



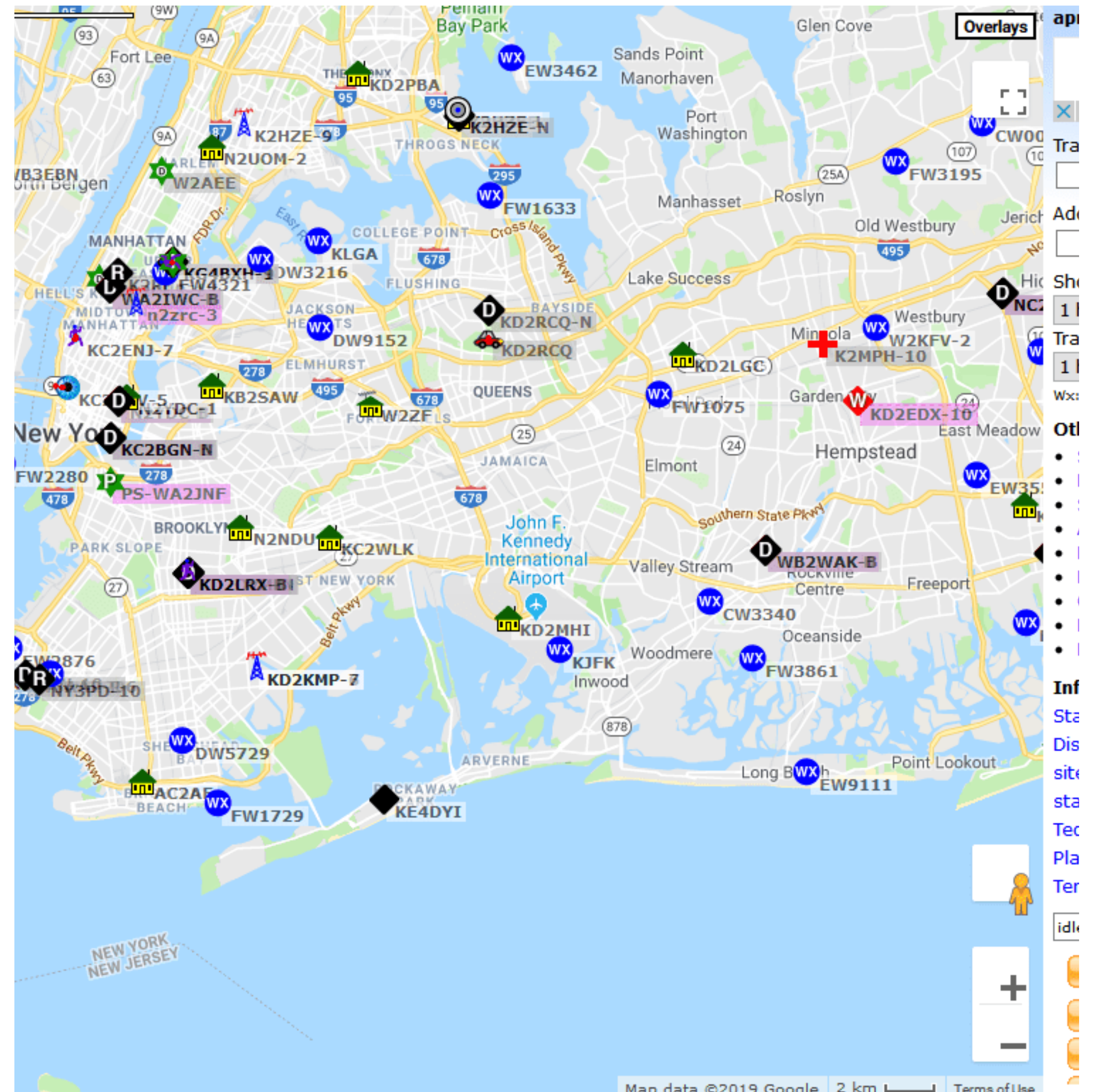
# APRS - 144.390 MHz

**Automatic Packet Reporting System**

**Scott Tranchitella - K9XJT**

# What is APRS?

It's an [amateur radio](#)-based system for real time digital communications of information of immediate value in the local area.<sup>[1]</sup> Data can include object [Global Positioning System](#) (GPS) coordinates, [weather station](#) telemetry, text messages, announcements, queries, and other [telemetry](#). APRS data can be displayed on a map, which can show stations, objects, tracks of moving objects, weather stations, search and rescue data, and direction finding data.



APRS data is typically transmitted on a single shared frequency (depending on country) to be repeated locally by area relay stations (digipeaters) for widespread local consumption. In addition, all such data are typically ingested into the APRS Internet System (APRS-IS) via an Internet-connected receiver (IGate) and distributed globally for ubiquitous and immediate access.<sup>[2]</sup> Data shared via radio or Internet are collected by all users and can be combined with external map data to build a shared live view.

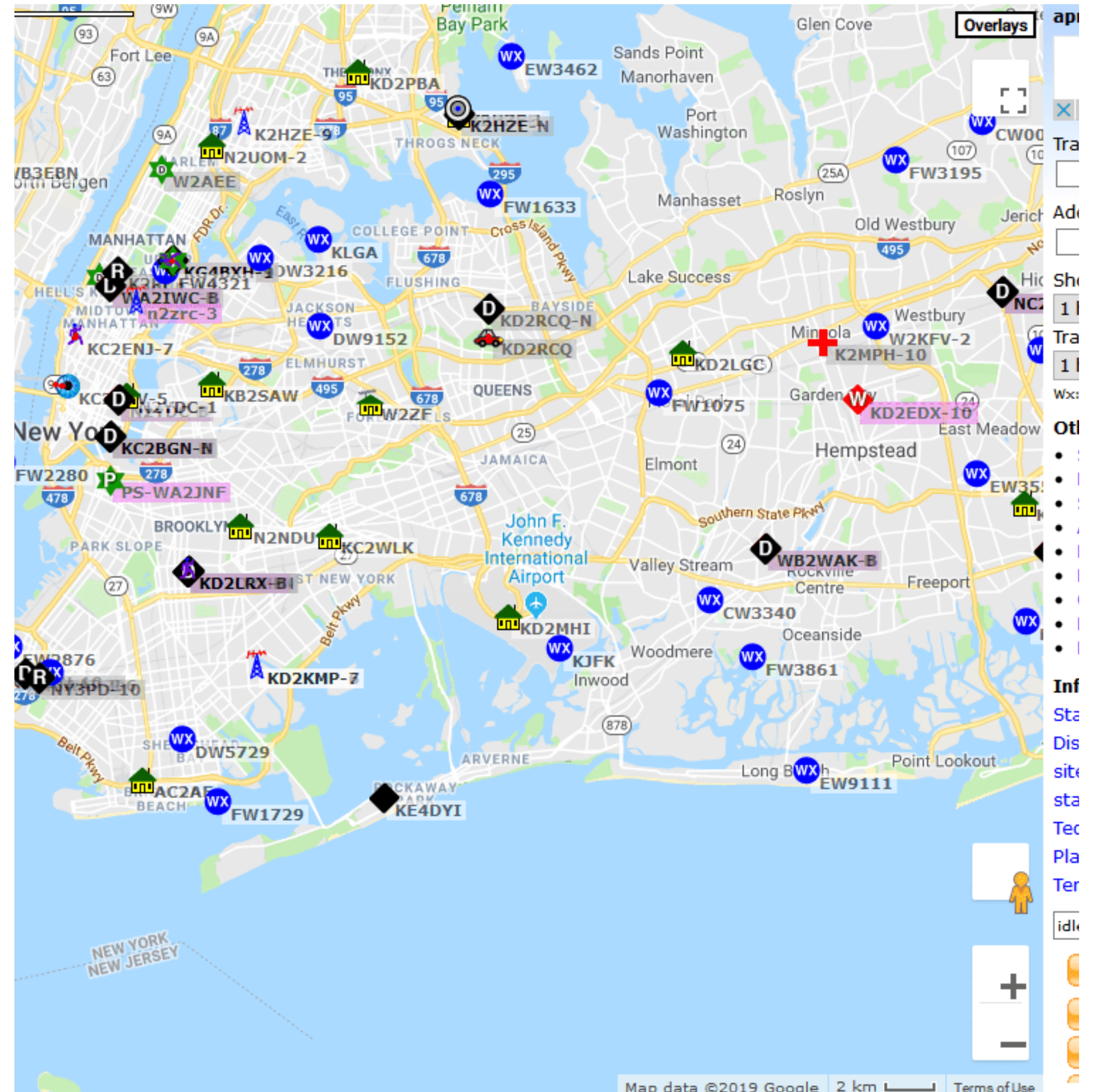
In its simplest implementation, APRS is used to transmit real-time data, information and reports of the exact location of a person or object via a data signal sent over amateur radio frequencies. In addition to real-time position reporting capabilities using attached GPS receivers, APRS is also capable of transmitting a wide variety of data, including [weather](#) reports, short text messages, [radio direction finding](#) bearings, [telemetry](#) data, short e-mail messages (NO LONGER send only) and storm forecasts. Once transmitted, these reports can be combined with a computer and mapping software to show the transmitted data superimposed with great precision upon a map display.

While the map plotting is the most visible feature of APRS, the text messaging capabilities and local information distribution capabilities, combined with the robust network, should not be overlooked.



# What is APRS.FI?

Using APRS.FI (with google maps) we can track Ham Radio operators who are involved in storm tracking, search and rescue, fox hunting and other contests, traveling long distance and much more. Weather stations, digipeters, and friends can be located on the map BEFORE you get into RF range so you can get an idea of what's going on in your area.



What's up on  
**aprs.fi**

# What Cool Things YOU Can You Do With APRS

These Are Just a Few....From The RADIO

- Send and Receive E-Mail From Your Radio (Yes even Winlink)
- Send and Receive Text Messages (SMS)
- Beacon Your Location on Timed Intervals
- Receive Weather Data From APRS Weather Stations
- GPS Location Data
- Search and Rescue Positioning

# APRS Voice

## Voice Alert

- Set Tone to 100 Hz
- If someone else is in Simplex range you will get alert.
- If you get a beacon and the QSY button is active AND you are in VFO you will auto tune to the frequency in the beacon received.



# APRS Weather

## Weather Info WXYO WXBOT

- Send message to WXBOT / WXYO
- Choose a phrase like “Today, Friday, Sunday” in the txt
- You will get weather update via APRS message.
- You can also use Zip codes and airport abbreviations



# **Sending Email with APRS and Your Radio**

**There are two popular ways to send email with APRS.**

**1) EMAIL -2**

**2) Winlink Using APRSLink**



# APRS Mail (EMAIL -2)

- The “-2” is the identifier (SSID) and MUST BE USED.
- When you use this type of email is it SEND ONLY. The recipient will receive telemetry data and other specials links about your APRS.
- Your EMAIL and possibly the content may be public via the APRS.FI website!  
<https://aprs.fi/?c=message&limit=&call=EMAIL-2>
- Your recipient will be able to track you via APRS after the email if they click on the “tracking link” the email server sends them!

# How to Use APRSLink

I will be using the Yaesu FTM400 for my radio but the APRS steps are the same on all radios.

- 1) Open your MESSAGE MENU / M-LIST
- 2) New Message OR Reply to a message and then clear ALL settings (EDIT CS and EDIT TXT OR CLEAR ALL.
- 3) Enter EMAIL -2 as the recipient. Don't worry you will be able to enter their email address on the next step.



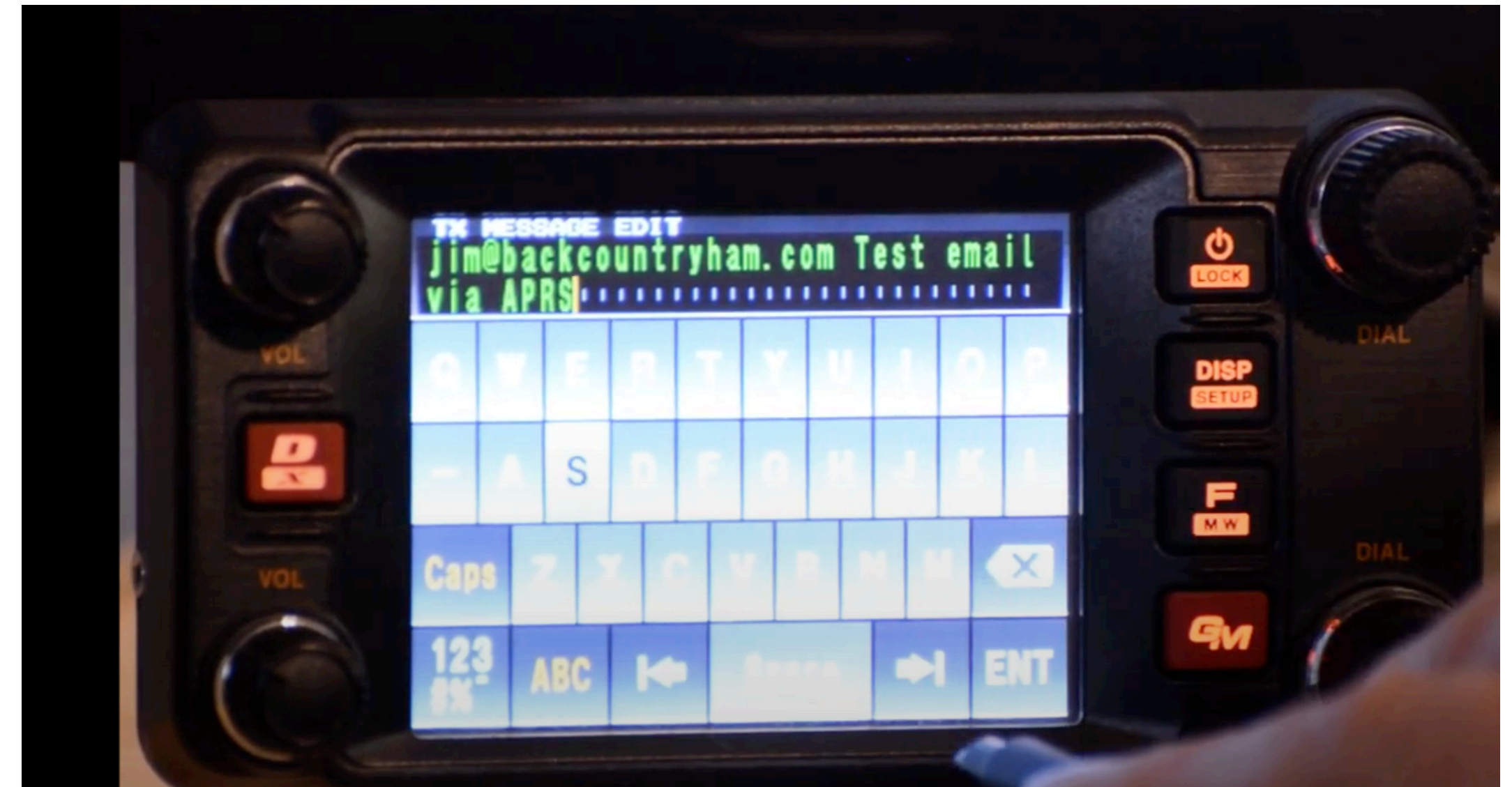
# How to Use APRSLink

4) Enter the recipients email address THEN hit the SPACE BAR. The space separates the email address from the actual message. After the SPACE, type your message.

Example: To: Mail -2

Message: [JoeSmith@hamradio.com](mailto:JoeSmith@hamradio.com) <space> Hi Joe this is a simple test of my APRS email.

5) After you have completed these steps hit MSGTX (Message transmit). Your radio will try 5 times to send the message. It will display an asterisk when successful and you will get a message from APRS with a receipt.



# How to Use APRSLink

This is what the email will look like. The recipient will get links to your beacon info, GPS telemetry data and other info.



# How to Use APRSLink

This is what the email will look like. The recipient will get links to your beacon info, GPS telemetry data and other info.

## Location of K9XJT-7

Last heard on Sunday, 2021/05/09 at 01:12:31 UTC  
Sat May 08 2021 20:12:31 GMT-0500 (CDT)  
(8 minutes 43 seconds ago)

EN50er

Position: 40°43.57'N 089°35.04'W

Moving 359° at 0 mph

Altitude: 663' MSL

In Service

Last Packet Heard:

K9XJT-7>APY03D,WIDE1\*,WIDE2-1,qAO,KS9A-10::EMAIL-2 :audio309@yahoo.com Test{63

[Look up K9XJT on QRZ.com](#)

[List packets for K9XJT-7 between 1 hour ago and now](#)

**Your browser does not support Java!** Try Java Web Start button.  
You may download Java for Linux and Windows from [Oracle](#)

Try looking up on [jFindu Mobile Map](#)

# APRS SMS Messaging (SMSGTE)

1) The recipient will be SMSGTE (SMS Gate).

EXAMPLE— to: SMSGTE

2) Put in the phone number you wanna txt. REMEMBER you MUST use the @ symbol before the number.

EXAMPLE— @3095551212

3) After the phone number hit the <space> and add the message.

EXAMPLE— @3095551212 <space> Hello John Doe, I cannot hit the repeater but APRS seems to work. Please verify.

You can now send the message!

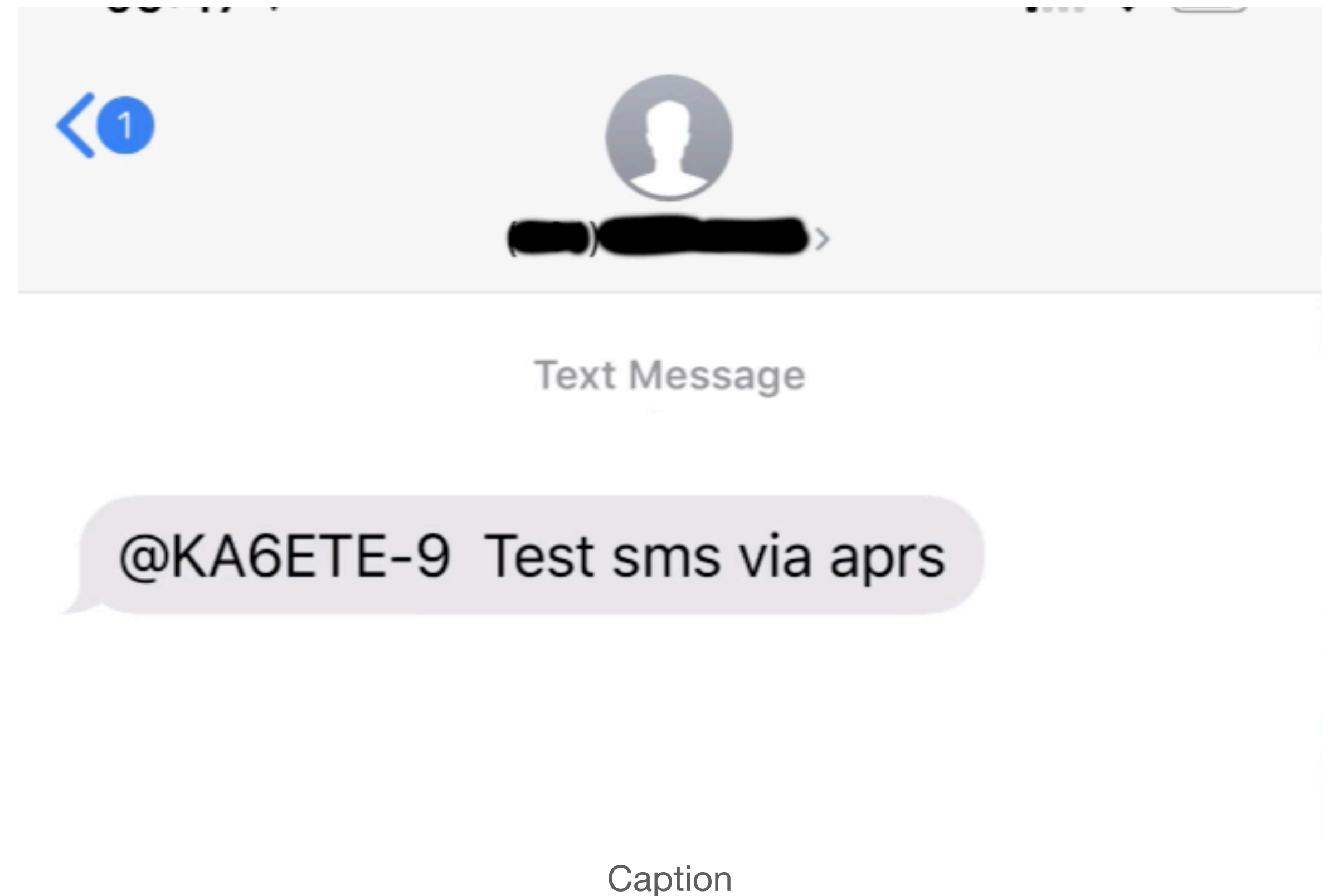


Caption

# APRS SMS Messaging (SMSGTE) IGATE

The recipient will see a message from your call sign. The message will also include a phone number. NEVER SHARE THIS NUMBER as it is for HAMS ONLY.

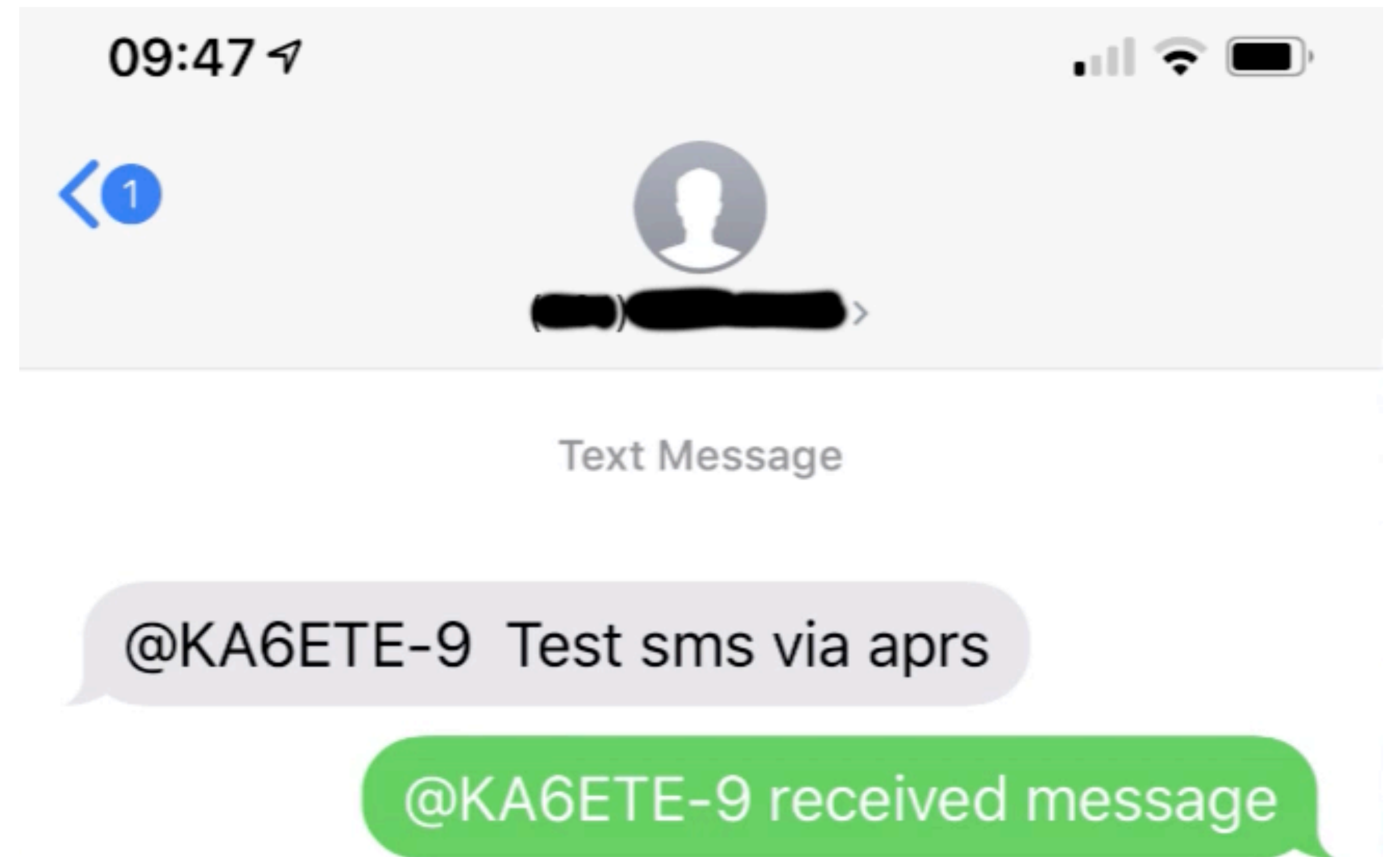
They will be able to respond via TXT message. When you receive the message on the radio, it will be in your message list.



# APRS SMS Messaging (SMSGTE) IGATE

They will be able to respond via TXT message. When you receive the message on the radio, it will be in your message list.

They MAY have to include @yourcall the first time they respond. I have not run into this problem yet.





# APRS WINLINK

**“Simple” Winlink Email from Your Radio.... But a little tricky (not what you think)**



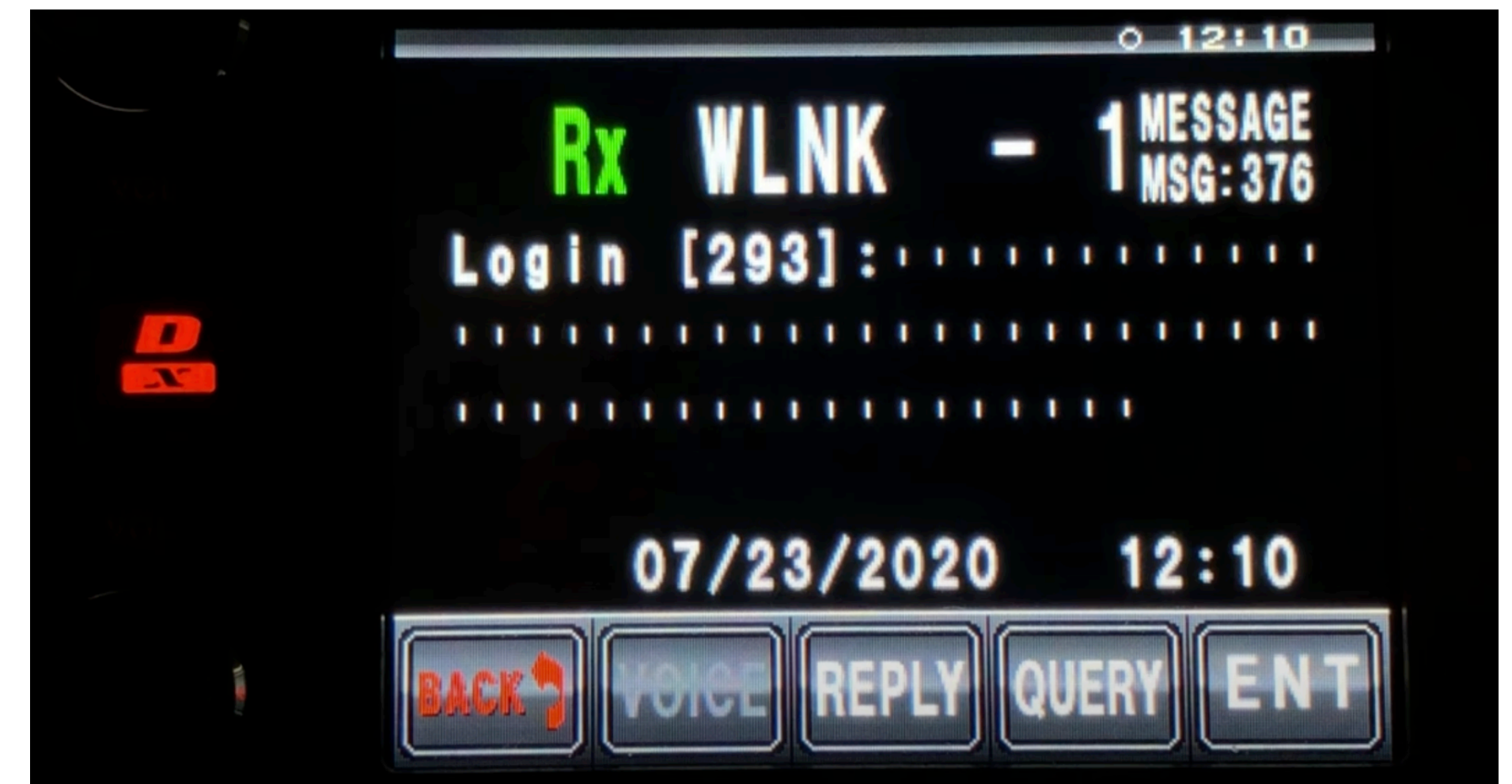
# APRS WINLINK



To get your Winlink email:

1) To: WLNK

Make sure you include something in the message part like “winlink”



# APRS WINLINK

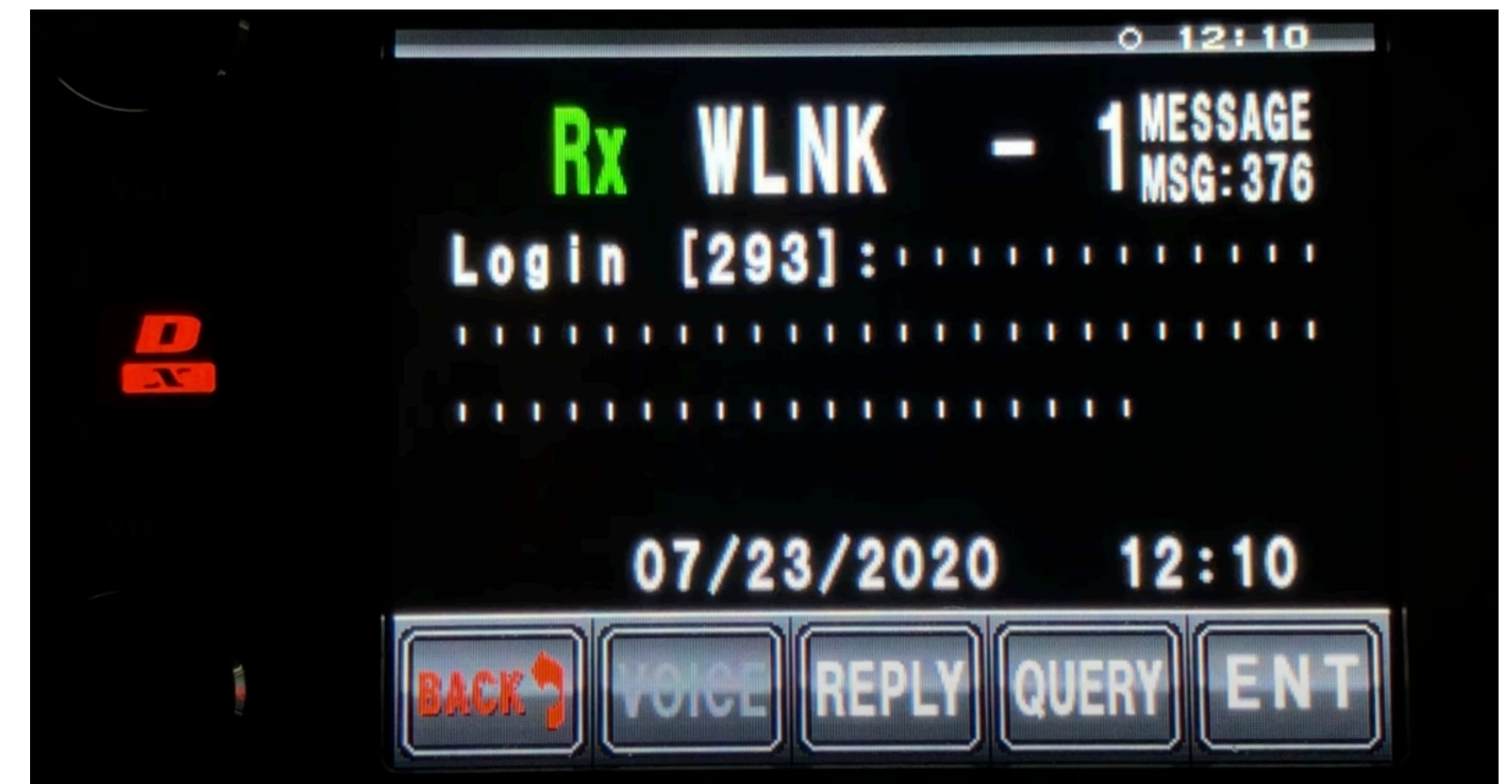


You will get a three number reply:

Login [###]

This is the TRICKY PART!

You must reply with your Winlink Password



# APRS WINLINK



To enter your password:

The SAMPLE password is  
Km4ack1234

293

km4ack1234

# APRS WINLINK



1) Take the second letter (m) and enter it.

293

km4ack1234

m

# APRS WINLINK



- 1) Take the second letter (m) and enter it.
- 2) Take the ninth letter (3) and enter it.

293

km4ack1234

m3

# APRS WINLINK



- 1) Take the second letter (m) and enter it.
- 2) Take the ninth letter (3) and enter it.
- 3) Take the third letter (Number 4) and enter it.

293

km4ack1234

m34

# APRS WINLINK



- 1) Take the second character (m) and enter it.
- 2) Take the ninth character (3) and enter it.
- 3) Take the third character (4) and enter it.
- 4) Finally enter three additional characters.

This is how you enter your password without broadcasting the real password!

293

km4ack1234

m34AIr

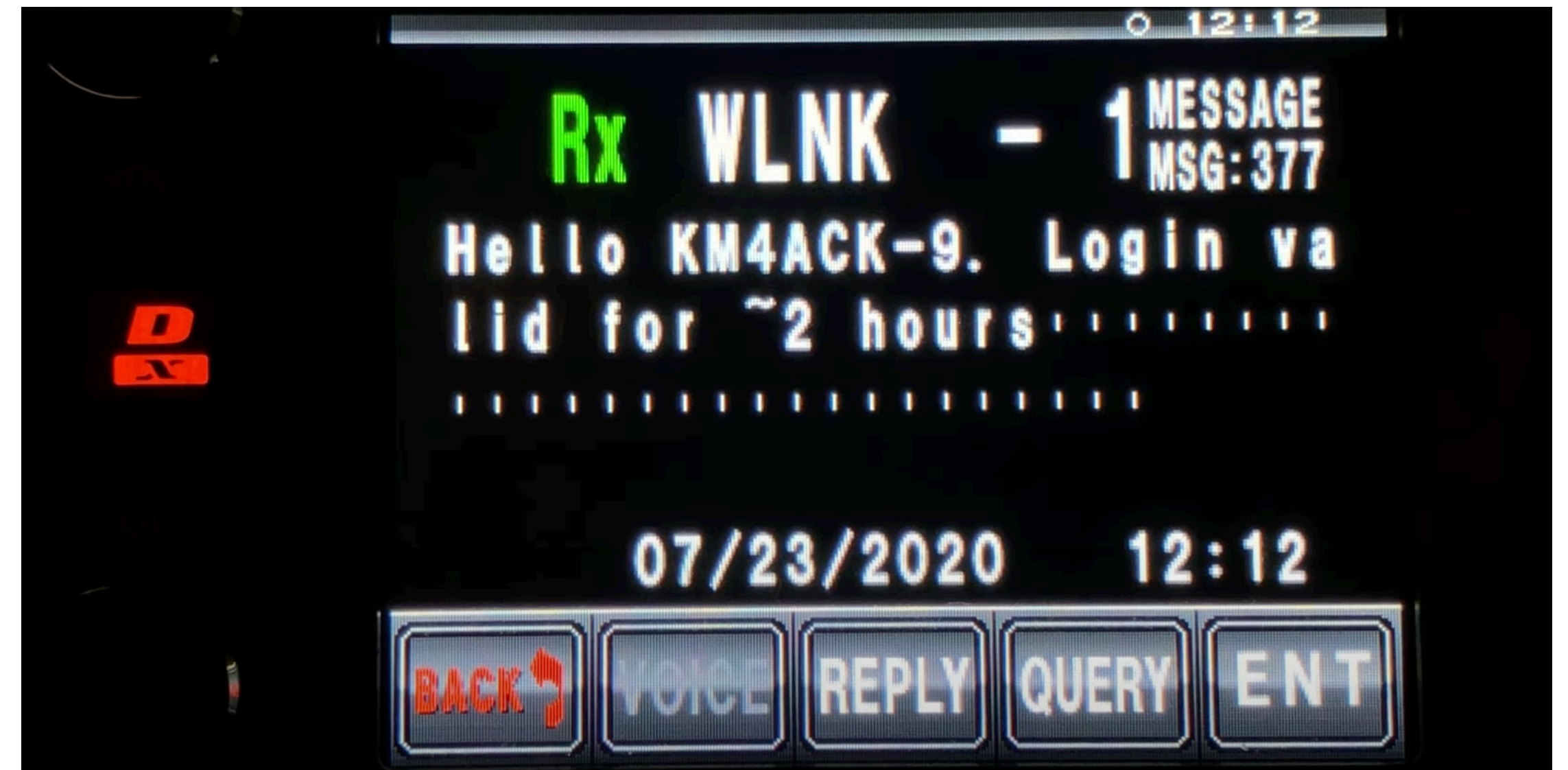
Password Challenge  
Should be 6 characters



# APRS WINLINK



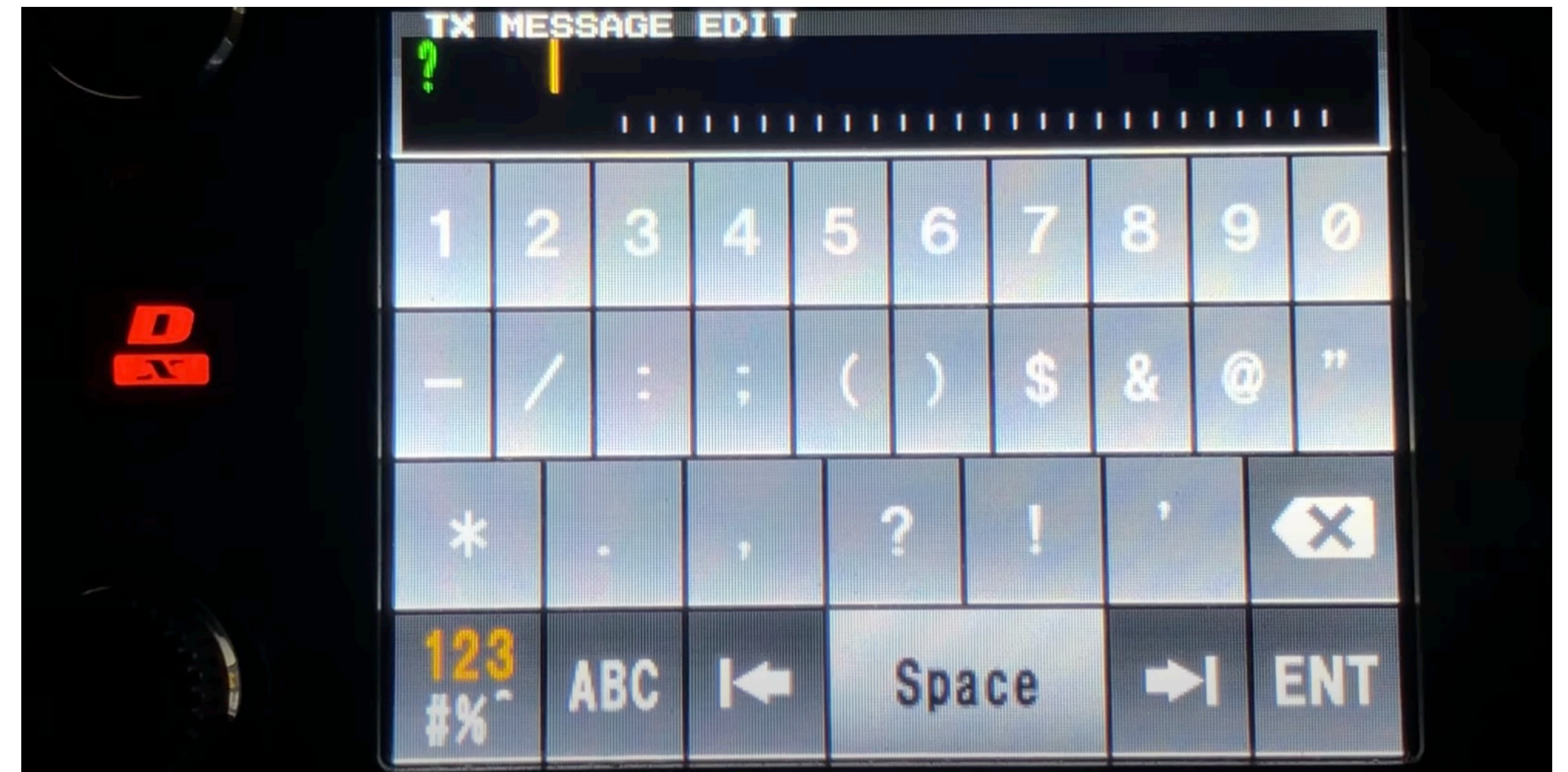
If you login successfully you will see this!



# APRS WINLINK



To see a list of commands send a “?”



# APRS WINLINK



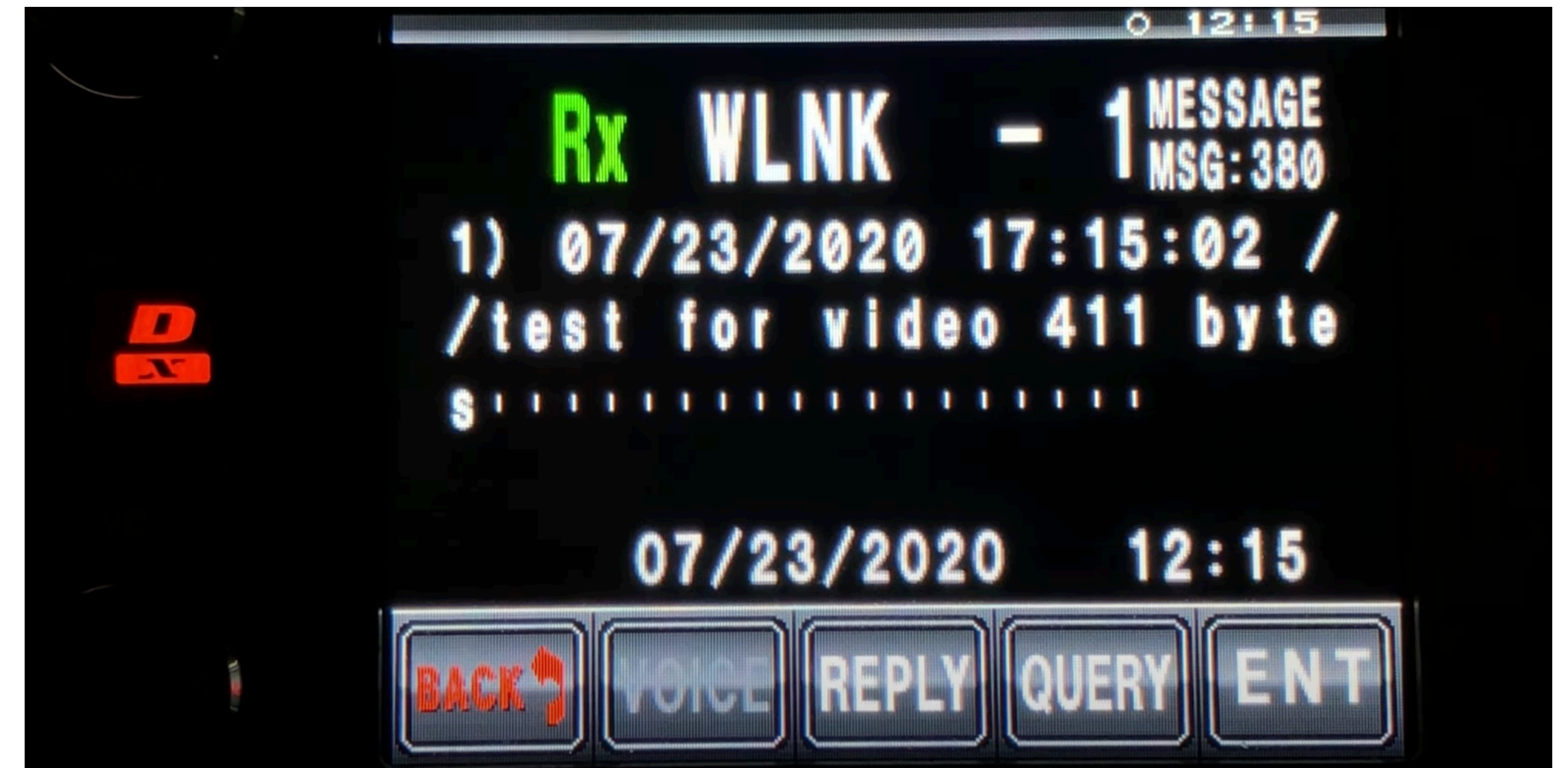
To get a list of EMAILS send an "L"



# APRS WINLINK



Here is your LIST! To see individual EMAILS (EXAMPLE Message "1") reply "r1"



# APRS WINLINK



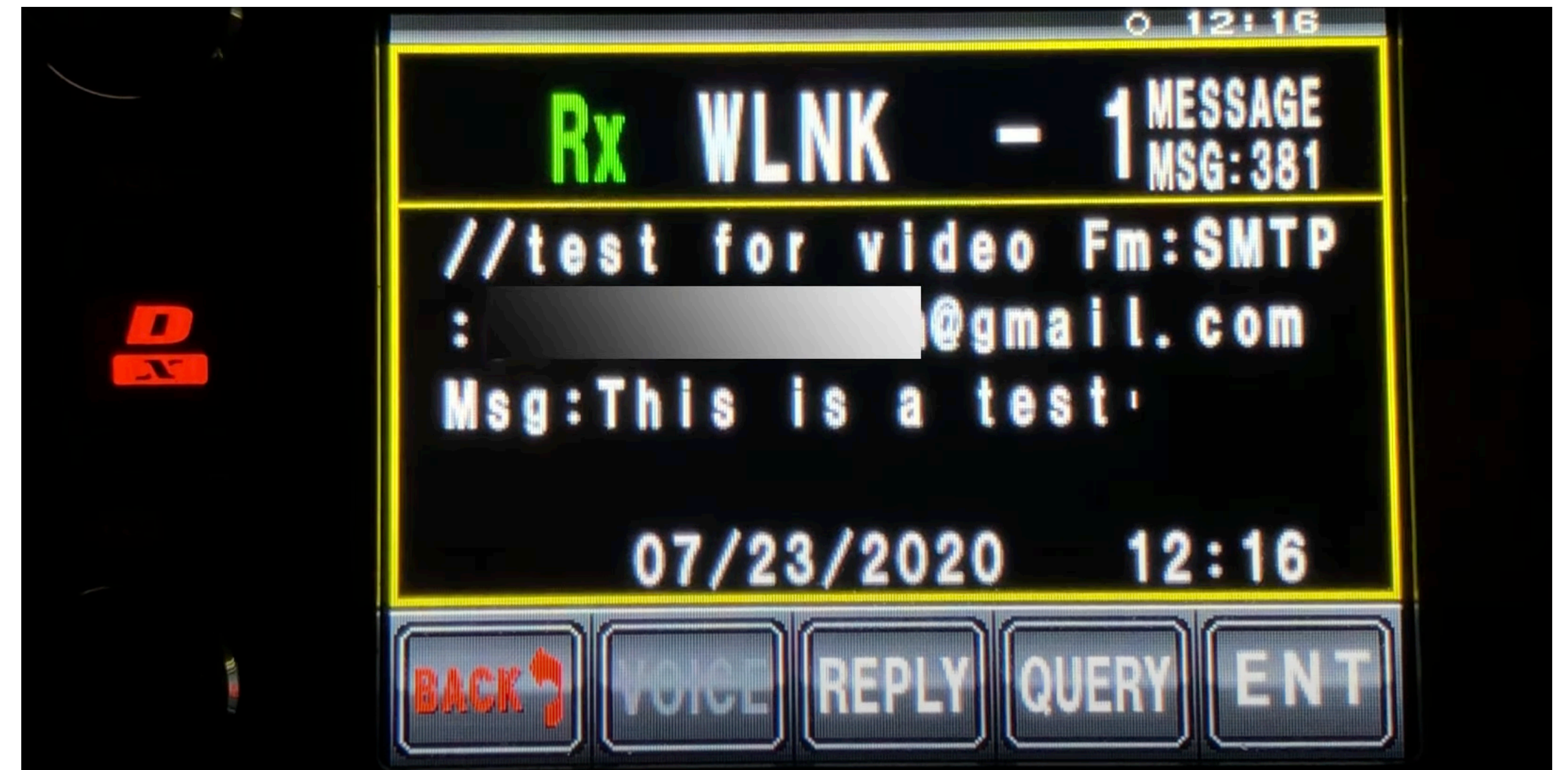
Here is your LIST! To see individual EMAILS (EXAMPLE Message "1") reply "r1"



# APRS WINLINK



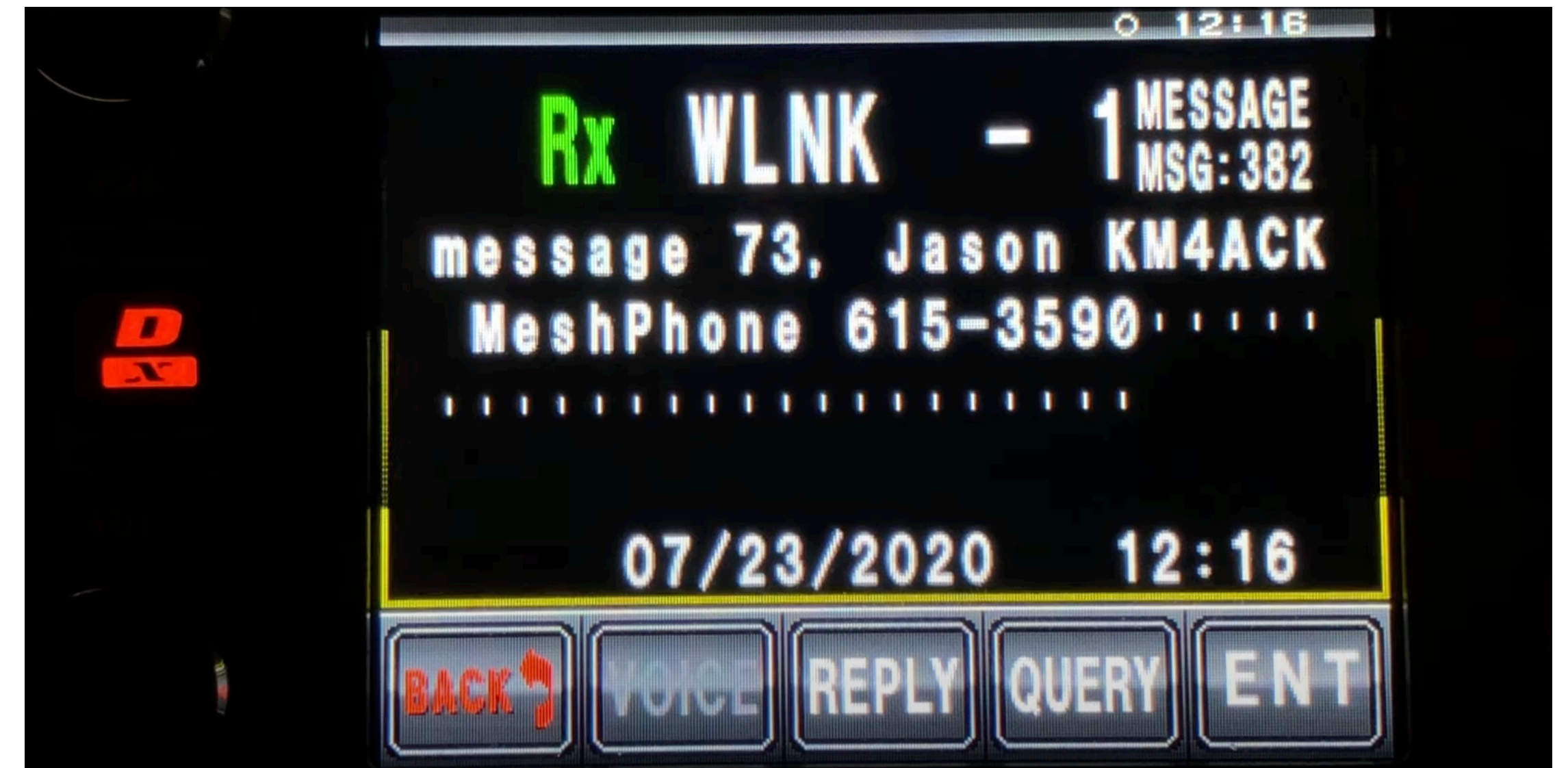
This EMAIL in the list is now VISIBLE by itself!



# APRS WINLINK



This EMAIL in the list is now VISIBLE by itself! If the message is long, you will receive multiple EMAILS until the entire message has been delivered!



# APRS WINLINK

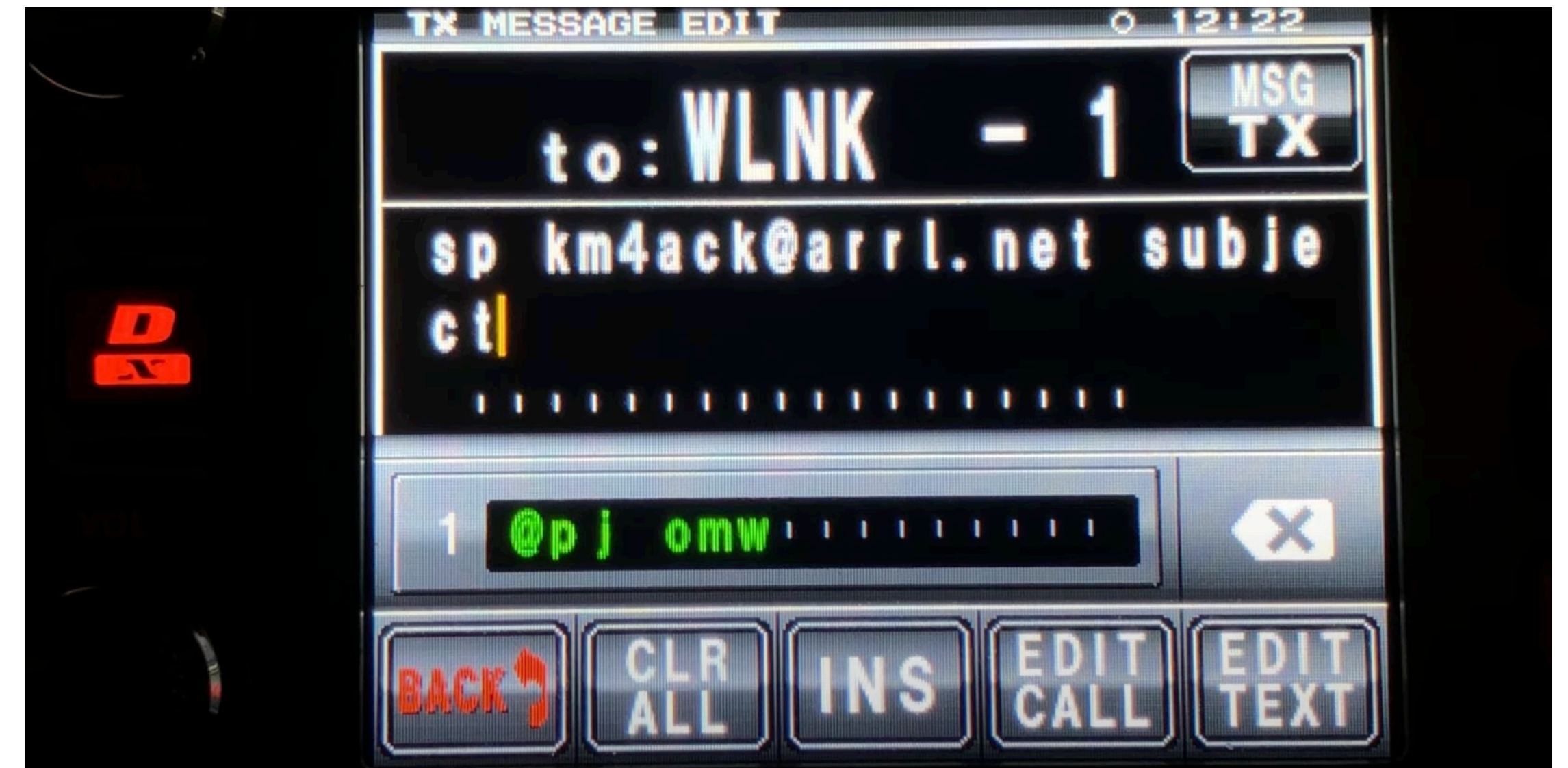


To SEND a WINLINK EMAIL:

To: WLNK -1

Message: sp <space> email address  
<space> subject

Transmit!



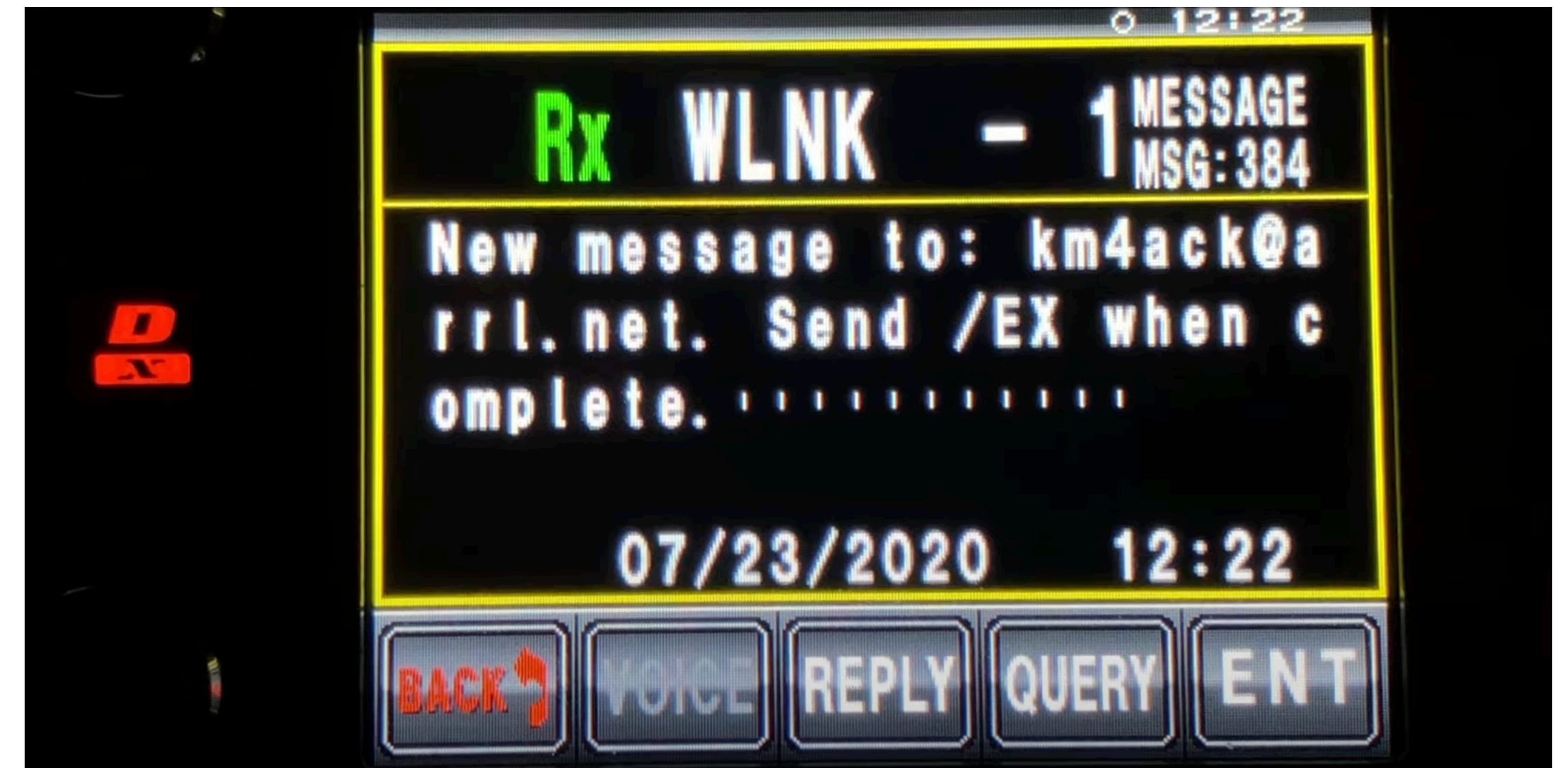


# APRS WINLINK



You will get a reply that looks like this!  
How it works:

Type a message you want to send. After you are done composing add <space> /ex to tell the system the message is complete.



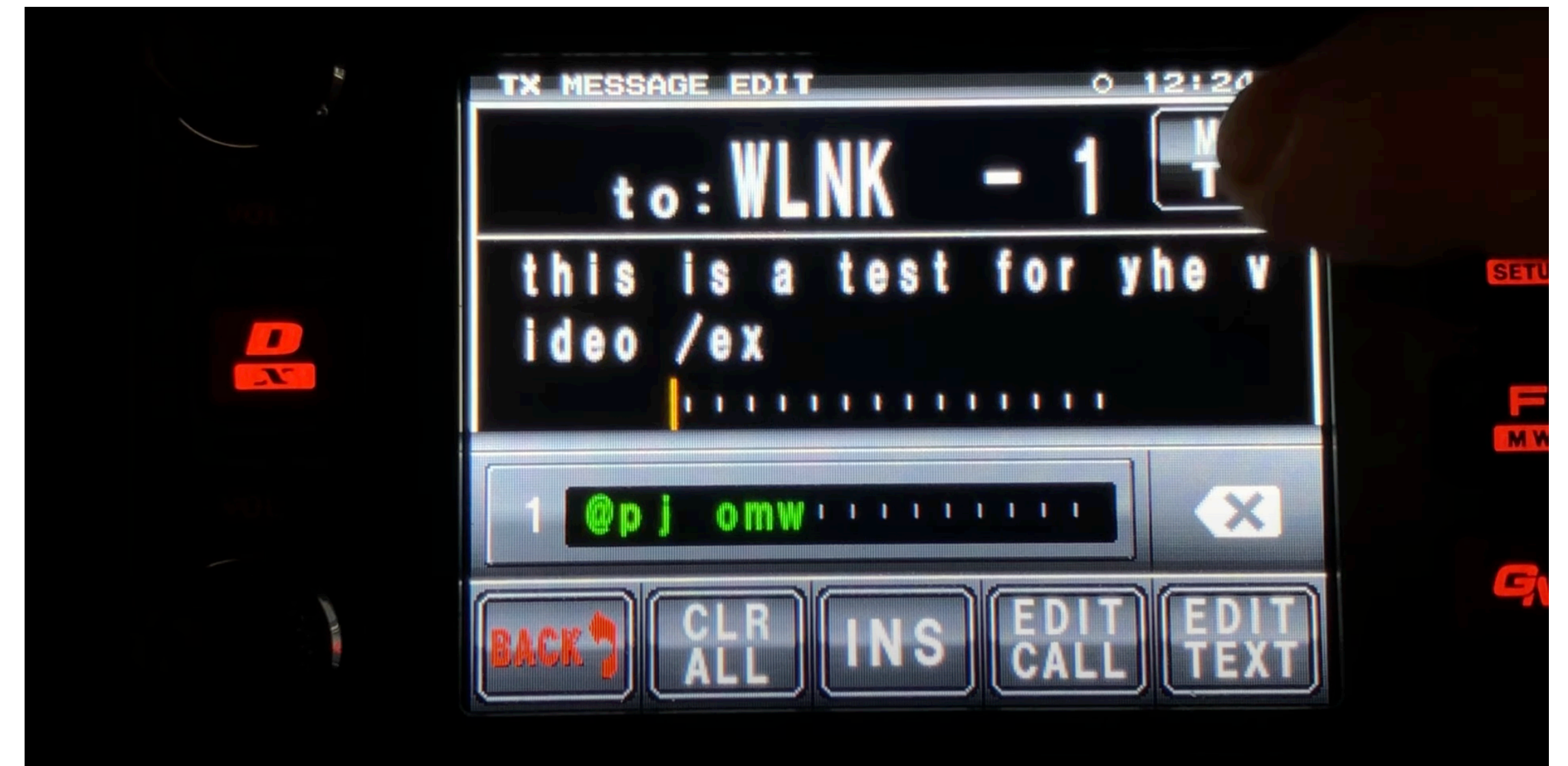
# APRS WINLINK



You will get a reply that looks like this!  
How it works:

Type a message you want to send. After you are done composing add <space> /ex to tell the system the message is complete.

If your message is long, APRS will send multiple until complete message is sent!



# Thank YOU!

## APRS

- Exciting
- Useful
- Fun
- Important
- Easier than it looks
- Easy to setup



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