

NTS Radiogram Basics: Formatting and Transmission by Voice & Digital

Parts of a Radiogram: Explanation of the fields in the standard radiogram form

1. Preamble	NUMBER	PRECEDENCE	HX	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME FILED	DATE
2. Address	TO:							
	TELEPHONE:							
3. Text	_____	_____	_____	_____	_____	_____	_____	(5)
	_____	_____	_____	_____	_____	_____	_____	(10)
	_____	_____	_____	_____	_____	_____	_____	(15)
	_____	_____	_____	_____	_____	_____	_____	(20)
	_____	_____	_____	_____	_____	_____	_____	(25)
4. Signature	SIGNATURE:							

General All letters in a radiogram are capitalized.

1. Preamble The Preamble includes information used to prioritize and track the message and ensure its accuracy.

Number

Assigned by the Station of Origin and never changed. Begin with 1 each month or year or other interval.

Precedence

Determines the order in which traffic is passed. Assigned each message a Precedence of R (Routine), W (Welfare), P (Priority) or EMERGENCY. Always spell out EMERGENCY.

Handling Instructions (HX)

Optional, used only if a specific need is present. See the next Section for details.

Station of Origin

The call sign of the station originating (creating) the message.

Check

The number of words or word groups in the text of the message. A word group is any group of one or more consecutive characters with no interrupting spaces.

Place of Origin

The location (city and state) of the party for whom the message was created, and not necessarily the location of the Station of Origin. Use the two letter state abbreviation.

Time Filed

Optional, used only when filing time has some importance relative to the Precedence, Handling Instructions or Text. UTC is standard for NTS traffic, no time zone suffix required.

Date

The date the message was filed (If the Time Filed field is used, the date and time must agree in the time system used.) "Today's Date" is regarded as poor practice.

2. Address Name, address, city, state, postal code and telephone number of the intended recipient, as complete as possible. Note that punctuation is not used in the Address section.

An address Op Note may be added below the phone number. This could include an email address, preferred time for calling, etc. Op Notes are not delivered to the addressee.

3. Text The message information. Limit to 25 words or less if possible. Normal punctuation characters are not used in the text. A question mark is sent as QUERY, while DASH is sent for a hyphen. The letter X is used as a period (but never after the last group of the text) and counts as a word when figuring the Check. The letter R is used in place of a decimal in mixed figure groups (example: 146R52 for 146.52). The recommended 25 word limit may be exceeded in an emergency if required.

4. Signature The name of the party for whom the message was originated. This may include additional information such as Amateur Radio call sign, title, address, phone number and so on. An Op Note may be added below the signature. This could include information on how the delivering station could best respond to the originating station with confirmation, reply or failure to deliver.

Handling Instructions

- HXA** (Follow by Number.) Collect landline delivery authorized by addressee within ____ miles. (If no number, authorization is unlimited.)
- HXB** (Followed by number.) Cancel message if not delivered within ____ hours of filing time; service originating station.
- HXC** Report data and time of delivery (TOD) to originating station.
- HXD** Report to originating station the identity of station from which received, plus date and time. Report identify of station to which relayed, plus date and time, or if delivered report date, time and method of delivery.
- HXE** Delivering station get reply from addressee, originate message back.
- HXF** (Followed by number.) Hold delivery until ____ (date).
- HXG** Delivery by mail or landline toll call not required. If toll or other expense involved, cancel message and service originating station.

Station Record Keeping.

The standard NTS radiogram form includes places for record keeping.

Sent: The call sign of the transmitting station, logged for bookkeeping. This is not sent with the message.

Received: The call sign of the receiving station at the message's point of entry into the NTS net. This is not sent with the message.

ARL Numbered Radiograms

Numbered messages have been established for some of the more common texts sent during emergencies and holiday seasons. When this common text can be used, an **ARL NUMBER** is substituted for the text and sent. The delivering station reads the actual text to the address, not the **ARL NUMBER**.

The letters **ARL** are inserted in the preamble in the check and in the text before spelled out numbers, which represent texts from this list. Note that **ARL** is included in the text before spelled out numbers, which represent texts from this list. Note that some **ARL** texts include insertion of numerals or words. A message with an **ARL** and 14 groups in the message would have the following in the Check: **ARL 14**

A listing of **ARL** Numbers is in the Appendix.

ARRL -- the national association for Amateur Radio



RADIOGRAM



NUMBER	PRECEDENCE	HX	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME FILED	DATE
3	W	C	KX1EMA	ARL 14	FRIENDSHIP ME	1452Z	NOV 02

BRIAN SANDERSON
 1502 CHATSWORTH LANE
 MURRIETA CA 92562
 951 813 0000
 OPNOTE BRIAN ATSIGN DOMAIN DOT COM

THIS RADIO MESSAGE WAS RECEIVED AT

AMATEUR STATION _____ PHONE _____
 NAME _____ E-MAIL _____
 STREET _____
 CITY, STATE, ZIP _____

ARL _____	ONE _____	X _____	ARL _____	SIXTY _____
FOUR _____	FRIENDSHIP _____	SHELTER _____	X _____	SEE _____
YOU _____	SOON _____	X _____	LOVE _____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

BETH
 OPNOTE REPLY VIA NTSD TO KB1TCE ATSIGN NTSME

REC'D	FROM	DATE	TIME	TO	DATE	TIME

This message was handled at no charge by a licensed Amateur Radio operator, whose address is shown in the box at right above. No compensation can be accepted by a "ham" operator. A return message may be filed with the "ham" delivering this message to you. Further information on Amateur Radio may be obtained from ARRL Headquarters, 225 Main Street, Newington, CT 06111 or www.arrl.org.

The ARRL is the national association for Amateur Radio and the publisher of QST magazine. One of its functions is promotion of public service communication among Amateur Radio operators. To that end, the ARRL has organized the National Traffic System for daily nationwide message handling.

ARL 1: Everyone safe here. Please don't worry.

ARL 64: Arrived safely at _____

Sending a Radiogram by Voice (Voicing)

NUMBER	PRECEDENCE	HX	STATION OF ORIGIN	CHECK	PLACE OF ORIGIN	TIME FILED	DATE
3	W	C	KX1EMA	ARL 14	FRIENDSHIP ME	1452Z	NOV 02

TO: BRIAN SANDERSON
1502 CHATSWORTH LANE
MURRIETA CA 92562

TELEPHONE: 951 813 0000 OPNOTE BRIAN ATSIGN DOMAIN DOT COM

ARL	ONE	X	ARL	SIXTY	(5)
FOUR	FRIENDSHIP	SHELTER	X	SEE	(10)
YOU	SOON	X	LOVE		(15)

SIGNATURE: BETH

OPNOTE REPLY VIA NTSD TO KB1TCE ATSIGN NTSME

When sending a radiogram by voice there is a format with rules that are accepted by NTS operators. What is most important is to be clear and to avoid the use of unnecessary words. Make proper use of standard “prowords.” Do not use Q-codes for voice. Commonly used prowords are listed in the Appendix.

Using the example, here is how a radiogram should be sent. Prowords are in lower case blue and pauses are indicated by periods “..”.

First, ask the receiving station if they are ready to copy: <call sign> ready to copy?

Upon receiving confirmation, proceed:

number .. 3 .. Welfare .. HOTEL X-RAY CHARLIE .. KILO X-RAY ONE ECHO MIKE ALPHA ..
A R L ONE FOUR .. FRIENDSHIP MAINE .. ONE FOUR FIVE TWO ZULU .. NOVEMBER
TWO

BRIAN SANDERSON

figures ONE FIVE ZERO TWO CHATSWORTH LANE

MURRIETA **I spell** MIKE UNIFORM ROMEO ROMEO INDIA ECHO TANGO ALPHA ..

CALIFORNIA .. **figures** NINE TWO FIVE SIX TWO

figures NINE FIVE ONE EIGHT ONE THREE ZERO ZERO ZERO ZERO

OP NOTE BRIAN ATSIGN DOMAIN DOT NET

break

A R L ONE .. X-RAY .. A R L SIXTY .. **I spell** SIERRA INDIA X-RAY TANGO YANKEE ..

FOUR .. FRIENDSHIP SHELTER .. X-RAY .. SEE YOU SOON .. X-RAY .. LOVE

break

BETH

OP NOTE REPLY VIA NTSD TO **mixed group** KILO BRAVO ONE TANGO CHARLIE ECHO
ATSIGN N T S M E

End .. no more (or)

End .. one more (if one more message, etc.)

The receiving station may ask for repeats or fills. It is customary to release the PTT briefly at the breaks to give the receiving operator a chance to ask for fills. He should also confirm the check.

Do not comment on the contents of the message. Also, be sure that the message is in compliance with FCC rules (e.g. no code words, no business related messages).

Do not originate a message for a third party without their permission. This could put you in legal jeopardy. Also, be very careful when asked to accept traffic destined for non-ham recipients in other countries. Such traffic can only be sent where there are 3rd party agreements in place.

It is every operator's responsibility to ensure that the message is transcribed exactly as it appears in the original message. Take your time, get it right – when in doubt, spell it out.

Summary (from 2.2.4.9 of the MPG)

Transmitting radiograms on voice is more complex than many operators realize at first. It is a learned skill, and like any other, requires some practice. The tools and rules are based mainly on common sense, however, and are easily learned. In summary:

- Groups in the preamble are not introduced (except optionally the time-filed, MARS origins, etc.);
- Figures, initials, mixed groups, and call signs elsewhere are introduced by type, except for the special rule for zips and telephone numbers in the address or signature; figures one digit at a time;
- Initials, mixed groups, and call signs are always voiced with phonetics for letters;
- Groups may be voiced one at a time, or grouped in phrases chosen as logically connected words;
- Groups that must be introduced are not included in voiced phrases;
- Certain critical groups are always spelled phonetically, others always spelled with letters or phonetics, in order to minimize errors which can disable the message.
- Emergency BLOOD and FLOOD kit requests demand phonetic spelling of the key word. Both types of kits are available!
- Pauses are critically important to copy. GLENDALE and GLEN DALE are two different places!
- The sending operator's progress through the message may be anticipated due to uniform methods, and every action is either expected or flagged by prowords, introductions or operational words---the receiving station locked in sync;
- The sending operator transmits the message at copy speed, rather than reading speed, using pauses for clarity;
- Last names, telephone figures, street address figures and names, call signs, figures vs. spelled numbers, and abbreviations erroneously converted to words and vice versa, are some of the critical groups transmitted with errors that can disable messages or cause serious misinterpretation at the delivery point. Exact copy is really imperative.
- Traffic handlers operate mostly in an “open loop” mode, i.e., there is seldom direct feedback as to the accuracy of relayed radiograms. The old party joke rule applies. It takes a concerted effort to assure that the accuracy of messages is preserved from origination to delivery. Where practical to do so, it may be worth the trouble to make arrangements to test the system from time to time by sending relayed messages back to the originator to check for errors that creep into the process.
- Scrupulous attention to clear and proper sending and careful honest receiving is the routine quality control.
- Traffic handling done efficiently and accurately is a lot of fun, and a rewarding activity with a public interface.

Further Reading and Resources:

NTS Methods and Practices Guidelines (MPG2014) Chapters 1 and 2.

www.arrl.org/files/NTS_MPG2014.pdf

Much of this document has been adapted from the NTS MPG. The MPG should be consulted for more detailed explanations or for topics not covered in this brief tutorial.

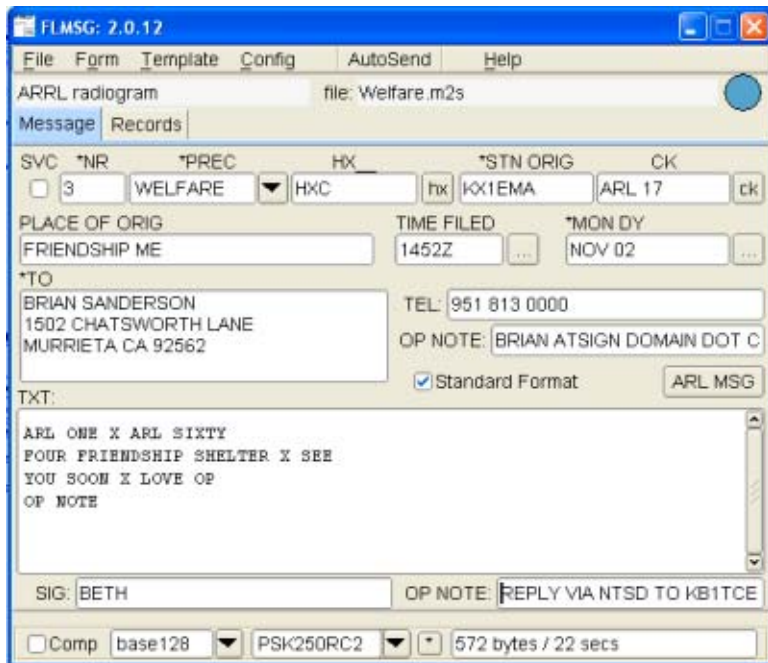
Dave Streubel WB2FTX's concise explanation of the National Traffic System

www.midcoastdigiham.belljar.net/What_is_the_National_Traffic_System.pdf

Chapters 13 & 14 of *The ARRL Amateur Radio Public Service Handbook*, ARRL, 2012.

Composing a Radiogram in Flmsg

Flmsg may be used to compose a radiogram. It is useful even if you are not sending the message via digital means. It includes a number of helps including HX and ARL lookups, formatting to 5 words/line, correcting punctuation and calculation of the Check.



The screenshot shows the FLMSG 2.0.12 application window. The title bar reads "FLMSG: 2.0.12". The menu bar includes "File", "Form", "Template", "Config", "AutoSend", and "Help". The main window displays a form for composing an ARRL radiogram. The "Message" tab is active, and the file name "file: Welfare.m2s" is shown. The form fields include: "SVC" (3), "NR" (WELFARE), "PREC" (HXC), "HX" (hx), "STN ORIG" (KX1EMA), and "CK" (ARL 17). Other fields include "PLACE OF ORIG" (FRIENDSHIP ME), "TIME FILED" (1452Z), and "*MON DY" (NOV 02). The "*TO" field contains the recipient's name and address: "BRIAN SANDERSON, 1502 CHATSWORTH LANE, MURRIETA CA 92562". The "TEL" field is "951 813 0000". The "OP NOTE" field contains "BRIAN ATSIGN DOMAIN DOT C". The "TXT" field contains the message text: "ARL ONE X ARL SIXTY, FOUR FRIENDSHIP SHELTER X SEE, YOU SOON X LOVE OP, OP NOTE". The "SIG" field is "BETH" and the "OP NOTE" field at the bottom is "REPLY VIA NTSD TO KB1TCE". The "Comp" field is set to "base128", "PSK250RC2", and "572 bytes / 22 secs".

The native file (*.m2s) may be sent via Fldigi (NBEMS) or the file may be attached to any program that accepts attachments (e.g. email clients, instant messaging clients, RMS Express, etc.), or a file may be passed to an operator using a memory stick.

Flmsg has a HTML delivery option (File-View-HTML Delivery) that may be used to print a hard copy that is the equivalent of the ARRL form.

Flmsg also has a text output (File-View-Plain Text) that will produce a file in a format that can facilitate sending by voice or cw. DO NOT use this with Microsoft Notepad as the line feeds are incompatible. Use Notepad++ for a properly formatted output. Here is the text output for the example radiogram:

```
3 W HXC KX1EMA ARL 14 FRIENDSHIP ME 1452Z NOV 02
BRIAN SANDERSON
1502 CHATSWORTH LANE
MURRIETA CA 92562
951 813 0000
OPNOTE BRIAN ATSIGN DOMAIN DOT COM
BT
ARL ONE X ARL SIXTY
FOUR FRIENDSHIP SHELTER X SEE
YOU SOON X LOVE
BT
BETH
OPNOTE REPLY VIA NTSD TO KB1TCE ATSIGN NTSME
AR
```

The breaks (BT) separate the message proper from the preamble/address section and the signature.

The text may be cut and pasted into the body of a message if the recipient does not have Flmsg installed on their computer.

The text format is also directly compatible with the format used by NTS-Digital (NTSD). A companion program is required, the NTSD User Parser. The parser puts the radiogram into a form that is compatible with the NTSD Mailbox (MBO) stations that are located throughout the US, Canada and Europe. The parser checks the format, adds an address header with relevant flags and a final /EX signifying the end of file. It also has call sign and zip code look up features. Here is the output of the parser program for the example radiogram:

```
ST 92562 @ NTSCA < KX1EMA  
W MURRIETA 951 813
```

```
3 W HXC KX1EMA ARL 14 FRIENDSHIP ME 1452Z NOV 02  
BRIAN SANDERSON  
1502 CHATSWORTH LANE  
MURRIETA CA 92562  
951 813 0000  
OPNOTE BRIAN ATSIGN DOMAIN DOT COM  
BT  
ARL ONE X ARL SIXTY  
FOUR FRIENDSHIP SHELTER X SEE  
YOU SOON X LOVE  
BT  
BETH  
OPNOTE REPLY VIA NTSD TO KB1TCE ATSIGN NTSME
```

```
/EX
```

The address header contains the zip code, state and sending station in the first line. The second line contains the priority (W), the addressee's town and the first 6 digits of the phone number (area code + exchange) if a phone number is available.

One or more messages are then assembled into a batch file that is then attached to a radio email program e.g. RMS Express or Airmail. The message is then sent through the Winlink system to a participating NTSD MBO.

The MBO's software uses the header information to automatically route each message to the Digital Relay Station (DRS) that is closest to the destination. The DRS operator can then deliver the message personally or submit it to a local manual (voice or cw) NTS net.

Using the parser program is straightforward but there are rules that have to be followed, as the automated NTSD system is very sensitive to formatting. The following outlines the steps to be followed. Anyone in Maine desiring training may contact KB1TCE.

- If you have prepared a message in Flmsg's Radiogram form, click File – View –Text and open the text in Notepad++.
- Copy and paste that text into the I can supply the list of MBOs and a copy of the Parser software. Parser and click "Parse." A new window will appear showing the parsed text. Any

errors will be explained. If there are errors, abort the parsing and you will be returned to the edit window. Make the fixes and repeat.

- You can also enter your message directly into the Parser's edit window or you can use the Wizard to compose a message. The Wizard prompts you for the required information and also includes call sign and US/Canada postal code lookups.
- Save the message to a text file with a name not exceeding 6 characters.
- Additional messages may be added to the file (batch format) as long as there is a space between the /EX and the address lines for the next message.
- Open RMS Express and attach the file to a new message.
- Address the message as shown in the example below. The addressee would be a participating NTSD MBO. The subject line includes the destination (state, region zip code, etc), number of messages, and a request to confirm receipt by the MBO. In the example below, 1 message is going to Region 6 (CA & NV). The first line of the body of the message contains the destination, number of the radiogram and date of the radiogram. The second line contains the file name and the third line contains the sender's call sign. In this example, the MBO will confirm receipt to NY1B.

Note, the MBO's confirmation by return email is not a confirmation that the radiogram was delivered, only that the radiogram got to the MBO.

To:	<call sign>@winlink.org
Subj:	NTS 6RN 1; pse QSL this email
QSL 6RN NR 3 NOV 02	
File: KX1EMA.TXT	
TNX, 73, NY1B	

Further Reading

NTS Methods and Practices Guidelines (MPG2014) MPG6 Support Guidance, Radio-Email
www.arrl.org/files/file/MPG6A8V14ABFPT.pdf

Appendix A. Common Prowords

BREAK Marks the start of the text, and “break” at the end of the text marks the start of the signature

I SPELL Used to indicate you are going back to spell the group just voiced. It is said IMMEDIATELY after voicing the group, followed by either phonetic or letter spelling of the group. The operator may elect to spell by letter or by phonetics e.g. ARL I spell A R L vs. ARL I spell Alpha Romeo Lima.

I SAY AGAIN Use #1: To repeat for clarity

I SAY AGAIN Use #2: To correct an error

NO MORE, ONE MORE (1), MORE (2 or more) Indicates if you have additional traffic to follow or not. These terms follow the “end” termination of copy.

OVER Indicates the end of your transmission and signals the receiving station to go ahead:

AFFIRMATIVE Yes.

CONFIRM The request to confirm correct copy of group(s). The affirmative reply to the request.

NEGATIVE No.

ROGER Received and understood. (Does NOT mean yes).

GO AHEAD Continue. Used after requesting fills after interruptions to signal the sending operator to continue. Also used as an equivalent to OVER.

FIGURES Used to introduce a group of one or more numbers.

INITIAL Used to introduce a single letter initial, phonetic pronunciation mandatory, as in the initial in a proper name

INITIALS (LETTER GROUP) Used to introduce a group of 2 or more letters, as in an abbreviation, unpronounceable group, etc. Phonetics are mandatory; as in: NTS voiced as “initials NOVEMBER TANGO SIERRA

MIXED GROUP Used to introduce a group consisting of a mix of 2 or more of the 3 types of characters permitted in a group; letters, figures, or slashes (/), not beginning with figure(s). See the next section for mixed groups beginning with figure(s). Examples: **W3XYZ/EPA**

MIXED GROUP FIGURE(s) Used to introduce a mixed group as above when the first character is number(s), as in: **2A**: voiced as “mixed group figure TWO ALPHA.”

AMATEUR CALL Used to introduce an amateur call sign in the Address, Text, or Signature (but not in the Preamble). Phonetics are mandatory for the letters;

Appendix B. List of ARL Numbers

One Group -- For Possible **RELIEF EMERGENCY** Use

ONE Everyone safe here. Please don't worry.

TWO Coming home as soon as possible.

THREE Am in _____ hospital. Receiving excellent care and recovering fine.

FOUR Only slight property damage here. Do not be concerned about disaster reports.

FIVE Am moving to new location. Send no further mail or communication. Will inform you of new address when relocated.

SIX Will contact you as soon as possible.

SEVEN Please reply by Amateur Radio through the amateur delivering this message. This is a free public service.

EIGHT Need additional _____ mobile or portable equipment for immediate emergency use.

NINE Additional _____ radio operators needed to assist with emergency at this location.

TEN Please contact _____. Advise to standby and provide further emergency information, instructions or assistance.

ELEVEN Establish Amateur Radio emergency communications with _____ on _____ MHz.

TWELVE Anxious to hear from you. No word in some time. Please contact me as soon as possible.

THIRTEEN Medical emergency situation exits here.

FOURTEEN Situation here becoming critical. Losses and damage from _____ increasing.

FIFTEEN Please advise your condition and what help is needed.

SIXTEEN Property damage very severe in this area.

SEVENTEEN REACT communications services also available. Establish REACT communication with _____ on channel _____.

EIGHTEEN Please contact me as soon as possible at _____.

NINETEEN Request health and welfare report on _____. (State name, address and telephone number.)

TWENTY Temporarily stranded. Will need some assistance. Please contact me at _____.

TWENTY ONE Search and Rescue assistance is needed by local authorities here. Advise availability.

TWENTY TWO Need accurate information on the extent and type of conditions now existing at your location. Please furnish this information and reply without delay.

TWENTY THREE Report at once the accessibility and best way to reach your location.

TWENTY FOUR Evacuation of residents from this area urgently needed. Advise plans for help.

TWENTY FIVE Furnish as soon as possible the weather conditions at your location.

TWENTY SIX Help and care for evacuation of sick and injured from this location needed at once.

Emergency/priority messages originating from official sources must carry the signature of the originating official.

Group Two -- **ROUTINE MESSAGES**

FORTY SIX Greetings on your birthday and best wishes for many more to come.

FORTY SEVEN Reference your message number _____ to _____ delivered on _____ at _____ UTC.

FIFTY Greetings by Amateur Radio.

FIFTY ONE Greetings by Amateur Radio. This message is sent as a free public service by ham radio operators at _____. Am having a wonderful time.

FIFTY TWO Really enjoyed being with you. Looking forward to getting together again.

FIFTY THREE Received your _____. It's appreciated; many thanks.

FIFTY FOUR Many thanks for your good wishes.

FIFTY FIVE Good news is always welcome. Very delighted to hear about yours.

FIFTY SIX Congratulations on your _____, a most worthy and deserved achievement.

FIFTY SEVEN Wish we could be together

FIFTY EIGHT Have a wonderful time. Let us know when you return.

FIFTY NINE Congratulations on the new arrival. Hope mother and child are well.

***SIXTY** Wishing you the best of everything on _____.

SIXTY ONE Wishing you a very Merry Christmas and a Happy New Year.

***SIXTY TWO** Greetings and best wishes to you for a pleasant _____ holiday season.

SIXTY THREE Victory or defeat, our best wishes are with you. Hope you win.

SIXTY FOUR Arrived safely at _____.

SIXTY FIVE Arriving _____ on _____. Please arrange to meet me there.

SIXTY SIX DX QSLs are on hand for you at the _____ QSL Bureau. Send _____ self addressed envelopes.

SIXTY SEVEN Your message number _____ undeliverable because of _____. Please advise.

SIXTY EIGHT Sorry to hear you are ill. Best wishes for a speedy recovery.

SIXTY NINE Welcome to the _____. We are glad to have you with us and hope you will enjoy the fun and fellowship of the organization.

ARL NUMBERS SHOULD BE SPELLED OUT AT ALL TIMES.

*Can be used for all holidays.

Appendix C. The Phonetic Alphabet

A	ALFA	M	MIKE	Y	YANKEE
B	BRAVO	N	NOVEMBER	Z	ZULU
C	CHARLIE	O	OSCAR	1	ONE
D	DELTA	P	PAPA (PA-PA')	2	TWO
E	ECHO	Q	QUEBEC (KAY-BEK')	3	THREE (TREE)
F	FOXTROT	R	ROMEO	4	FOUR
G	GOLF	S	SIERRA	5	FIVE (FIFE)
H	HOTEL	T	TANGO	6	SIX
I	INDIA	U	UNIFORM	7	SEVEN
J	JULIETT	V	VICTOR	8	EIGHT
K	KILO	W	WHISKEY	9	NINE (NINER)
L	LIMA	X	X-RAY	0	ZERO