

Welcome

Welcome to D&G RAYNET.

This guide covers the operating and voice procedures that we aim to use consistently so as to ensure as effective, accurate and rapid communication as possible. These procedures have evolved over the last forty years, continually being refined as a result of experience and changing circumstances. Previous members' efforts at formulating and communicating these procedures is fully acknowledged.

The guide does not aim to cover control functions nor some of the more technical stuff involved with our operations. It is intended to allow members of the group to understand, or re-acquaint themselves with, some of the operating principles they will be using.

The primary RAYNET task is to pass messages between User Services effectively and accurately. To achieve this we practice, using frequent events during the year. These events help us to train new people and keep everyone's skills high – so active participation is necessary.

Throughout these notes pro-words (words or short phrases with specific meanings, so saving verbosity on air) are shown in **bold**. Radio conversations are shown in **brown**. Critical issues are shown in **red**. Where lines are indented this signifies the initiator of the call and then the follow up calls.

Radio checks and Signal strengths

Since we have to pass messages accurately we need to know how well everyone in the net is receiving; more importantly we only need to know if they can hear easily, with difficulty or cannot hear at all.

- Ignore all the stuff about 5 and 9, and think about hearing all the words.
- If you can hear a transmission clearly enough to get every word that is **OK**.
- If you hear some words with difficulty, but where you are confident you have understand the message, then that is **Difficult**.
- If you hear some words, but not enough to get the meaning of the message, that is **Unworkable**.
- If you don't hear anything, that is **Nothing heard**.
- Ignore your meter; it is hearing acceptable audio that matters.

Generally you should not elaborate on your report with additional comments like a bit scratchy or audio is weak - It is either workable and the response is **OK**, or **difficult**, or even **unworkable**. These pro-words say it all in a single word. Their use is very concise, unambiguously understood, and saves battery power/air time.

The other key issue is the difference between the two requests for information:

- **Radio check** is asking each out station for the quality of their reception of messages from Control
- **Signal strengths** is asking each out station for the quality of their reception of other stations on the net.

Hello

You should use the sacrificial pro-word **Hello**, especially if Talkthrough units are in operation, since this (a) alerts users to radio traffic and (b) does not matter if the word **Hello** gets lost as repeaters kick in

Callsigns

If you are calling another station you give their callsign first followed by your own.

"Hello MM0YMG this is GM6MUZ, over"

When replying to this message you only need to give your own callsign

"MM0YMG send, over"

You do not use double callsigns as you might normally do in an Amateur Radio QSO or contest call. This cuts down on unnecessary traffic but also ensures everyone fulfils their radio licence conditions.

Radio nets

D&G RAYNET operations almost always use a net in order to achieve optimal effectiveness. In order for this net to function properly certain protocols need to be followed. The net is always run by a Net Controller (but not necessarily the same person every time). It is often an Open Net. This is possible since most, if not all, operators can hear each other. Thus all operators can either transmit to Net Control or to each other and be understood. The protocols deal largely with how best to avoid doubling.

If operating in difficult terrain then the Net Controller may need to change to a Directed Net. This is where all calls must go through Net Control, since most outstations are unable to hear each other. The other situation where a Directed Net is needed is where a Talkthrough is needed to cross a hill. In such a case unless outstations are able to monitor VHF and UHF frequencies at the same time they will not necessarily be able to hear each other. Protocols for Directed Nets are covered later.

Joining a net

If a net is being created you will hear a call from Net Control along the following lines

“D&G RAYNET, D&G RAYNET, D&G RAYNET, **This is GM0MUZ. All stations joining the net call now, over**”

Outstations will respond in the format

“MM0YMG, **over**”

“MM0ASB, **over**”

“MM0HSA, **over**”

Net Control will now give the answering order for outstations on the net.

“GM6MUZ, Stations on net are GM6MUZ, Net Control, MM0YMG, MM0ASB and MM0HSA. **All stations Radio check, over**”

This order should be written down for later reference. Next Net Control will ask for a Radio Check. This is purely how well you can hear Net Control, nobody else!

The stations respond in their answering order. The response is **callsign, report, over**. Responses are

- **OK** - satisfactory
- **Difficult** – workable but with difficulty
- **Unworkable** – impossible to communicate

So the responses will be like

“MM0YMG **OK, over**”

“MM0ASB **Difficult, over**”

“MM0HSA **OK over**”

Now Net Control will ask for Signal Strengths which tells how well outstations are hearing each other.

“GM6MUZ **all stations Signal strengths, over**”

Outstations again respond in their answering order. The response is **callsign, report, out**. Responses are

- **OK** - satisfactory
- **Difficult** – workable but with difficulty
- **Unworkable** – impossible to communicate
- **Nothing heard** – no signal heard

So the responses will be like

“MM0YMG, **OK, over**”

“MM0ABB, **OK, over**”

“MM0HSA, **OK, but callsign MM0YMG difficult, over**”

Net Control will acknowledge these reports and may request for one out station to relay messages to another who is not in a good location for radio propagation. Net Control may also change the answering order so that stations which are having difficulty hearing others are moved to the end of the order so as to simplify operation.

The net is now functioning. You do not leave the net without formal permission from Net Control. By the same token if you wish/need to join after the net is set up you should seek permission from Net Control. After accepting the new

operator into the net then Net Control should repeat the **Radio Check** and **Signal Strength** reports to fully appreciate the dynamics of the newly constructed net.

Closing the net

If a formal net has been established it should be formally closed down at the end of the operation. The format is along the lines

“Hello all stations D&G RAYNET this is GM6MUZ. Close down, over”

The response to this is, in answering order

“MM0YMG. Close down, over”

“MM0ASB. Close down, over”

“MM0HSA. Close down, over”

At the end of the answering order Net Control closes the net

“GM6MUZ. Close down now, out”

The formal net is now closed.

Directed Net

A Directed Net is needed when outstations generally cannot hear each other so are unable to tell if the net is clear before speaking. When Net Control advises that the net is running as a Directed Net specific rules apply to the operating procedure. The formal announcement is:

“Hello all stations D&G RAYNET this is GM6MUZ. This is a directed net. Out”

Now all calls and messages must go through Net Control, who will, if necessary, relay them on to other stations. As a result of this outstations never go **Out** (since it is unlikely that all outstations will hear them), but will always finish their transmissions with **Over**, leaving Net Control to go **Out** so that everyone in the net is now aware that the net is clear.

After an outstation hears Net Control going **out** they can try calling Net Control themselves if they have a message to pass, but they need to be aware that they may be doubling so have to listen carefully for Net Control to ask them specifically to send their message.

“GM6MUZ out”

“Hello GM6MUZ this is MM0YMG, message over”

“GM6MUZ, MM0YMG send over”

“MM0YMG, Have all riders passed CP three yet, over”

“GM6MUZ, negative, still two riders to pass, over”

“MM0YMG, roger, over”

“GM6MUZ, out”

Voice Procedure

Traffic

When starting a call you identify the station you wish to call. There are three variants of the first call depending upon the nature of the traffic to be sent.

If the call is very simple you just use

**“Hello MM0YMG this is GM6MUZ,
over” “MM0YMG send, over”**

**“GM6MUZ, new batteries will be with you shortly via callsign MM0ASB, over”
“MM0YMG, roger, out**

If there is potentially a need for the recipient to take notes (but not where a written message will need to be passed on to a third party) you use the pro-word **message**. It lets the recipient know they will need pen and paper to hand.

**“Hello MM0YMG this is GM6MUZ message,
over” “MM0YMG send, over”**

“GM6MUZ, we need two fish suppers, one with vinegar and one with salt and sauce, one sausage supper with vinegar, and a steak pie supper, 3 cans of Fanta and one carton of orange juice. Please also get forks and napkins, over”

“MM0YMG, roger, out

If the message needs to be written down to be handed on then the pro-word Formal message is used. A formal RAYNET message form and pen/pencil are both needed. Any station may have the need to send a formal message where information need to be passed on to a third party.

**“Hello all stations. This is GM6MUZ formal message,
over” “MM0YMG send, over”**

If the station is unable to deal with your message immediately then they will respond

“MM0YMG wait, out”

When the transmission is completed you terminate the call using one of the following pro-words: **over, out, wait out, or out to you**. Everyone on the net then knows the status of your call.

Messages

When a formal message is sent it MUST be written down. The protocol is as follows

“Hello all stations. This is GM6MUZ formal message, over”

Now each station responds in answering order to indicate they are ready to write the message

“MM0YMG send, over”

“MM0ASB send, over”

The message is now sent and should be written down as received. Net control may ask outstations to confirm they are keeping up using the pro-words Roger so far. The response is given in answering order. This will either be callsign, roger, over or a request for clarification

“GM6MUZ roger so far?, over”

“MM0YMG, roger, over”

“MM0ASB, say again words after officer, over”

In this instance Net Control will repeat the words after the word “officer”.

When the formal message is completed the sender will advise and then request all stations to confirm they have the message. One important check is to make sure that your received word count is the same as the sent word count.

“GM6MUZ message ends, over”

“MM0YMG, roger, out”

“MM0ASB, roger, out”

This now gives the sender full confidence that the message has both been sent and received for onward transmission to the required third party.

The best way to take a message is to fill in one of the pre-printed RAYNET message forms – an example is shown in the appendices. The message will be given in the order that tallies with the form so it makes it easier. You need to write clearly so that others can read the message without risk of misunderstanding. It is very useful to practice taking down and sending formal messages since familiarity with the procedures will save time when they are needed for real.

Corrections

You will make errors in sending messages. When you do the procedure is to use the pro-word **Wrong**.

“Hello MM6YMG. **Wrong** MM0YMG **this is GM6MUZ, over**”

The corollary is to confirm something is correct to use the pro-word **Correct**. You may also be asked to **verify** or **read back**.

“Hello GM6MUZ **this is** MM0YMG .. move to **grid** NT 123 456 and meet **callsign** GM3OWU **verify grid, over**”

“GM6MUZ, **wait, out**”

“Hello MM0YMG **this is** GM6MUZ, reference **grid** NT 123 456 **correct, over**”

“MM0YMG, **roger, out**”

Spelling

If a word is unpronounceable, obscure, or open to misinterpretation then it is necessary to spell it out phonetically for clarity, particularly if radio conditions are poor.

“... Redeploy to Parton. **I spell** Uniform Papa Alpha Romeo Tango Oscar November ...”

Figures

Under good conditions figures in text, except grid references, may be sent as in normal speech. Figures should be sent digit by digit using the pro-word **Figures**. So to send “deliver 17 sleeping bags”. It may be helpful to say the figure first, so “seventeen, figures one seven”:

“... deliver **Figures** one seven sleeping bags ...”

Time

When a time is being passed the format is to use the pro-word **Time** and then give the time digit by digit. So if runner 47 passes a check point at 1026h then the message would be

“... **Rider** four seven at **Time** one zero two six ...”

Grid references

All grid references are preceded with the pro-word **Grid**. They are sent digit by digit and the letters are pronounced phonetically. Generally you should include the two letters in order to risk any misunderstanding.

“... Accident at **grid** November Tango five six seven .. three four niner ...”

Etiquette

In normal circumstances Net Control will thank out stations for their contribution; it uses very little time to say “please” and “thank you”, but does make the net feel much friendlier.

However should conditions or circumstances make things more urgent that Net Control will drop these redundant words in order to speed everything up – it is not just because they have forgotten, or gone grumpy!

Appendices

1. Pro words

Acknowledge	Instruction to a station on the net to acknowledge that it has heard a message which may not have been specifically addressed to it.
All after/before	Used with reference to a word or phrase when requesting or giving repetitions or corrections.
All stations	A call for all stations on the net.
Am assuming control	Used when another station takes over the duties of control.
Answer after	Instructing a newly joined station in which order he is to answer calls.
Assume control	Ordering another station to assume control of the net.
Break	Text begins or text ends.
Call sign	The group that follows is a call sign
Cancel	When a sender wishes to cancel a message or transmission.
Check back	Used by Control after giving a time signal, when they wish a designated station to check the time back
Correct	You are correct
Difficult	Communication workable only with difficulty. Care and extra measures are needed.
Except	The call signs which follow are excluded.
Fetch	Used in conjunction with appointment/title to indicate to whom the caller wishes to speak.
Figures	Used before groups of figures, sent digit by digit, except in the case of call signs, grid references, time checks and date/time groups.
Formal message	Offer of a formal message. May be qualified by "precedence" and "long" if it will take some time to transmit.
From / to	To identify part of the message.
Grid	Given before any map grid reference.
Hello	Introduction to an initial call. A potentially sacrificial word when using Talkthrough
I read back	By receiver to ensure the transmission, or portion of it, has been received correctly
I say again	By sender when making repetition for emphasis.
I spell	When spelling out a word or letter group phonetically.
Info	The addressees/call signs immediately following are addressed for information purposes only, no action required.
Intermittent	To indicate intermittent reception when reporting readability of signals.
Long message	Offer of a long message, likely to take more than two minutes to transmit in good reception conditions.
Message	Offer of a message which needs to be written down.
Message passed	Used by relaying station to notify originating station that a message has been cleared.
Nothing heard	To indicate that no signals have been received from a particular station
OK	Communications satisfactory.
Out	End of my transmission. No reply is required / expected.
Out to you	End of my transmission to you, no reply is required / expected and a call to another station follows immediately
Over	End of this transmission to you, a reply or acknowledgement is expected
Radio check	Report how you hear my transmission.
Read back	Repeat back the message exactly as received
Read back message	Warning that station(s) must write down the message offered and that one will be nominated to read it back to check for accuracy.
Relay through	Instruction to a station to relay through another station.
Relay to	Instruction to a station to relay to another station.
Rider	Synonym for participant whether rider, runner, cyclist, walker etc
Roger	Received your last transmission satisfactorily

Roger so far	Acknowledge receipt of what has been transmitted so far.
Say again	Request for repetition of all, or portions indicated, of a message
Send	Transmit your offered message.
Send time	Request for a time signal
Signal strengths	Call by control for sub stations to report how they hear each other.
Speaking	Used in conjunction with name or title/appointment to identify who is speaking.
This is	Identity of calling station.
This is a directed net	All calls must be offered through control.
This is a free net	Used to cancel a directed net.
Through me	Offer by a station to relay message.
Time	The figures that follow are a time
Time signal	Time signal follows.
Unknown station	Identity of station calling is unknown to me
Unworkable	Impossible for communications. Traffic cannot be passed until standard has improved
Verify	Verify portion of message indicated with originator or send corrected version.
Wait	No other station on the net is to transmit during this pause even if I am not transmitting.
Wait out	Your transmission is acknowledged, and I will come back to you on the same subject later.
Word before/after	To identify part of a message
Wrong	What has been said is wrong. The correct version is.....

2. Phonetic alphabet

A	Alpha	<u>Al</u>fah	J	Juliet	<u>Jew</u>leet	S	Sierra	See- <u>err</u>or
B	Bravo	<u>Brah</u>voh	K	Kilo	<u>Keel</u>oh	T	Tango	<u>Tang</u>goh
C	Charlie	<u>Char</u>lee	L	Lima	<u>Lee</u>mah	U	Uniform	<u>Yoo</u>neeform
D	Delta	<u>Del</u>ta	M	Mike	<u>Mike</u>	V	Victor	<u>Vikt</u>ah
E	Echo	<u>Eck</u>o	N	November	<u>Novem</u>ber	W	Whisky	<u>Whiss</u>ki
F	Foxtrot	<u>Fok</u>strot	O	Oscar	<u>Oscar</u>	X	X-Ray	<u>Eks</u>-ray
G	Golf	<u>Golf</u>	P	Papa	<u>Pah</u>pah	Y	Yankee	<u>Yang</u>kee
H	Hotel	<u>Hotell</u>	Q	Quebec	<u>Keh</u>bek	Z	Zulu	<u>Zool</u>oo
I	India	<u>In</u>deeah	R	Romeo	<u>Row</u>meoh			

3. Numbers

0	Zeeroh	
1	Wun	Emphasis on the "N"
2	Too	Sharp "T" and long "OO"
3	Thuh-ree	Short "U", slight rolling on "R" and long "EE"
4	Fow-er	Long "O" as in Foe
5	Fi-yiv	Stress consonants with long "I" for first syllable, as in Pie and short "I" for second
6	Six	Emphasis on the "X"
7	Se-ven	Two distinct syllables, the "EN" as in Hen
8	Ate	With a long "A"
9	Niner	With long "I" as in Pie and emphasising each "N"

The above document is reproduced with thanks to Charlie Duncan GM6MUZ and Lothians RAYNET

D&G RAYNET MESSAGE FORM

USER SERVICE USE ONLY

Number	Precedence ROUTINE PRIORITY IMMEDIATE	Place of Origin	Filing Time <i>HHMM</i>	Filing Date <i>MMM-DD</i>	Word Count
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TO:		Role / Agency	
FROM:		Role / Agency	
INFO:			

PRINT CAREFULLY IN CAPITALS. USE ONLY ONE WORD, OR PUNCTUATION MARK, PER BOX BELOW – 45 MAX.

					5
					10
					15
					20
					25
					30
					35
					40
					45

Be precise, concise and clear

Signature:

RAYNET USE ONLY

REC'D from User Service	RAYNET serial	From	Time	Date	Sent Tx	To	Time	Date	Initials
REC'D Rx	RAYNET serial	From	Time	Date	Deliv to User Service	To	Time	Date	Initials
RAYNET Operator					Callsign			Signature	