

Increase reliability, antijam and viability of active phased array radar (APAR) due to using system of internal control

Description:

The following system relates to the field of radiolocation, to APAR, and meant to improve antijam and reliability of the radars.

Current invention has military application and might be used as radar within battle ships, airplanes and as anti-aircraft warfare.

Control system is used to find faultiness, check and correct characteristics of APAR section. The first measured characteristics are complex amplitudes of falling and reflected waves in each of APAR channels. Special modules (6-port) with detectors are given to measure between microwave sections given that supporting microwave signals are not required.

All falling and reflected power in each section, maximum voltage in each section, complex coefficient of reflection at emitters output, phase distribution of falling waves in sections, coefficients of radiation pattern in wave matrix are measured from obtained results.

The application of control system decrease time of development and production of APAR.

The use of control system within working radar allow to increase coefficient on 0.5-1.5 dB and decrease level of sidelobes of APAR on 3-5 dB, will provide diagnostic of ellevents in each section and automatic correction their characteristics within the radar.

1. Innovation might be used within new APAR

2. Current invention has military application and might be used as radar within battle ships, airplanes and as anti-aircraft warfare.

3. The application of control system decrease time of development and production of APAR, meant to improve antijam and reliability of the radars.

4. All falling and reflected power in each section, maximum voltage in each section, complex coefficient of reflection at emitters output, phase distribution of falling waves in sections, coefficients of radiation pattern in wave matrix are measured from obtained results. The use of control system within working radar allow to increase coefficient on 0.5-1.5 dB and decrease level of sidelobes of APAR on 3-5 dB, will provide diagnostic of ellevents in each section and automatic correction their characteristics within the radar.

5. The first measured characteristics are complex amplitudes of falling and reflected waves in each of APAR channels. Special modules (6-port) with detectors are given to measure between microwave sections given that supporting microwave signals are not required.

6. Current innovation should be done during development of APAR. Preferable is APAR of L and S ranges.

7. Control system will be assessed experimentally due to special methodic as a measure.