

WIRELESS PERSONAL COMMUNICATIONS SYSTEMS

ANALOG CELLULAR COMMUNICATIONS

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North American Cellular Systems

- AMPS
 - First generation – analog voice transmission
- IS – 54
 - Extension of AMPS to include digital voice
- IS – 136
 - Complete TDMA digital system with dual mode capability
- IS – 95
 - Complete CDMA digital system with dual mode capability
- IS – 41
 - Intersystem operations: roaming, handoff

AMPS Identifiers

MIN	Mobile identifier	34 bits	Directory number assigned by operating company to a SUBSCRIBER
ESN	Electronic serial number	32	Assigned by manufacturer to a MOBILE STATION
SID	System identifier	15	Assigned by regulators to a geographical SERVICE AREA
SCM	Station class mark	4	Indicates capabilities of a mobile station
SAT	Supervisory audio tone	*	Assigned by operating company to each base station
DCC	Digital color code	2	Assigned by operating company to each base station

Frequency Plan



825 845
1 666

MHz
Ch.



870 890
1 666

a. Original spectrum (666 channels)



824 825 845 849
991 1,023 666 799

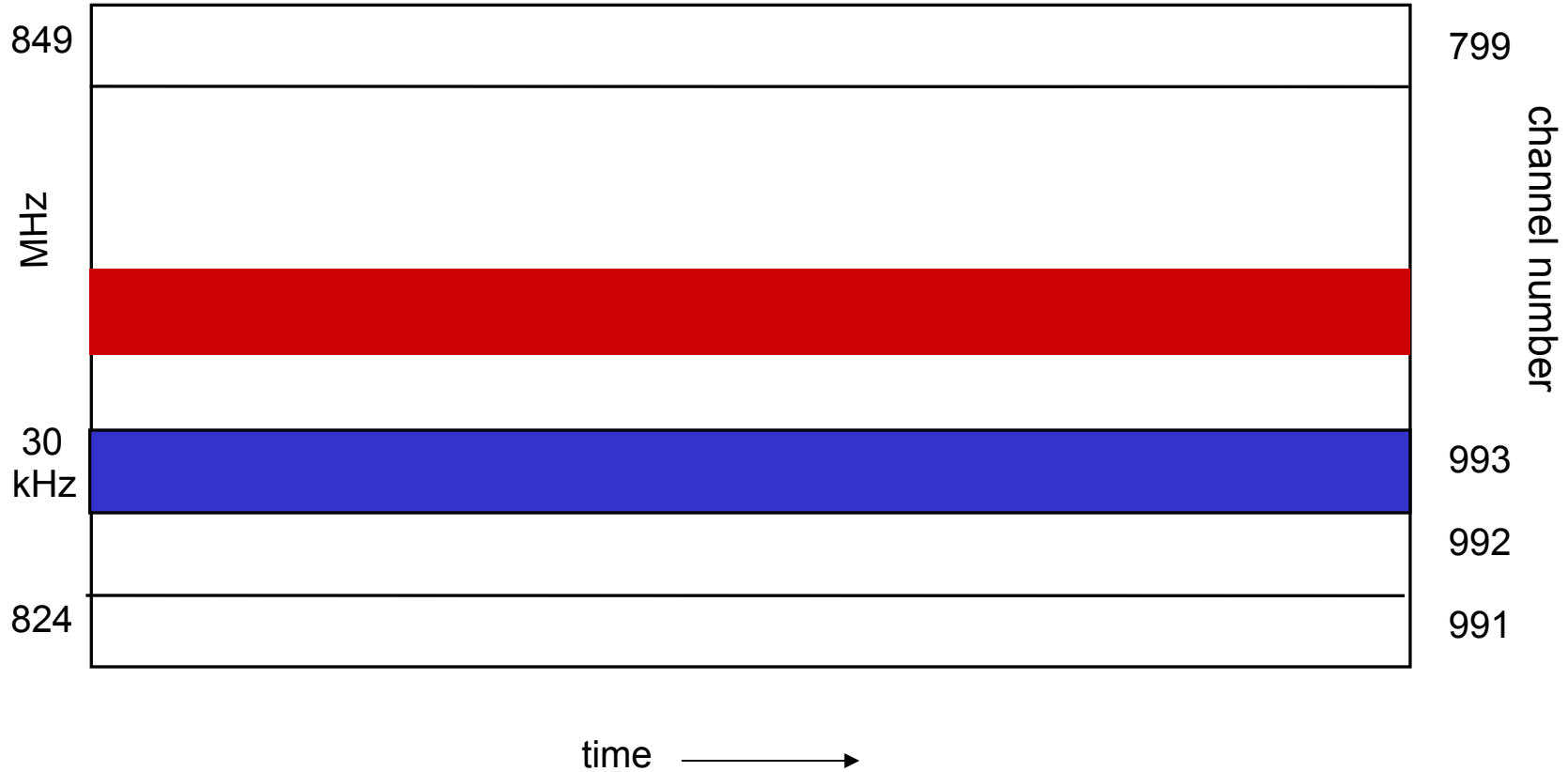
MHz
Ch.



869 870 890 894
991 1,023 666 799

b. Expanded spectrum (832 channels)

Physical Channels



AMPS Logical Channels

Reverse traffic channel		User information	Dedicated (one-to-one)
Reverse control channel Common control channel	RECC	Signaling	Random access (many-to-one)
Reverse voice channel Associated control channel	RVC	Signaling blank and burst	Dedicated (one-to-one)
Forward traffic channel		User information	Dedicated (one-to-one)
Forward control channel Common control channel	FOCC	Signaling	Broadcast (one-to-many)
Forward voice channel Associated control channel	FVC	Signaling blank and burst	Dedicated (one-to-one)

DETAILS SPECIFIC TO AMPS

- ANALOG VOICE COMMUNICATIONS
 - LATER SYSTEMS ARE DIGITAL
- BLANK AND BURST COMMUNICATIONS OF CONTROL INFORMATION DURING A CALL
 - LATER SYSTEMS HAVE OUT-OF-BAND CONTROL CHANNELS ASSOCIATED WITH TRAFFIC CHANNELS
- HANDOFF COMPLETELY CONTROLLED BY MTSO
 - LATER SYSTEMS USE MOBILE ASSISTED HANDOFF
- UNCONVENTIONAL, VARIED DATA FORMATS
 - LATER SYSTEMS ARE MORE CONSISTENT WITH COMPUTER NETWORKS