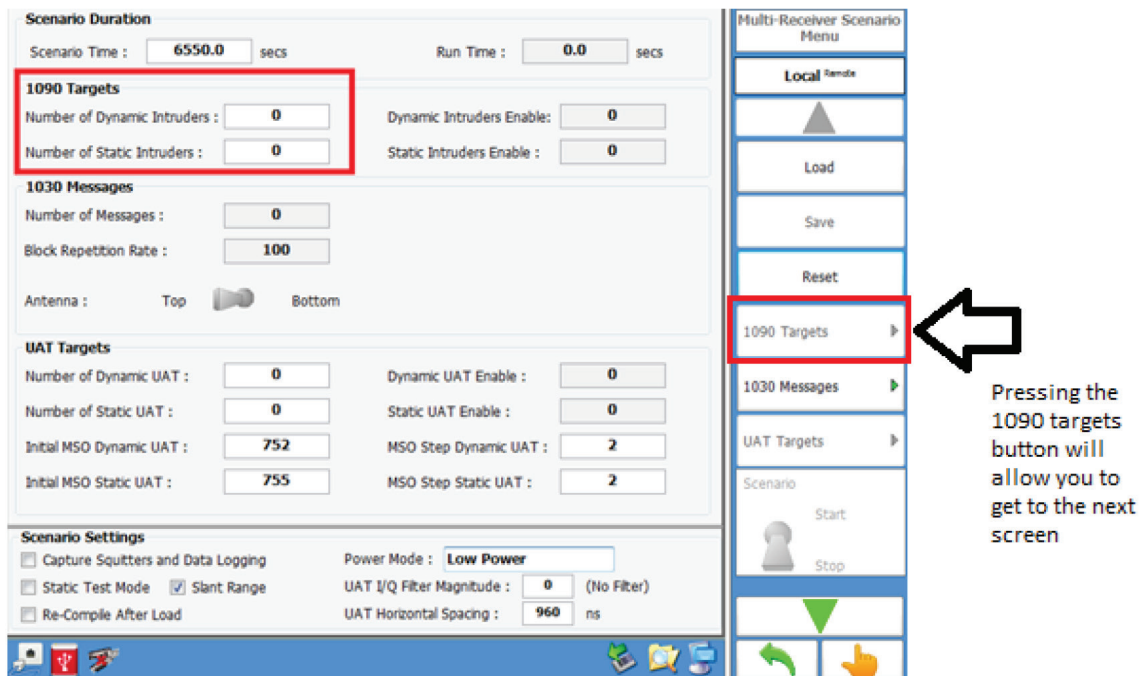
2. Select the "Scenario" option from the Multi-Receiver Menu




3. Set up 1 Static or Dynamic 1090 target.

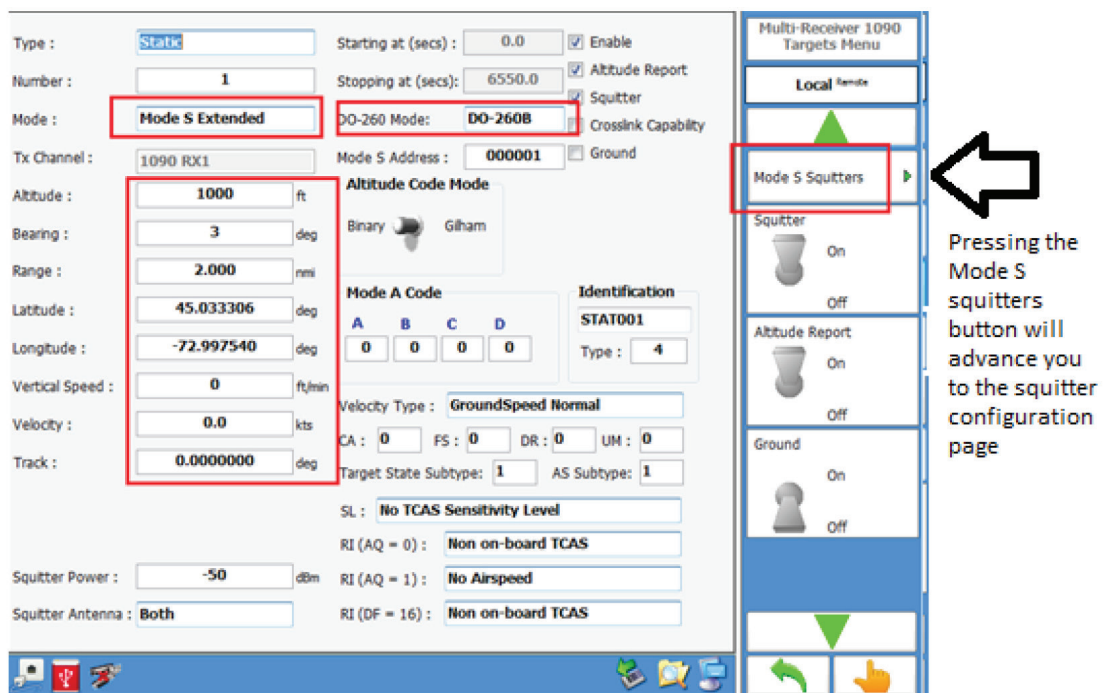


4. Pressing the 1090 Targets button will advance you to the individual target configuration page.



Pressing the 1090 targets button will allow you to get to the next screen

5. Make sure to select "Mode S Extended" Mode, "DO-260B" DO-260 Mode, and modify the message parameters as desired. Press the down arrow  one time then select the "Mode S Squitters" option from the menu.



Pressing the Mode S squitters button will advance you to the squitter configuration page

6. Select a message and then press the **“Schedule”** menu option. **Do this for each message.**

Name	Frame
DF11	580000011F1B04
Extended Squitter - Airborne Aircraft Operational Status Type 31 Version 2	88000001F8000002004838AAD0CE
Extended Squitter - Airborne Position Type 9 (Even)	88000001480B020580F79D48E662
Extended Squitter - Airborne Position Type 9 (Odd)	88000001480B0585975F6F96867F
Extended Squitter - Aircraft Status Emergency Priority Status Version 2	88000001E1000000000000F7053F
Extended Squitter - Identification Type 4	88000001244D4054C30C6054DD60
Extended Squitter - Target State And Status Type 29 Subtype 1	88000001EA00100C011C00159CC6
Extended Squitter - Velocity Over Ground Subtype 1	880000019908010020040168DB19

Target Mode S Squitters Menu

Local Remote

Squitter Details

Schedule

7. Make sure all the messages are enabled by toggling the **“Enable”** switch to the **ON** position.

No.	Start Time	Stop Time	Enable	Power (dBm)	Rate (secs)
1	0.0	6550.0	Yes	-50	1.0

Target Squitter Schedule Menu

Local Remote

Add

Remove


Start Time (sec)  
0.0

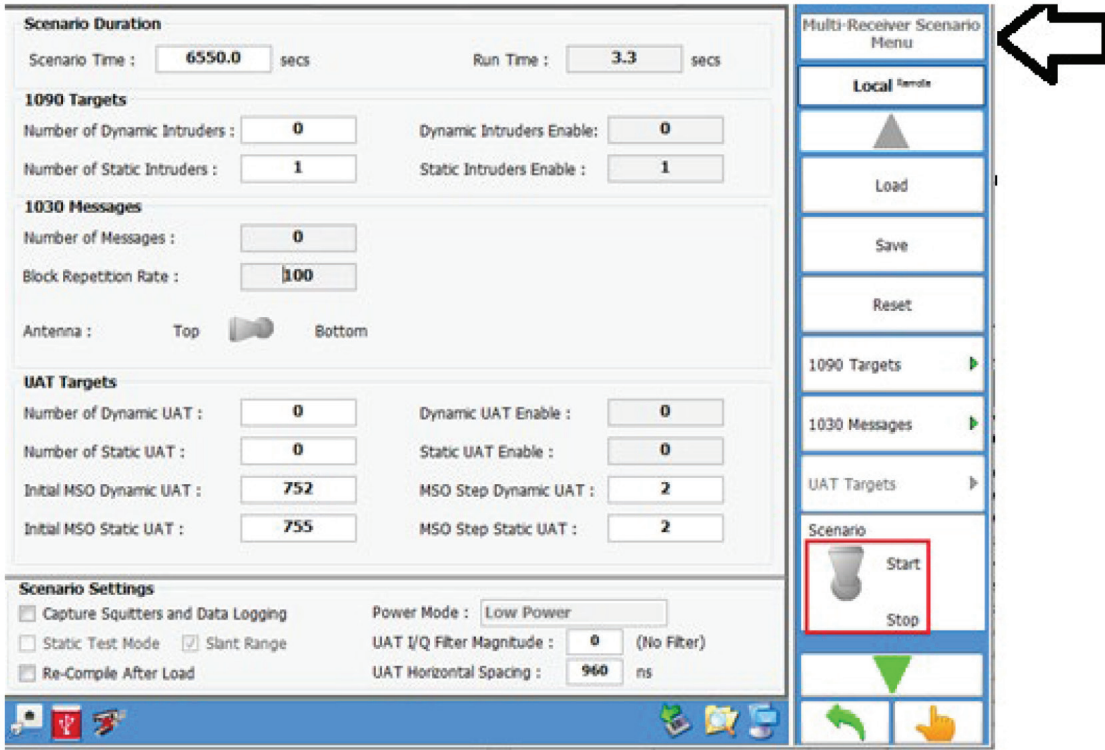
Stop Time (sec)  
6550.0

Enable

On

Off

8. Go back to the **"Multi-receiver Scenario Menu"** by pressing the previous page button  three times until on the Multi-Receiver Scenario Menu. Toggle the Scenario switch to **"Start"** the scenario.  
Note: Changes to the target can be made while the scenario is running but they will not be implemented until the switch is toggled to the **"Stop"** and then **"Start"** again.



The screenshot shows the Multi-Receiver Scenario Menu interface. The main panel contains the following settings:

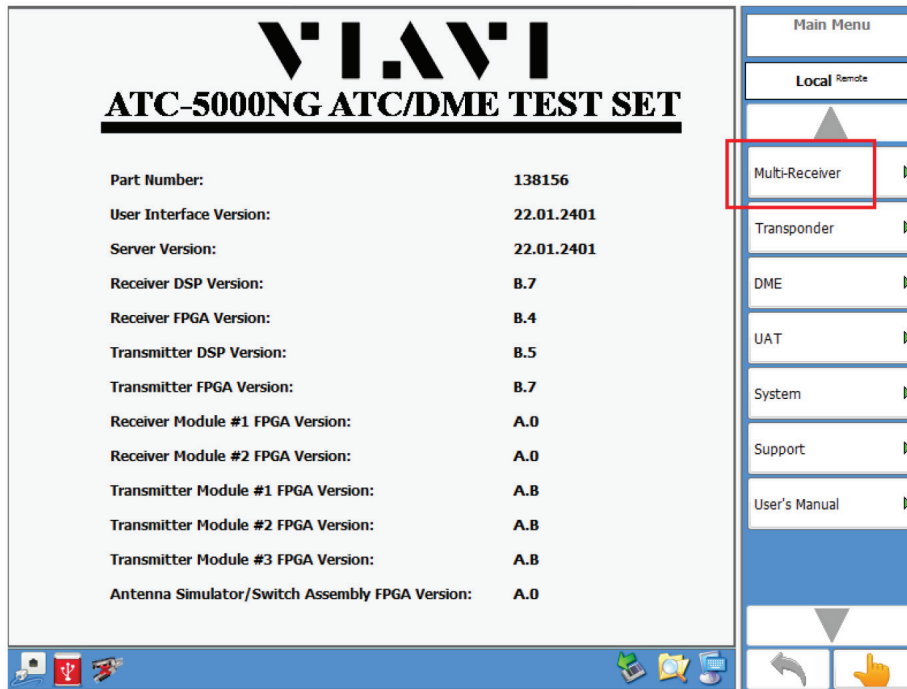
- Scenario Duration:** Scenario Time: 6550.0 secs, Run Time: 3.3 secs
- 1090 Targets:** Number of Dynamic Intruders: 0, Dynamic Intruders Enable: 0; Number of Static Intruders: 1, Static Intruders Enable: 1
- 1030 Messages:** Number of Messages: 0, Block Repetition Rate: 100
- Antenna:** Top (selected), Bottom
- UAT Targets:** Number of Dynamic UAT: 0, Dynamic UAT Enable: 0; Number of Static UAT: 0, Static UAT Enable: 0; Initial MSO Dynamic UAT: 752, MSO Step Dynamic UAT: 2; Initial MSO Static UAT: 755, MSO Step Static UAT: 2
- Scenario Settings:**
  - Capture Squitters and Data Logging
  - Static Test Mode  Slant Range
  - Re-Compile After Load
  - Power Mode: Low Power
  - UAT I/Q Filter Magnitude: 0 (No Filter)
  - UAT Horizontal Spacing: 960 ns

The right-hand side of the interface is a vertical menu titled "Multi-Receiver Scenario Menu". It includes a "Local remote" label, a "Load" button, a "Save" button, a "Reset" button, and expandable sections for "1090 Targets", "1030 Messages", and "UAT Targets". At the bottom of this menu, the "Scenario" section contains a "Start" button (highlighted with a red box) and a "Stop" button. A large black arrow points to the "Start" button.

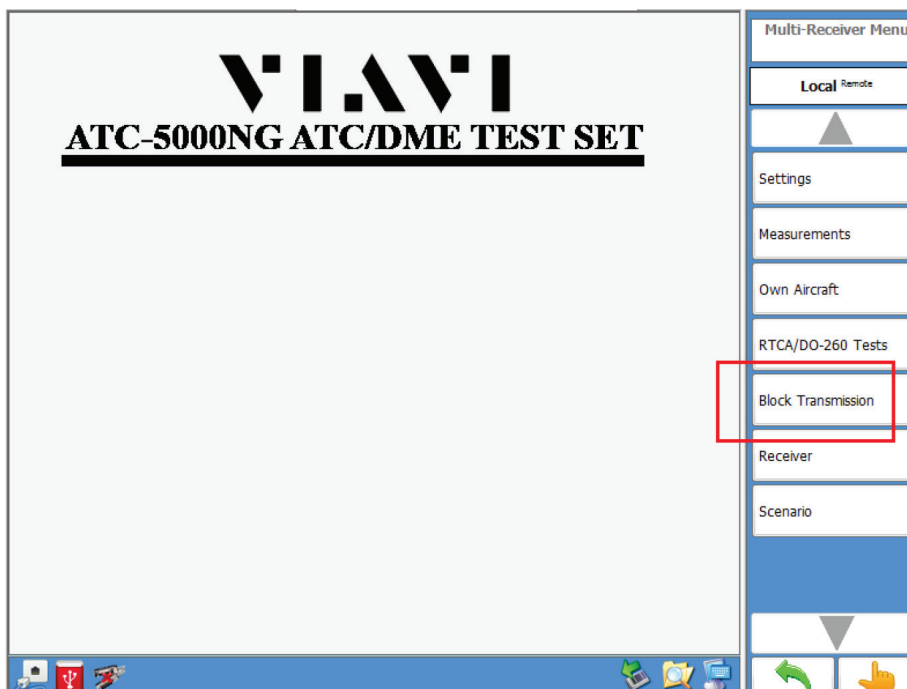
The target should be squittering the appropriate squitters at this time.

## Block Transmission:

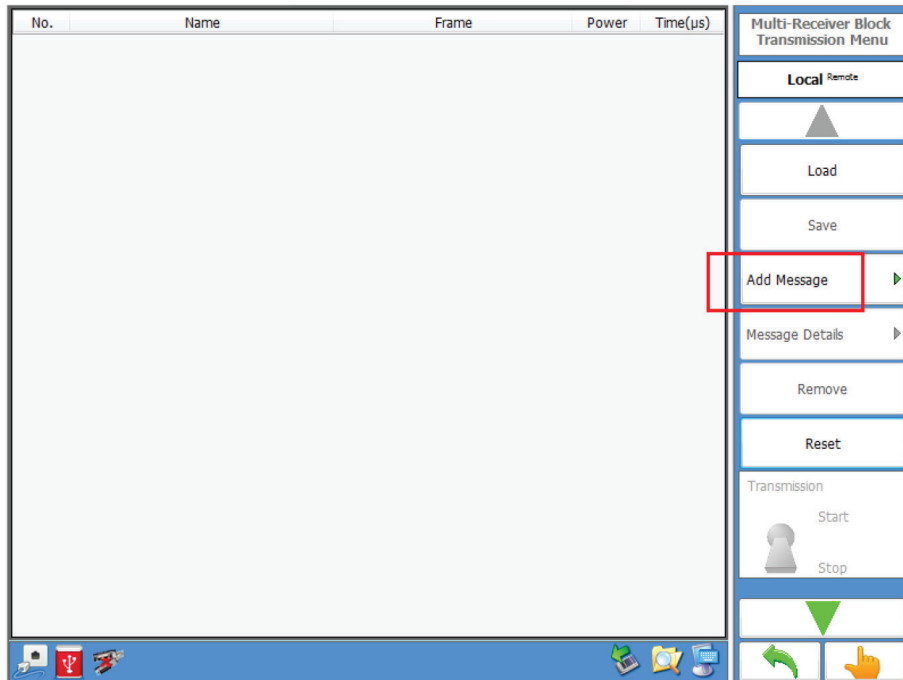
9. Select to the “Multi-Receiver” menu option from the Main Menu.



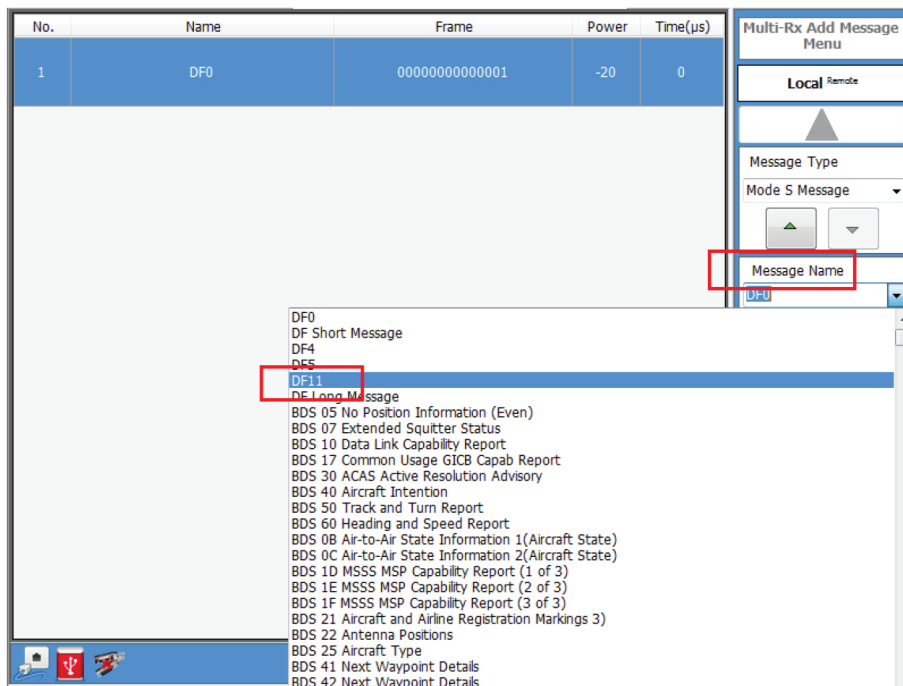
10. Select the “Block Transmission” option from the Multi-Receiver Menu.



11. Select the **“Add Message”** option from the Multi-Receiver Block Transmission Menu.



12. Select the **“Message Name”** from the options available (i.e., DF11).





13. For DF17, you will also need to add the following message types:

1. Extended Squitter Identification Type 2
2. Extended Squitter - Airborne Position Type 9 (Even)
3. Extended Squitter - Airborne Position Type 9 (Odd)
4. Extended Squitter - Velocity Over Ground Subtype 1
5. Extended Squitter - Aircraft Status Emergency Priority Status Version 2
6. Extended Squitter - Target State and Status Type 29 Subtype 1

No.	Name	Frame	Power	Time(μs)
1	Extended Squitter - Identification Type 2	8800000110000000000000BC6B30	-20	0
2	Extended Squitter - Airborne Position Type 9 (Even)	880000014800000000000087C70A	-20	130
3	Extended Squitter - Airborne Position Type 9 (Odd)	88000001480004000000008BEC32	-20	260
4	Extended Squitter - Velocity Over Ground Subtype 1	88000001990001002004013D3BAD	-20	390
5	Extended Squitter - Aircraft Status Emergency Priority Status Version 2	88000001E1000000000000F7053F	-20	520
6	Extended Squitter - Target State And Status Type 29 Subtype 1	88000001EA0000000000008F8DBA	-20	650
7	DF11	580000011F1B04	-20	780

**Multi-Rx Add Message Menu**

Local Remote

Message Type

Mode S Message

Message Name

DF11

DF11


Frame Details

Address Originator

000001



14. Alter the message parameters as required by double clicking on the individual messages.

15. Navigate back  to the Multi-Receiver Block Transmission Menu and flip the **“Transmission”** switch to the **“Start”** position.

No.	Name	Frame	Power	Time(μs)
1	Extended Squitter - Identification Type 2	8800000110000000000000BC6830	-20	0
2	Extended Squitter - Airborne Position Type 9 (Even)	880000014800000000000087C70A	-20	130
3	Extended Squitter - Airborne Position Type 9 (Odd)	88000001480004000000008BEC32	-20	260
4	Extended Squitter - Velocity Over Ground Subtype 1	8800000199000100200401303BAD	-20	390
5	Extended Squitter - Aircraft Status Emergency Priority Status Version 2	88000001E1000000000000F7053F	-20	520
6	Extended Squitter - Target State And Status Type 29 Subtype 1	88000001EA0000000000008F8DBA	-20	650
7	DF11	580000011F1B04	-20	780

Multi-Receiver Block Transmission Menu

Local Remote

▲

Load

Save

Add Message ▶

Message Details ▶

Remove

Reset

Transmission

Start

Stop

▼

↶ ↷

The target should be squittering the appropriate squitters at this time.



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