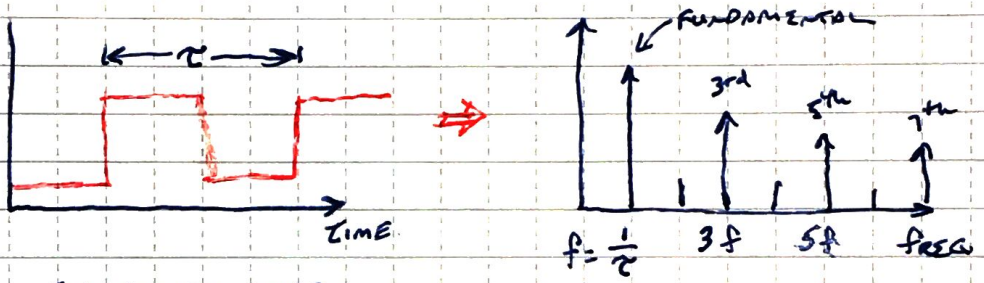
BANDWIDTH of A CW (MORSE CODE) SIGNAL

- EFFECTS OF WPM (SPEED) & RF RISE/FALL TIME

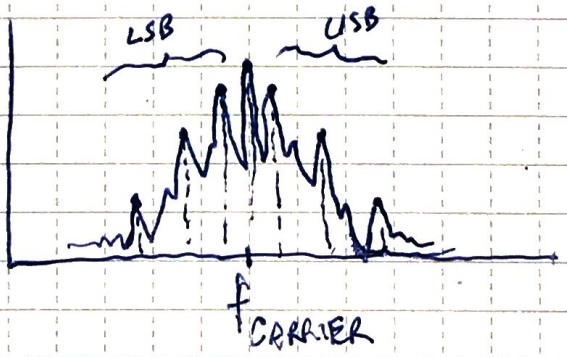
- CW IS JUST AN EXTREME FORM OF AM
- SPECTRUM IS THE CARRIER + UPPER/LOWER MODULATION SIDEBANDS
- MODULATION SIDEBANDS ARE BASICALLY THE SPECTRUM OF THE BASEBAND

- FOR A STRING OF "DITS", BASEBAND IS A SQUARE WAVE



FOR SQUARE WAVES
- ENERGY AT FUNDAMENTAL & ODD HARMONICS (MAINLY)
- RISE/FALL TIME DETERMINE THE # & MAGNITUDE OF HARMONICS (I.E. HOW QUICKLY THEY DECREASE OVER FREQUENCY)

CW SPECTRUM



1 SQUARE = _____

W2AEW
(2)

TEST DETAILS

- USING A SIGNAL GENERATOR, SO WE CAN CONTROL
  - "WPM" KEYING SPEED
  - RF RISE / FALL TIME

- USING A "STRING OF DITS"
  - BASICALLY A 50% DUTY CYCLE (SQUARE WAVE)

- USING A SCOPE TO LOOK AT
  - TIME DOMAIN (RISE / FALL)
  - FREQUENCY DOMAIN (SPECTRUM)

- LOOK AT SEVERAL:
  - SPEEDS
  - RF RISE/FALL

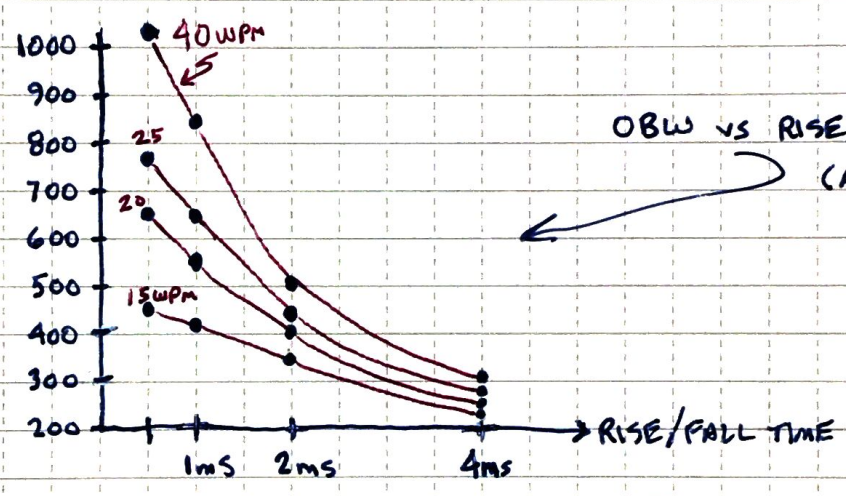
1 SQUARE = _____

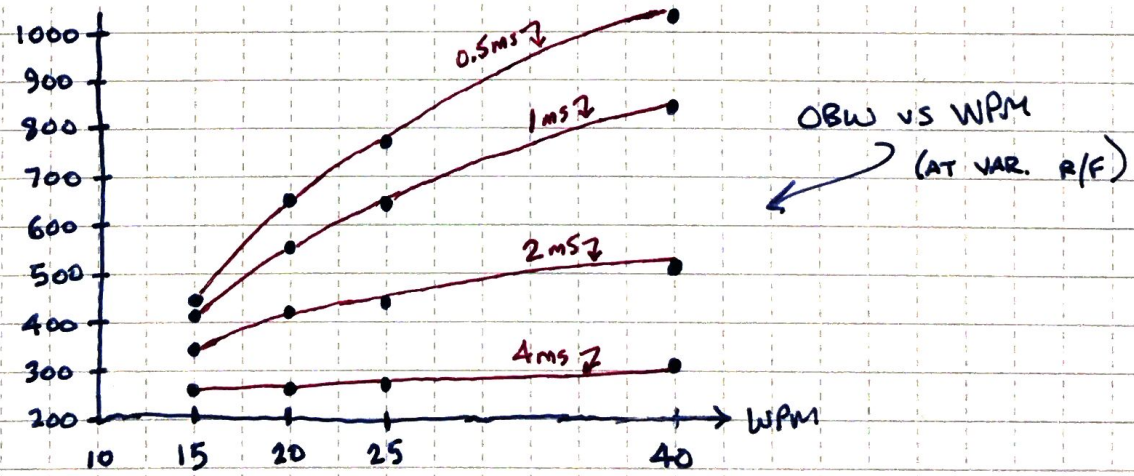
TEST RESULTS

BANDWIDTH RESULTS TABLE (Hz)

WPM ↓	RF RISE/FALL TIME			
	500μS	1 mS	2 mS	4 mS
15	440	414	340	240
20	651	551	419	255
25	772	645	441	275
40	1036	835	505	305

f_c = 14.05 MHz
SPAN = 10 KHz
RBW = 5 Hz
MEAS BW = 5 kHz
OBW = WIDTH @ 36dB DOWN
(≈ 65-UNITS)





1 SQUARE = _____