SatixFy has developed a Beam Hopping Emulator, based on its advanced SX3000 chip.

The Emulator enables research, development integration and testing of various aspects of the Beam Hopping architecture using SatixFy’s and other vendors’ commercially available terminals. Customers can use the Emulator to demonstrate the physical layer functionality over a wide range of scenarios.

The Emulator is key for any satellite operator, payload manufacturer and ground equipment manufacturer, for testing and analysis of the emerging Beam Hopping technology. It is also a very helpful tool in supporting customer demonstration of Beam Hopping system advantages, such as:

- Full beam hopping system functionality
- Service flexibility and reduced unmet demand
- Payload design optimization
- Increase total capacity
- Test equipment homologation

The emulator’s first release enables validation and demonstration of the forward link Layer-1 (PHY) most critical Beam Hopping elements:

- DVB-S2X super-frame type 4 structure as a physical layer enabler for Beam Hopping
- Demonstration of different Beam Hopping parameters such as:
  - Modem performance
  - Hopping period
  - Dwell time
  - Switching time
  - Guard time
  - Non-standard super-frame
- Testing the TT&C Beam Hopping management interface to the satellite payload and baseband systems
- Presenting decoupling capability of the GW beams from the user beams and hence decreases the number of GWs and increases the overall delivered capacity
- Optional Satellite Link Emulator for advanced RF impairments

Additional features such as Return link, Mobility, VLSNR will be added in the next versions.
TECHNICAL SPECIFICATIONS

Beam Hopping standard .................................................. DVB- S2X, Annex E, Super-frame type 4
Modulation and Coding .................................................. DVB- S2X QPSK – 256 APSK
Channel Bandwidth .......................................................... 125 MHz
Symbol rate ................................................................. 118 Msps (5% Roll-off)
Bit rate ................................................................. Up-to 500 Mbps
Framing ................................................................. Normal frames
Beam hopping period ................................................. Configurable: 20ms minimum (4 super-frames)
Beam hopping dwell time ........................................... Configurable: 4.8ms minimum (1 super-frame)
Number of Guard symbols ............................................. Configurable
Switching time .............................................................. Configurable: Typical 1 µs
Number of beams .......................................................... 4
Beam Schedule ............................................................ Configurable