



AN/FCC-100

Versions, Configurations and Compatibilities

INTRODUCTION

The AN/FCC-100 has a long history in the US DoD, and in keeping up with current technology, has evolved through many versions and configurations. This article describes the different AN/FCC-100 versions, defines the circuit card assembly (CCA) and firmware complement of each version, and lists the compatibilities of the versions of the CCAs.

MULTIPLEXER VERSIONS

1. **AN/FCC-100(V)1 & 1X:** This version was the initial Low Speed Time Division Multiplexer (LSTDM). Its synchronous Non-Return to Zero (NRZ) aggregate range was 1200 bps to 256 kbps and its conditioned diphas aggregate was 1200 bps to 64 kbps (125 ohms). It supported synchronous data from 50 bps to 64 kbps, asynchronous and isochronous data from 0 bps to <2400 bps, and conditioned diphas data from 75 bps to 64 kbps (No Line Transformer or Recovered Clock). The (V)1 is a DC-powered unit at -48vdc. The (V)1X is an AC-powered unit at 115/230 VAC, 47 to 63 Hz.
2. **AN/FCC-100(V)2 & 2X:** This version was released shortly after the initial LSTDM and added enhanced Built in Test Equipment (BITE) and voice ports. Its synchronous NRZ aggregate range was 1200 bps to 256 kbps and its conditioned diphas aggregate was 1200 bps to 64 kbps. It supported synchronous data from 50 bps to 64 kbps, asynchronous and isochronous data from 0 bps to <2400 bps, and conditioned diphas data from 75 bps to 64 kbps. It additionally supported Pulse Code Modulation (PCM) 4-wire voice at 64 kbps, Continuously Variable Slope Delta (CVSD) 4-wire voice at 16, 32, and 64 kbps, and asynchronous data at 75 bps to 19.2 kbps. The (V)2 is a DC-powered unit at -48VDC. The (V)2X is an AC powered unit at 115/230VAC, 47 to 63 Hz.
3. **AN/FCC-100(V)3X:** This version is the "AN" nomenclature version of the DpMux- 2048AT-16 supporting only synchronous NRZ aggregate rates from 1200 bps to 2048 kbps. This version is TEMPEST approved. It supports synchronous data from 50 bps to 512 kbps, asynchronous and isochronous data from 0 bps to <4800 bps, conditioned diphas data from 75 bps to 96 kbps, PCM 4-wire voice at 64 kbps, CVSD 4-wire voice at 12 to 64 kbps, and asynchronous data at 75 bps to 19.2 kbps. Additionally, it supports statistical multiplexing of asynchronous data from

45.45 kbps to 19.2 kbps and synchronous data from 75 kbps to 9.6 kbps. All ports now support a control signal in each direction through the aggregate, plus local support of RS232 control signals. The (V)3X also supports cryptographic control in the form of an internal programmable cryptographic Ancillary Unit (CAU). The (V)3X is an AC-powered unit at 115/230VAC, 47 to 63 Hz.

4. **AN/FCC-100(V)4 & 4X:** This version is an enhancement to the AN/FCC-100(V)2 and 2X adding control lead capability through the use of a telemetry submux card. It is capable of accepting up to three Telemetry SubMultiplexer modules with each Telemetry SubMultiplexer module capable of passing up to 16 full duplex control signals via two ports. In addition, Network Control Facility support was added. These capabilities include the ability to examine local and remote hardware from a control terminal; Mux identification numbers, "0" to "99," may be assigned to each mux; downline load configuration and status; perform BITE test from a control terminal and additional alarm status information. The (V)4 is a DC-powered unit at -48vdc. The (V)4X is an AC-powered unit at 115/230VAC, 47 to 63 Hz.
5. **AN/FCC-100(V)5 & (V)6:** The (V)5 is an upgraded (V)3X with the following capabilities: The (V5) supports Tactical Conditioned Diphas (T-CDI) ports and aggregate. The aggregate rates for tactical conditioned diphas are 16 to 2048 kbps and port rates for T-CDI is 16 to 576 kbps. In addition, phantom power has been added to T-CDI low speed ports and port 16 can provide timing reference to the aggregate. A further enhancement added is that the external timing reference (e.g. station clock) no longer has to be the same frequency as the aggregate rate 1 or 5 MHz. The (V)5 is an AC-powered unit at 115/230VAC, 47 to 63 Hz. The (V)6 is identical to the (V)5 except that it is TEMPEST approved and its AC-power supply can accommodate 115/230VAC, 47 to 440 Hz.
6. **AN/FCC-100(V)7 & 8:** The (V)7 is a (V)6 with additional capabilities. The dual port T-CDI supports data rates up to 1152 kbps (Impedance 58 ohms), synchronous data ports up to data rates of 768 kbps. New modules were added: the Dual Voice Port FXS 2-wire voice port operating without a piggyback Code-book Excited Linear Predictive (CELP) card at 64 kbps PCM, the Dual Voice Port FXO 2-wire voice port operating without a piggyback CELP card at 64 kbps PCM, the Dual Voice Port E&M 4-wire voice port operating without a piggyback CELP card at 64 kbps PCM, and the Voice Compression Module (CELP). The Voice Compression Module (three versions) is capable of compressing the 64 kbps PCM signal down to between 2.4 kbps to 16 kbps (depending on version). The (V)7 is an AC-powered unit 115/230VAC, 47 to 63 Hz (Autosensing) or 115/230VAC, 47 to 440 Hz (Switchable) (See Note). The (V)8 is an AC/DC unit (AC operation, with automatic fallback to DC) operating at 115/230VAC, 47 to 440 Hz (Switchable) or -48VDC or +24VDC.
7. **AN/FCC-100(V)9 & 9X:** The (V)9 is a (V)7 with additional capabilities. The addition of a Simple Network Management Protocol (SNMP) control agent integrates management capability into popular SNMP managers. This allows for collection of multiplexer alarms and configuration access from a single site, speeds identification and resolution of network problems, and allows network experts to access network operations from a central command. The (V)9 is an AC-powered unit at 115/230VAC, 47 to 63 Hz (Autosensing) or 115/230VAC, 47 to 440 Hz (Switchable) (See Note). The (V)9X is an AC/DC-powered unit (AC operation, with automatic fallback to DC) operating at 115/230VAC, 47 to 440 Hz or -48VDC or +24VDC. *NOTE: Multiplexers manufactured after June 1999 (or older units retrofitted with the new Power Supply) are equipped with the auto-sensing power supply that utilizes either 115c or 230vac input power at 50/60 Hz (only).*

CCA AND PROM VERSIONS AND COMPATIBILITIES

The CCA and PROM configurations listed in the following tables have been tested and verified. Other combinations may work, but not by design. If you have questions about your AN/FCC-100 configuration, contact the DNE TSO group.

The table below contains the following information:

- Column 1 - AN/FCC-100 version, its part number, and the firmware version
- Column 2 - Interface card part number
- Column 3 - Processor card part number
- Column 4 - Mux/Demux card part number

AN/FCC-100 Version	Interface Card	Processor Card	Mux/Demux Card
(V)9X 97010110-002 13.1	21001019-002	21001021-001 or 21001076-000	85090150-002
(V)9 97010109-062 13.1 (60 Hz Power Supply)	21001019-002	21001021-001 or 21001076-000	85090150-002
(V)9 97010109-002 13.1	21001019-002	21001021-001 or 21001076-000	85090150-002
(V)9 97010109-001 13.0	21001019-001	21001021-001 or 21001076-000	85090150-002
(V)8 97010108-103 13.1 (LCD Display)	21001019-002	21001021-001 or 21001076-000	85090150-002
(V)8 97010108-003 12.31 (LED Display)	21000931-002	21000930-004	85090150-002
(V)7 97010107-163 (LCD Display)	21001019-002	21001021-001	85090150-002
(V)7 97010107-003 12.31 (LED Display)	21000931-002	21000930-004	85090150-002
(V)7 97010107-002 12.3	21000931-002	21000930-003	85090150-002
(V)7 97010107-000 12.1	21000931-001	21000930-001	85090150-002
(V)5/(V)6 95970000-000 8.3	21000818-000	21000816-000	85090150-002
(V)3 95090011-001 4.4	85490380-008	85090320-011	85090150-002