**SINCGARS Military Radios**

SINCGARS (Single-Channel Ground and Airborne Radio System) is a family of lightweight, very high frequency (VHF) frequency modulated (FM) or frequency hopping (FH) radios for infantry, tactical vehicles, naval and airborne employment. SINCGARS replaces all [AN/PRC-77 manpack](http://www.olive-drab.com/od_electronics_anprc25.php) and [AN/VRC-12 series vehicular mounted](http://www.olive-drab.com/od_electronics_anvrc12.php) and most other airborne and ground VHF frequency modulated (FM) radios in the Department of Defense.

*SINCGARS Tactical Radios. Top unit is SINCGARS ASIP while bottom unit is SINCGARS ICOM, in vehicle mount rack.*



SINCGARS and SINCGARS-compatible radios have been a core component of U.S. military tactical communications since the 1980s. The version table on this page shows many of the models that have been issued to Army, Marine Corp, Navy, and Air Force units but more have been and will be fielded to provide interoperable radios with different configurations. Suffixes are added to existing model numbers or new nomenclature is created when functional changes are made. There is also a large complement of auxiliary equipment for functions such as encryption and frequency hopping code generation, key loading and management, power supplies and batteries, mounting racks, cables, antennas, switching, interop and retrans, and much more that can be found in the SINCGARS manuals.

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**SINCGARS Family of Tactical Radios**

For further information on some of the models of SINCGARS and SINCGARS-compatible radios, click on the link to the following Olive-Drab.com pages that describe the major categories of SINCGARS radios:

* [Manpack SINCGARS](http://www.olive-drab.com/od_electronics_sincgars_m.php)
* [Vehicular SINCGARS](http://www.olive-drab.com/od_electronics_sincgars_v.php)
* [Airborne SINCGARS](http://www.olive-drab.com/od_electronics_sincgars_a.php)
* [SINCGARS SIP and ASIP](http://www.olive-drab.com/od_electronics_sincgars_asip.php)

**SINCGARS History**

The Army began SINCGARS development following approval of a requirements document in December 1974. International Telephone and Telegraph (ITT) was awarded a contract to produce SINCGARS in 1983. ITT and other contractors have produced a series of technology upgrades of the SINCGARS:

* The original SINCGARS uses KY-57/KY-58 COMSEC devices for encryption.
* The 2nd design SINCGARS has an integrated communications security (ICOM) module (designated SINCGARS ICOM).
* The [SINCGARS System Improvement Program (SIP)](http://www.olive-drab.com/od_electronics_sincgars_asip.php) is the same physical size as SINCGARS ICOM but adds numerous advanced features including Tactical Internet capability.
* The [SINCGARS Advanced SIP (ASIP) radio](http://www.olive-drab.com/od_electronics_sincgars_asip.php) is a new manpack radio adapted from the SINCGARS airborne radio, that is about one half the size and weight of SINCGARS ASIP and includes advanced features and user interface.

The Defense Systems Acquisition Review Council (DSARC) reviewed the program in October 1984 and approved the Army's request to procure the first production run of SINCGARS. The DSARC decision memorandum provided guidance to plan testing of the radio when it was modified for ICOM and to seek a second source. ITT and the second source, General Dynamics, built ICOM radios with different internal designs that are interchangeable in form, fit, and function.

The ITT ICOM Independent Operational Test and Evaluation (IOT&E) was conducted in 1990 at Ft. Hood, TX. A SINCGARS Follow-on Operational Experiment was also conducted at Ft. Hood in October 1990. The experiment investigated changes to the ITT radio to improve data message-completion rates during jamming and mutual interference. The IOT&E and Follow-on Operational Experiment data supported Defense Acquisition Board approval of full-rate production for the ITT ICOM radio.

SINCGARS operates as a Joint Service communications system with the family of compatible radio in use by the Army, Navy, Marine Corps, Air Force and Navy. Joint multiservice operational procedures have been agreed upon to ensure that frequency hopping, encryption and other operational requirements are fully interoperable under field conditions.

To ensure secure interoperability in multiservice nets, all SINCGARS units operate in the 30.000 to 87.975 megahertz (MHz) band with 25 kilohertz (kHz) channel spacing (2320 channels) and complex but well understood technology and procedures for frequency hopping (FH) and encryption. SINCGARS accepts either digital or analog inputs. The output signal can utilize single channel or FH when security against jamming or interception is required.

Originally SINCGARS was a voice only system, but with the [SIP and ASIP versions](http://www.olive-drab.com/od_electronics_sincgars_asip.php) data capability was added making SINCGARS a vital component of the all-digital Tactical Internet, a total multiservice communications system.

**Versions of SINCGARS**

Although all units are interchangeable except for minor differences like handles, cables and connectors, there are many configurations of the components of SINCGARS to fulfill its many operational roles. This list is an outline of the nomenclature of the principal end item units.

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| **Nomenclature** | **Services** | **Usage** |
| AN/PRC-119 | Army/USMC/USAF | Tactical ground (short-range dismount/manpack) |
| AN/VRC-87 | Army | Vehicular/tactical ground (short-range) |
| AN/VRC-88 | Army/USMC | Vehicular/tactical ground (short-range dismountable) |
| AN/VRC-89 | All | Vehicular/tactical ground (short-range and long-range) |
| AN/VRC-90 | All | Vehicular/shipboard/tactical ground (long-range) |
| AN/VRC-91 | Army/USAF/USMC | Vehicular/tactical ground (short-range, long-range dismountable) |
| AN/VRC-92 | Army/Navy/USMC | Vehicular/tactical ground (dual long-range retransmission) |
| AN/ARC-201A(V) | USAF | Airborne |
| AN/ARC-210(V) | All | Shipboard/Aircraft/air to ground, air to air |
| AN/ARC-222 | USAF | Aircraft/air to ground, air to air |
| AN/MRC-145 | USMC | Vehicular |
| AN/SRC-64 | Navy | Shipboard |

**Find More Information on the Web**

There are many fine websites that have additional information on this topic, too many to list here and too many to keep up with as they come and go. Use this Google web search form to get an up to date report of what's out there.