

# iAPT

User manual  
v0.1 – 1 June 2014  
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# + History

Ver	Date	Owner	Description
0.1	1/6/14	f5hla	Initial release

# + Basics

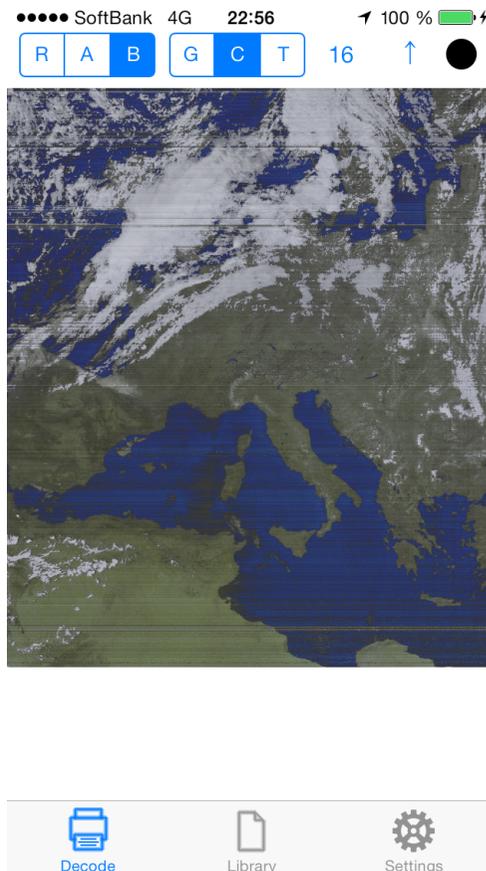
- iAPT is a application running on iPhone and iPad with iOS7 at minimum
- iAPT will decode an AUDIO signal containing NOAA APT weather data frames
- iAPT will also render the NOAA APT data picture with false color or with temperature map
- Please refer to [http://en.wikipedia.org/wiki/Automatic\\_Picture\\_Transmission](http://en.wikipedia.org/wiki/Automatic_Picture_Transmission) or <http://www.ncdc.noaa.gov/oa/pod-guide/ncdc/docs/klm/html/c4/sec4-2.htm> about NOAA APT weather broadcast and concept
- iAPT requires
  - VHF radio receiver capable of receiving NOAA APT signal
  - (Opt.) A cable to connect the audio output of the receiver to the microphone input of the iDevice. Alternatively, one may use the native microphone of the iDevice, but quality is subject to the noise of the environment.

# + Receiving station configuration



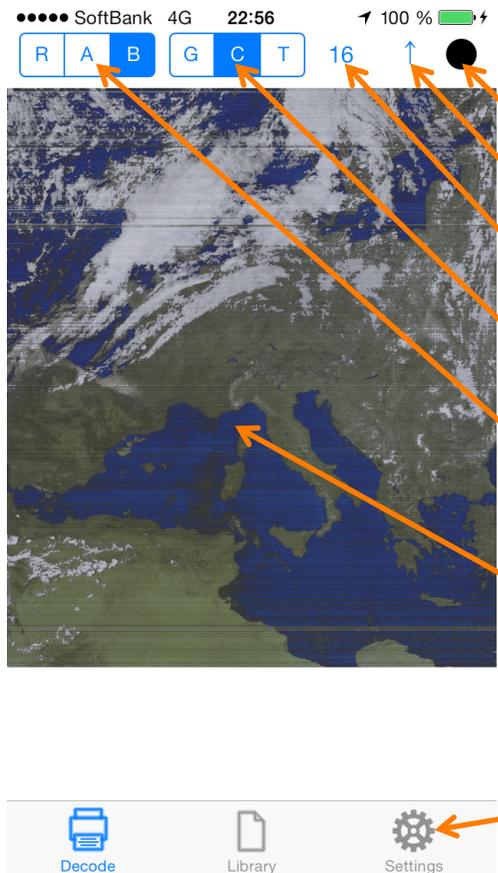
- Antenna: circular polarization is advised.
- Receiver: VHF FM receiver on the 137-138MHz band. 40kHz I.F. bandwidth is advised.
- Connection between receiver and iDevice: cable to connect Audio Out to Mic In is advised – user is responsible for any damage as this depends on the receiver and the iDevice. Alternatively, having the iDevice microphone near the receiver speaker will work, provided a dependency to ambient noise.
- Note: for the best experience, Please refer to the numerous sites on NOAA APT reception as this goes beyond the decoding application.

# + Step 0 – start the app



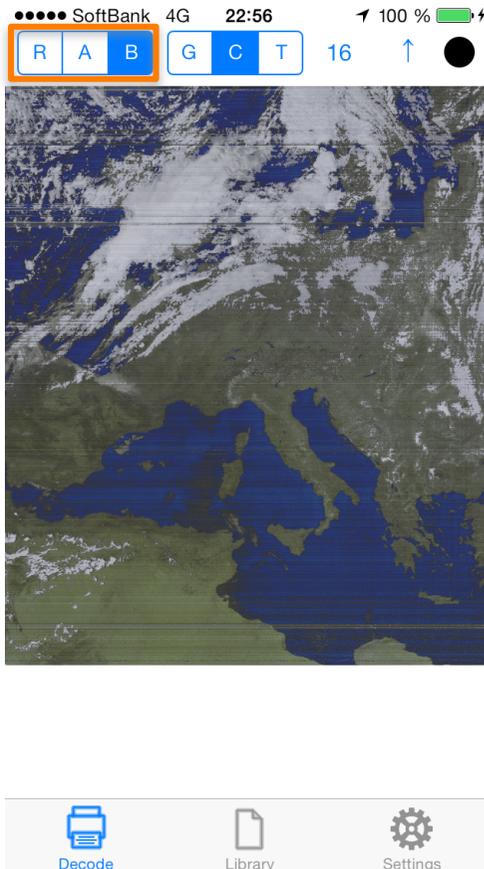
- Upon starting the application, the last recorded picture (or default picture) will be rendered in the last selected mode

# + Step 1 – initial screen



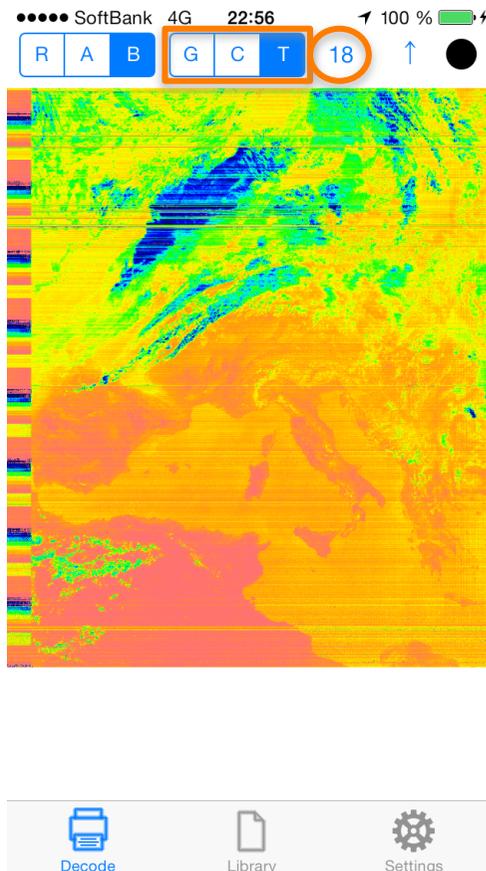
- The initial screen offers all the controls required to record and render the weather map received. A few zones should be seen:
  - Record/Stop button
  - Satellite pass direction
  - Satellite number (NOAA xx)
  - Display mode
  - Data type
  - Decoded data
  - Menu bar

# + Step 1 – initial screen: data type



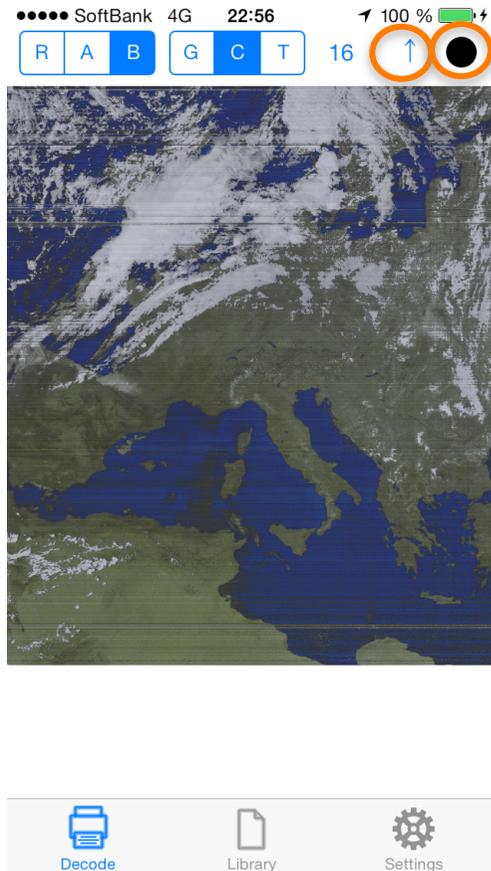
- Data type: there are 2 channels in a NOAA APT frame. iAPT can render
  - Both (R): in this case the raw data as recorded is used to create the image
  - One channel (A) or (B): in this case the raw data is automatically calibrated
- Notes:
  - if False colors mode is selected, all data types render in the same way
  - If Temperature mode is selected, B channel is forced.

# + Step 1 – initial screen: display mode



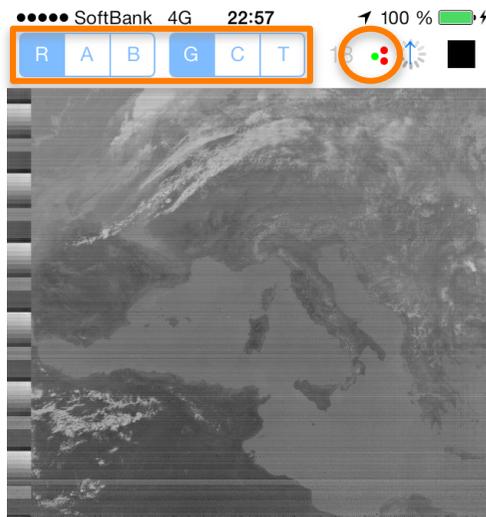
- Display Mode: the NOAA APT data are monochrome but false color can be derived. iAPT offers:
  - Grey scale (G): corresponds to the monochrome data as received
  - False colors (C): uses a mix of channel (A) and (B) to create a false colors image. It is assumed that (A) contains the visible spectrum and (B) the infrared one.
  - Temperature (T): using the (B) channel (I.R.), a calibrated temperature map can be displayed
- Note: satellite number is used in the temperature mode since the calibration data are depending on the satellite.

# + Step 1 – initial screen: orientation and record



- Satellite pass direction button: the satellite can go north or south, thus the image should be rendered accordingly. Press this button to get the right picture
- Record/Stop button:
  - Press Record to start a new recording (see Step 2)
  - At any time when the software gets busy in decoding or rendering, this button becomes “Stop” button – press it to interrupt the ongoing activity.

# + Step 2 – record a new picture



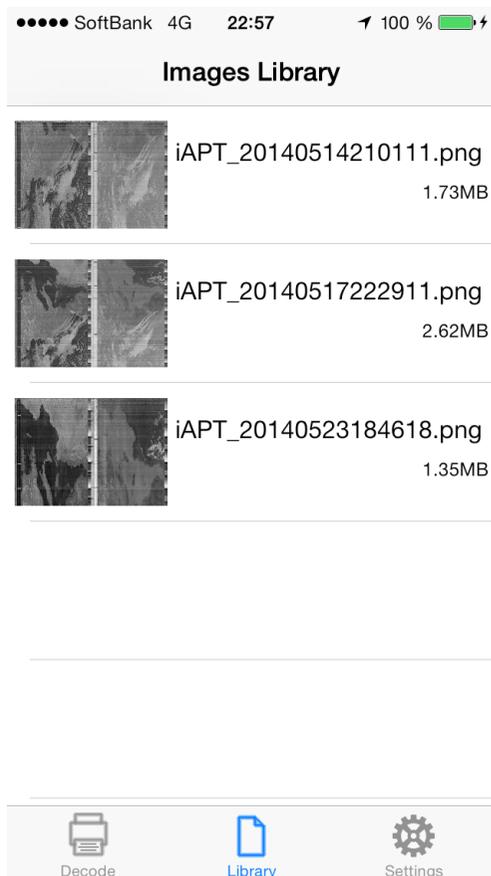
- Just click the “Record” Button previously described to start
- Notes:
  - The Data will be forced to Raw and Mode to Grey – the reason is that for real time reception, one cannot do the calibration.
  - 3 little red/green indicators will appear. Green means OK, Red means Not-OK. Their meanings is as follow:

Sound not too loud

PLL locked on the 2400Hz sub carrier

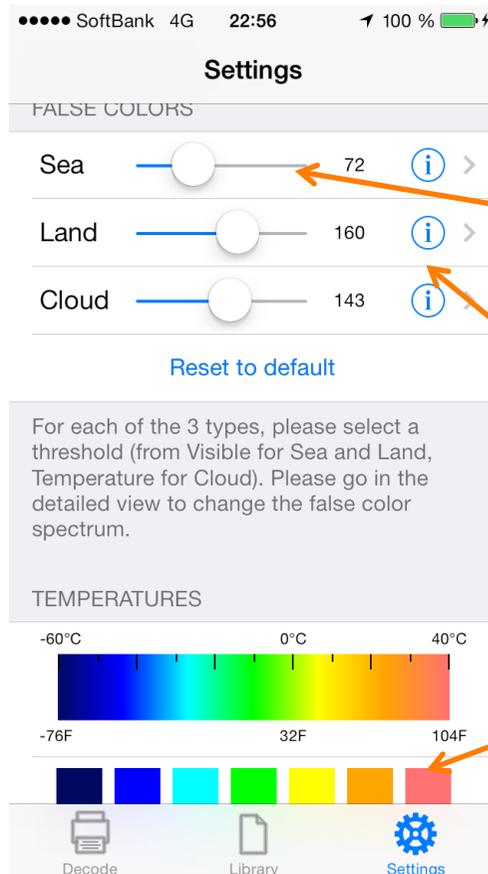
APT sync frame detected

# + Step 3 – browse and select previous record



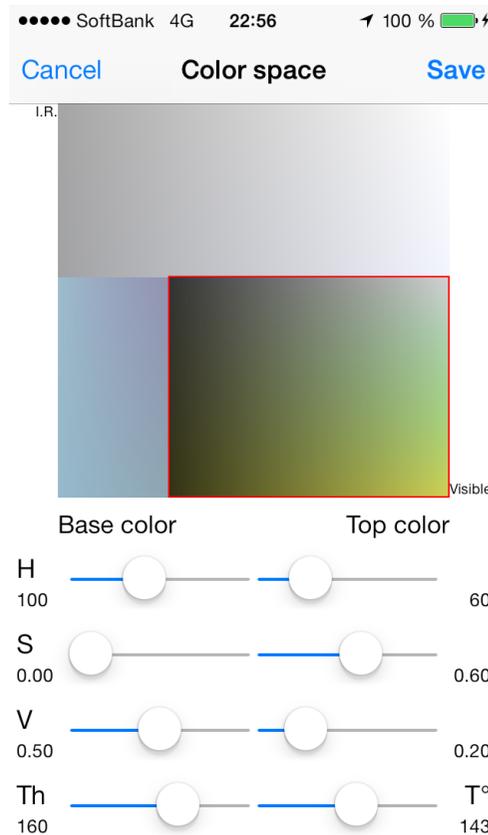
- Just go in the Library menu and click on the picture you want to render
- Slide to the left to get a “Delete” menu

# + Step 4 – Settings



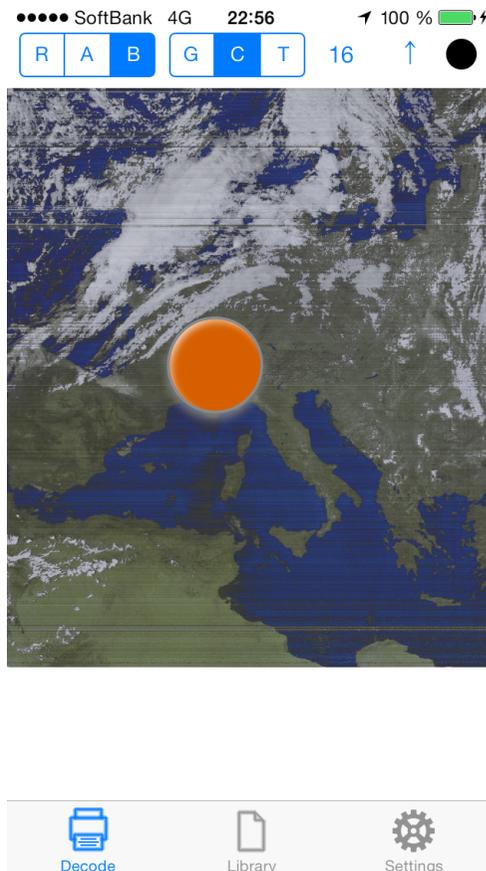
- Settings allow to modify the false colors and temperature palette
- A first simple “threshold” tuning is offered in the setting screen for the false colors.
- Click on
  - The (i) of the area you want to tune the false colors of
  - The color you want to change for a given temperature – note that this is calibrated.

# + Step 4 – Settings: false colors



- For each area (sea, land, cloud), a base color, a top color and a threshold should be selected.
- The chosen area is squared by a red line – the other areas are slightly greyed out but presented for reference
- Change the values to match your view (it is typically a trial and error)

# + “Easter egg” 😊



## ■ Share your pictures

- Long press on the main image, you'll get offer to share the image currently displayed on Facebook, Twitter, Weibo or to save in your camera roll.
- Using iTunes, go to shared document and access the raw image...or copy one from somewhere to just use the processing capabilities.