FSD-220 Communications Procedures, ITU Phonetic Alphabet, R-S-T System & Time Conversion Chart

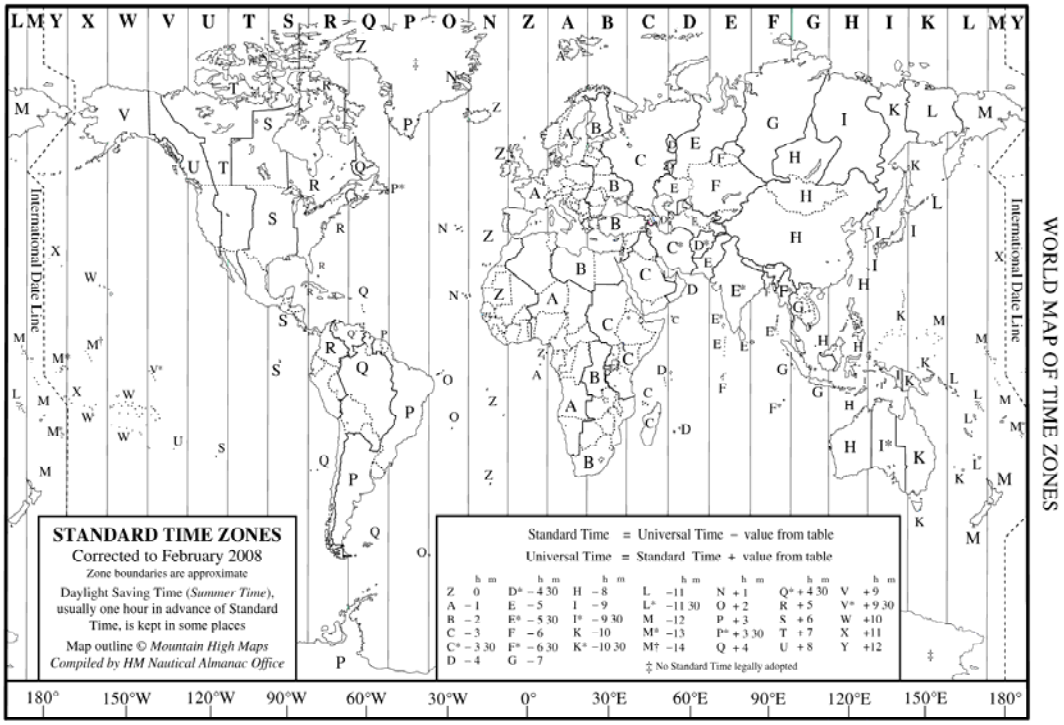
ARRL Communications Procedures		
Voice	**Code**	**Situation**
Go ahead	K	Used after calling CQ, or at the end of a transmission, to indicate any station is invited to transmit.
Over	AR	Used after a call to a specific station, before the contact has been established
	KN	Used at the end of any transmission when only the specific station contacted is invited to answer.
Stand by or wait	AS	A temporary interruption of the contact.
Roger	R	Indicates a transmission has been received correctly and in full.
Clear	SK	End of contact. SK is sent before the final identification.
Leaving the air or closing the station	CL	Indicates that a station is going off the air, and will not listen or answer any further calls. CL is sent after the final identification.

ITU Phonetic Alphabet					
Word list adopted by the International Telecommunications Union					
Item	**Pronunciation**	**Item**	**Pronunciation**	**Item**	**Pronunciation**
A	AL-fah	**B**	BRAH-voh	**C**	CHAR-lee
D	DELL-ta	**E**	ECK-oh	**E**	ECK-oh
G	GOLF	**H**	hoh-TELL	**I**	IN-dee-ah
J	JEW-lee-ett	**K**	KEY-loh	**L**	LEE-mah
M	MIKE	**N**	no-VEM-bur	**O**	OSS-kur
Q	kay-BECK	**R**	ROH-me-oh	**S**	see-AIR-ah
T	TANG-go	**U**	YOU-nee-form	**V**	VIK-tor
W	WISS-kee	**X**	ECKS-ray	**Y**	YANG-kee
Z	ZOO-loo	**1**	WUN	**2**	TOO
3	TREE	**4**	FOW-er	**5**	Fife
6	SICKS	**7**	SEV-en	**8**	AIT
9	NIN-er	**0**	ZEE-roh		

The R-S-T System					
Readability		**Signal Strength**		**Tone**	
1	Unreadable	**1**	Faint signals, barely perceptible.	**1**	Sixty cycle AC or less, very rough and broad.
2	Barely readable, occasional words distinguishable.	**2**	Very weak signals.	**2**	Very rough AC, very harsh and broad.
3	Readable with considerable difficulty.	**3**	Weak signals.	**3**	Rough AC tone, rectified but not filtered.
4	Readable with practically no difficulty.	**4**	Fair signals.	**4**	Rough note, some trace of filtering.
5	Perfectly readable.	**5**	Fairly good signals.	**5**	Filtered rectified AC but strongly ripple-modulated.
		6	Good signals.	**6**	Filtered tone, definite trace of ripple modulation.
		7	Moderately strong signals.	**7**	Near pure tone, trace of ripple modulation.
		8	Strong signals.	**8**	Near perfect tone, slight trace of modulation.
		9	Extremely strong signals.	**9**	Perfect tone, no trace of ripple or modulation of any kind.
If the signal has the characteristic steadiness of crystal control, add the letter 'X' to the RST report to indicate this. If there is a chirp, add the letter 'C' to the RST report to indicate this. If there is a click, the letter 'K' to the RST report to indicate this. The above reporting system is used on both cw and voice, leaving out the "tone" report on voice.					

Time Conversion Chart							
UTC	**EDT/AST**	**CDT/EST**	**MDT/CST**	**PDT/MST**	**PST**	**Alaska**	**Hawaii-Aleutian**
0000*	2000	1900	1800	1700	1600	1500	1400
0100	2100	2000	1900	1800	1700	1600	1500
0200	2200	2100	2000	1900	1800	1700	1600
0300	2300	2200	2100	2000	1900	1800	1700
0400	0000*	2300	2200	2100	2000	1900	1800
0500	0100	0000*	2300	2200	2100	2000	1900
0600	0200	0100	0000*	2300	2200	2100	2000
0700	0300	0200	0100	0000*	2300	2200	2100
0800	0400	0300	0200	0100	0000*	2300	2200
0900	0500	0400	0300	0200	0100	0000*	2300
1000	0600	0500	0400	0300	0200	0100	0000*
1100	0700	0600	0500	0400	0300	0200	0100
1200	0800	0700	0600	0500	0400	0300	0200
1300	0900	0800	0700	0600	0500	0400	0300
1400	1000	0900	0800	0700	0600	0500	0400
1500	1100	1000	0900	0800	0700	0600	0500
1600	1200	1100	1000	0900	0800	0700	0600
1700	1300	1200	1100	1000	0900	0800	0700
1800	1400	1300	1200	1100	1000	0900	0800
1900	1500	1400	1300	1200	1100	1000	0900
2000	1600	1500	1400	1300	1200	1100	1000
2100	1700	1600	1500	1400	1300	1200	1100
2200	1800	1700	1600	1500	1400	1300	1200
2300	1900	1800	1700	1600	1500	1400	1300
2400*	2000	1900	1800	1700	1600	1500	1400

Universal Coordinated Time (UTC) is the time at the zero or reference meridian. Time changes one hour with each change of 15 degrees in longitude. The five time zones in the US proper and Canada roughly follow these lines.
* 0000 and 2400 are interchangeable. (2400 is associated with the date of the day ending, 0000 with the day just starting.)



http://aa.usno.navy.mil/faq/docs/world_tzones.php

Greenwich Mean Time (GMT) or Universal Time Coordinate (UTC)	
Offset	**Location**
-12:00	International Date Line West
-11:00	Midway Island, Samoa
-10:00	Hawaii
-09:00	Alaska
-08:00	Baja California, Pacific Time (US & Canada), Tijuana
-07:00	Arizona, Chihuahua, La Paz, Mazatlan, Mountain Time (US & Canada)
-06:00	Central America, Central Time (US & Canada), Guadalajara, Mexico city, Monterrey, Saskatchewan
-05:00	Bogota, Eastern Time (US & Canada), Indiana - East, Lima, Quito, Rio Branco
-04:30	Caracas
-04:00	Atlantic Time (Canada), La Paz, Manaus, Santiago
-03:30	Newfoundland
-03:00	Brasilia, Buenos Aires, Georgetown, Greenland, Montevideo
-02:00	Mid-Atlantic
-01:00	Azores, Cape Verde Island
GMT	Casablanca, Dublin, Edinburgh, Lisbon, London, Monrovia, Reykjavik
+01:00	Amsterdam, Belgrade, Berlin, Bern, Bratislava, Brussels, Budapest, Copenhagen, Ljubljana, Madrid, Paris, Prague, Rome, Sarajevo, Skopje, Stockholm, Vienna, Warsaw, West Central Africa, Zagreb
+02:00	Amman, Athens, Beirut, Bucharest, Cairo, Harare, Helsinki, Istanbul, Jerusalem, Kyiv, Minsk, Pretoria, Riga, Sofia, Tallinn, Vilnius, Windhoek
+03:00	Baghdad, Kuwait, Moscow, Nairobi, Riyadh, St. Petersburg, Tbilisi, Volgograd
+03:30	Tehran
+04:00	Abu Dhabi, Baku, Caucasus Standard Time, Muscat, Yerevan
+04:30	Kabul
+05:00	Ekaterinburg, Islamabad, Karachi, Tashkent
+05:30	Chennai, Kolkata, Mumbai, New Delhi, Sri Jayawardenepura
+05:45	Kathmandu
+06:00	Almaty, Astana, Dhaka, Novosibirsk
+06:30	Yangon (Rangoon)
+07:00	Bangkok, Hanoi, Jakarta, Krasnoyarsk
+08:00	Beijing, Chongqing, Hong Kong, Irkutsk, Kuala Lumpur, Perth, Singapore, Taipei, Ulaan Bataar, Urumqi
+09:00	Osaka, Sapporo, Seoul, Tokyo, Yakutsk
+09:30	Adelaide, Darwin
+10:00	Brisbane, Canberra, Guam, Hobart, Melbourne, Port Moresby, Sydney, Vladivostok
+11:00	Magadan, Solomon Island, New Caledonia
+12:00	Auckland, Fiji, Kamchatka, Marshall Island, Wellington
+13:00	Nuku'alofa

NPSTC Standard Channel Nomenclature for the Public Safety Interoperability Channels

Standardized Naming Format

Each FCC-designated Interoperability Channel in the Public Safety Radio Services (47CFR Part 90) will have a unique name developed according to a standardized format. Tables 1 and 2 show the FCC designated Interoperability Channels and the related Channel Name. This format consists of a maximum of eight characters, as follows: **Btype##M**

"B" Spectrum Band

The Spectrum Band designator is a unique single alpha or numeric character to designate the public safety spectrum segment the channel is found within:

1. **V** VHF High Band (150.8 – 162.0 MHz).
2. **U** UHF Band (450 – 470 MHz).
3. **7** 700 MHz Public Safety Band. As the spectrum for voice communications use in this band is currently further divided into two individual blocks, for interoperability channel numbering purposes these blocks are identified as follows:
   - **"A" Block:** Television Channels 63 and 68
   - **"B" Block:** Television Channels 64 and 69
4. **8** 800 MHz NPSPAC band **after the rebanding process** (806 – 809 / 851 – 854 MHz).

"type" Channel Use Designator

The Channel Use Designator is an alphanumeric three- or four-place tag to signify the primary purpose of operations on the channel. In some cases, the Channel Use has been specified in FCC Rules or related Orders.

1. **CALL** Channel is dedicated nationwide for the express purpose of Interoperability calling only.
2. **DATA** Channel is reserved nationwide for the express purpose of Data transmission only.
3. **FIRE** Primarily used for interagency incident communications by Fire licensees.
4. **GTAC** Primarily used for interagency incident communications between Public Safety eligible entities and eligible non-governmental organizations.
5. **LAW** Primarily used for interagency incident communications by Police licensees.
6. **MED** Primarily used for interagency incident communications by Emergency Medical Service licensees.
7. **MOB** Primarily used for on-scene interagency incident communications by any Public Safety eligible, using vehicular repeaters (FCC Station Class MO3).
8. **TAC** Primarily used for interagency communications by any Public Safety eligible.

"##" Unique Channel Identifier

The Unique Channel Identifier is a numeric one- or two-place tag to uniquely identify the specific channel. Channel Identifiers are grouped by band segment as follows:

A. **1-9** VHF Low Band (30-50 MHz) [No leading zero used]
B. **10-39** VHF High band (150.8 – 162 MHz)
C. **40-49** UHF band (450 – 470 MHz)
D. **50-69** 700 MHz "A" block (TV 63/68)
E. **70-89** 700 MHz "B" block (TV 64/69)
F. **90-99** 800 MHz "NPSPAC" band (806-809/851-854 MHz) [Post-rebanding]

Notes:

1. Starting in VHF High Band, Channel Identifiers are grouped by Channel Use type, with Channel Identifiers ending in "0" reserved for Interoperability Calling use.
2. Channels Identifiers specified for Emergency Medical Services (MED) in this document are numbered to avoid conflict with the FCC's UHF medical channel naming methodology specified in 47CFR90.20(d)(65) and 47CFR90.20(d)(66)(i).
3. Channel Identifiers not specified in Tables 1 and 2 are reserved for future use.

"M" Modifier

The Modifier character is a single alphanumeric tag to identify a modification to the default operation type on the channel / channel pair:

1. **D** Direct or "Talk around" use [Simplex operations on the output channel of a pair normally designated for half-duplex or mobile relay operations.

Standardized Tone Squelch or Network Access Codes

The use of a common Continuous Tone Controlled Squelch System (CTCSS) tone of 156.7 Hz for transmit and receive on national Interoperability Channels was originally specified in the NPSPAC proceedings (Docket 87-112). In many areas, the 800 MHz Planning Regions allowed the use of an additional (secondary) access tone for in-cabinet repeat operations, as long as the 156.7 Hz tone was monitored by a live dispatcher or always repeated upon receipt. 156.7 Hz is always transmitted by repeaters.

In the development process of the *Standard Channel Nomenclature for the Public Safety Interoperability Channels*, the NCC

Interoperability Committee's Working Group recommended that 156.7 Hz CTCSS transmit and receive be used for all analog voice operations on all interoperability channels in all bands.
For Project-25 (P-25) voice operations, the NCC Working Group initially recommended the 156.7 Hz equivalent Network Access Code (NAC) of $61F. This recommendation was changed in 2001 to use the default ("carrier squelch equivalent") NAC of $293.

ANALOG OPERATIONS:

The use of **CTCSS Tone 156.7 Hz** has been adopted for all analog operations on Interoperability Channels:

1. All (fixed and subscriber) analog transmitters **will** encode 156.7 Hz.
2. Subscriber receivers should be set for carrier squelch operations unless conditions in the area require the use of tone protection to mitigate adjacent channel interference, or interference from intermodulation products. In those cases, receivers will decode 156.7 Hz.
3. Subject to the approval of applicable Statewide Communications Interoperability Plans and/or FCC-approved regional plans, mobile relay stations that are part of a local, regional, or statewide interoperability network may be equipped with a second receive CTCSS tone to provide local ("in cabinet") relay operation, provided:
   - The relay transmitter continues to transmit the common CTCSS tone of 156.7 Hz so that all users within range of the station are aware the station is in use;
   - The relay will accept the common CTCSS tone of 156.7 Hz and present the audio accompanying the 156.7 Hz-encoded transmission for automatic in-cabinet repeat or to a live operator at the appropriate controlling dispatch facility; and
   - The operational configuration of the Mobile Relay Station is published in applicable interoperability resource tracking documents (such as the appropriate Tactical Interoperability Communications Plan, Statewide Communications Interoperability Plan, and/or FCC-approved Regional Plan) and databases (CAPRAD, CASM, and NIIX).

DIGITAL OPERATIONS

The use of Network Access Code (NAC) $293 has been adopted for all digital operations on Interoperability Channels:

1. Subject to the approval of applicable Statewide Communications Interoperability Plans and/or FCC-approved Regional Plans, Mobile Relay stations that are part of a Local, Regional, or Statewide interoperability network may be equipped with a second receive NAC to provide local ("in cabinet") relay operation, provided:
   - The relay transmitter continues to transmit the Common NAC of $293 so that all users within range of the station are aware the station is in use;
   - The relay will accept the Common NAC of $293 and present the audio accompanying the $293-encoded transmission for automatic in-cabinet repeat or to a live operator at the appropriate controlling dispatch facility; and;
   - The operational configuration of the Mobile Relay Station is published in applicable interoperability resource tracking documents (such as the appropriate Tactical Interoperability Communications Plan, Statewide Communications Interoperability Plan, and/or FCC-approved Regional Plan) and databases (CAPRAD, CASM, and NIIX).

NPSTC Standard Channel Nomenclature for the Public Safety Interoperability Channels (LINK)