BOF - Best Optical Focusing

Best Optical Focusing (BOF) Software FAT Module is able to predict the performances of S Band Primary Surveillance Radar Antenna on the basis of measured values of Reflector and Feed giving the manufacturing team all the information for the mechanical adjustments needed to guarantee nominal performance values.

Best Optical Focusing (BOF) SW FAT module is based on the usage of very advanced RF modeling software fed by data coming from both mechanical and electrical measurements.

The BOF approach is today extensively applied in antennas performances assessment due to the high quality programming of latest software platform for RF modeling, further implemented by radar applications specialists, and the high processing power available on standard PC. Against traditional procedures based on radiation pattern tests performed on outdoor Test Range, BOF methodology offers several benefits such as:

- Mechanical tests can be carried out in indoor environment and in parallel with the electrical tests concerning the feed;
- High accuracy of calculated values..
- Operator can ask for particular tests, such as additional cuts of radiated beam at different elevation angles.
- No need to move antenna, and relevant technical staff, to Test Range site; no need to rent or buy expensive measurement instruments; duration of tests is not affected by bad weather conditions.

BOF FAT report includes antenna performance in terms of:

- Gain (dB);
- El Bwidth (deg);
- Slope at 0° /dB/deg);
- Threshold at -3dB left side (deg);
- Threshold at -3dB right side (deg).

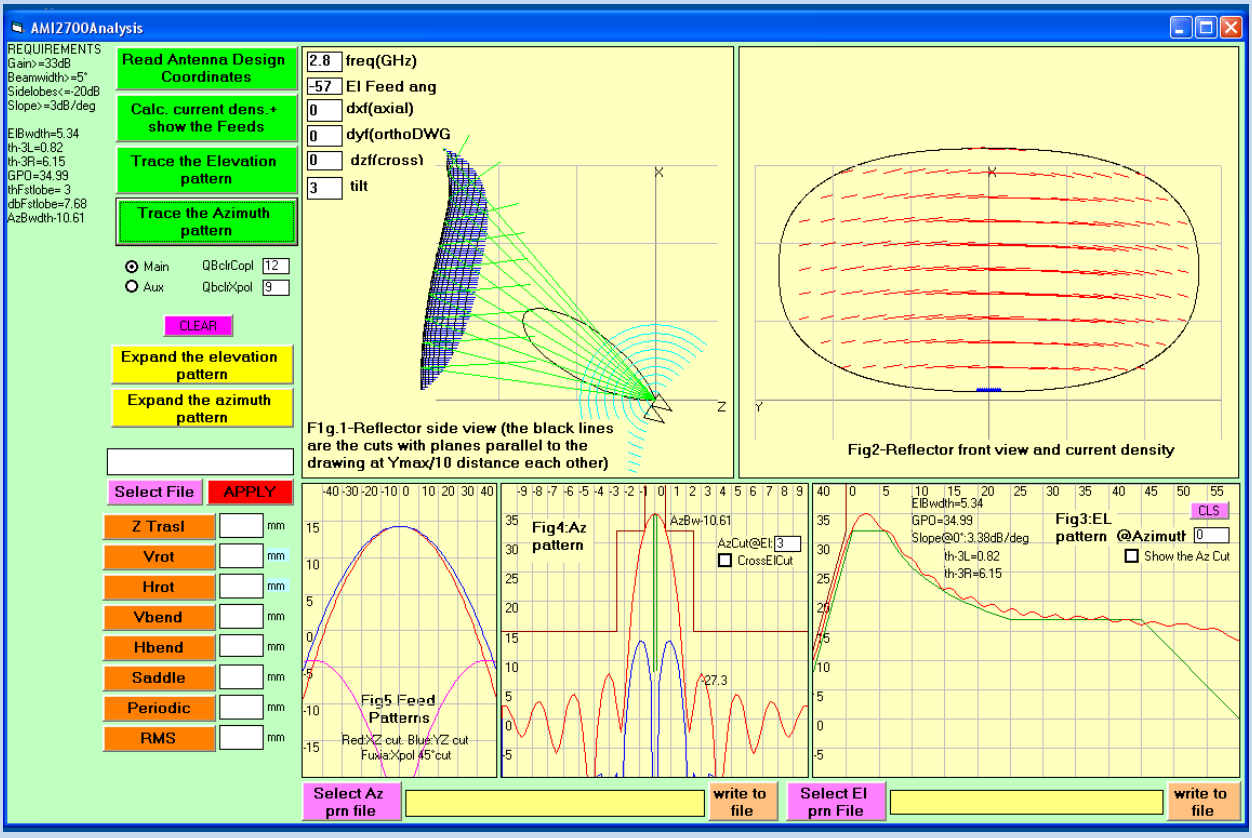

Figure 1: Antenna performance

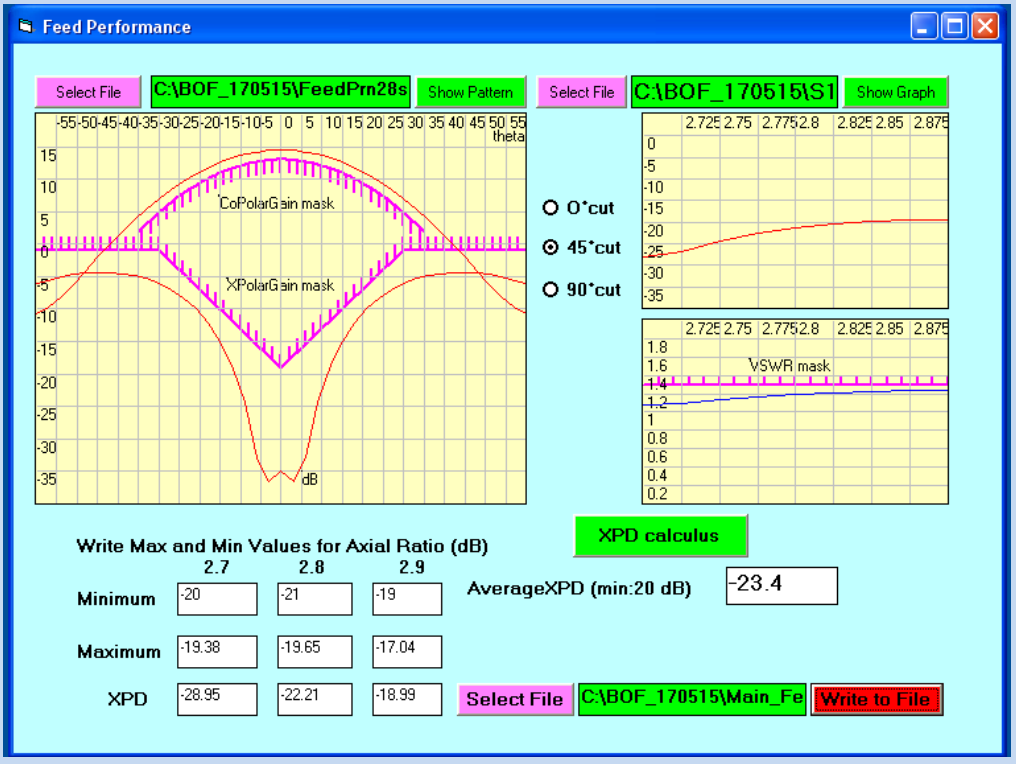

Figure 2: Feed Pattern Data measured