



The ICARC FOX Transmitter

Operating in the FM band

KC0JFQ: William Robison

Job: fox'present'14

File: fox'present'14.tex

June 5, 2025

Outline



Overview

FM band Limitations

Fox Transmitter Limitations

Edit Sample



Can we do this???

The SI5351 operates over a very broad range.

The *MultiSynth* architecture provide wide registers

The VCO covers an octave around 900MHz

The MultiSynth drives the VCO

The MultiSynth if a fractional DPLL

Do the math then load the MultiSynth registers!

SkyWorks provides an outline of the calculation

We are operating at the upper end of the SI5351 capability for 2M operation

The SI5351 provides better drive for 3M (FM Band)

The SI5351 will operate down into the HF bands

The hardware can deal with a hunt at 50MHz! (LPF fits)

FM band Limitations



Maximum Power

Maximum Effective Radiated Power $0.01\mu\text{W}$

$250\mu\text{V}/\text{meter}$ measured at 3 meters

Maximum range of 200 feet

Operate the SI5351 *BAREFOOT* (no RF amp)

Use the 102-73161-22 *AMP BYPASS* with attenuation pad.

Close-in hunt...

Use FM demodulator in cell-phone

Cheap receiver from *Radio Shack*, err, Amazon

Fox Transmitter Limitations



BAREFOOT SI5351 is too *LOUD*.

MUST use the 102-73161-22 *AMP BYPASS* with attenuation pad.

Antenna matching is non-issue

at the power levels we must operate at.

Operate into a 50 Ω termination!

102-73161-22 *AMP BYPASS* without attenuation pad?

Black box by itself is hard to see...

Bright Hazard Tape???



First Line

Indented Line

Scary Notes for the Presenter

These are my crib notes. I sure hop I rememberd to print them off and bring them along...