

ABSTRACT

An Identification Friend or Foe (IFF) interrogation system and method adapted for: transmitting RF broadcast signal to be received by complementary transponder(s) of the IFF system being within the interrogation range and thereby arm the complementary
5 transponders for sensing laser beam illumination; receiving an RF response signal from the complementary transponder(s); operating a laser activation interface module, which is configured for interfacing an external laser transmitter, to determine activation of transmission of an interrogating laser beam by the external laser transmitted; and receiving and processing RF signals to identify therein RF response signal(s), which are
10 transmitted by the complementary IFF transponder(s) in response to detection of the transmitted laser beam. In some implementations the complementary transponder is configured to encode, in the RF response signal, an identification code of the interrogator in the form of data indicative of a time pattern representing time interval(s) between the transmissions of the RF broadcast signal and the interrogating laser beam.
15 In turn, the interrogation system may be adapted to decode the identification code from the RF response signal and thereby determine whether the RF response signal is addressed thereto. In some cases where the laser beam of the external laser transmitter has a cross-sectional area smaller than the interrogation region, there is further provided a beam scattering directive providing instructions for directing the optical axis of the
20 external laser transmitter towards light scattering surfaces in the vicinity of the interrogation region so it is illuminated by scattering of the laser beam by the scattering surfaces.

[Fig. 2A]