

Element 2 (Technician) Graphics – For use on/after July 1, 2003

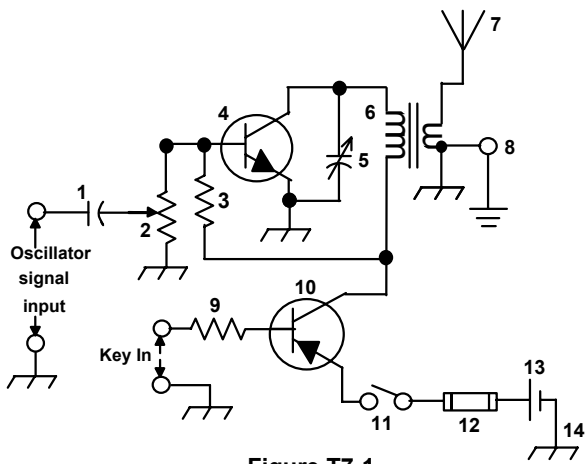


Figure T7-1

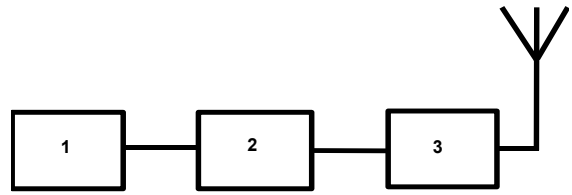


Figure T8-4

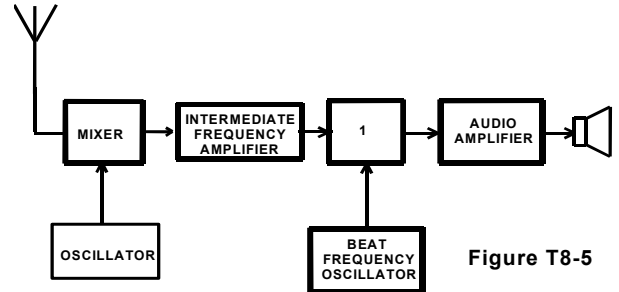


Figure T8-5

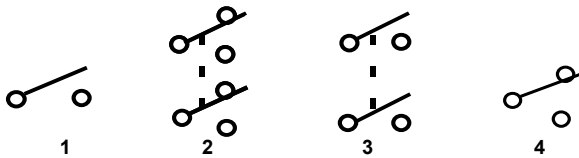


Figure T7-2

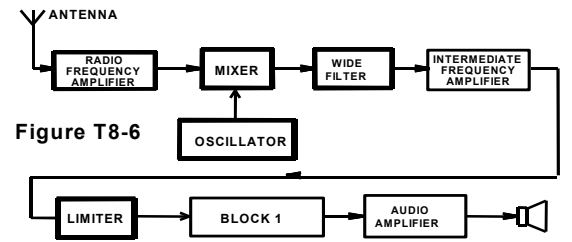


Figure T8-6

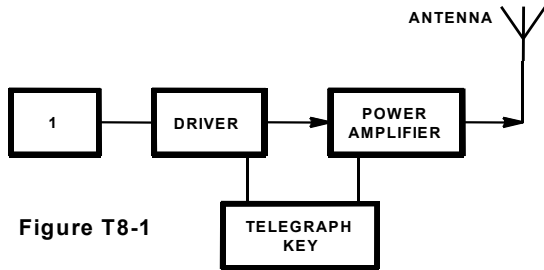


Figure T8-1

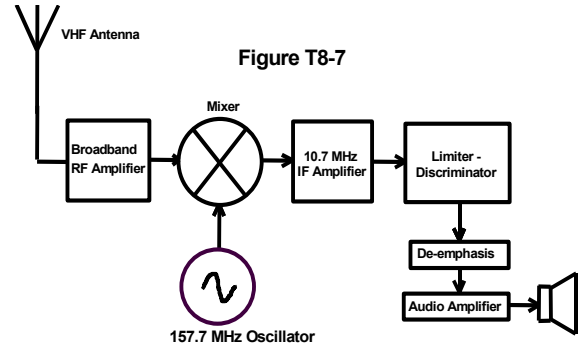


Figure T8-7

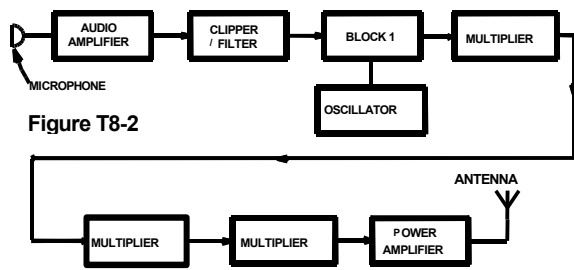


Figure T8-2

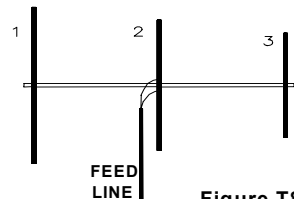


Figure T8-8

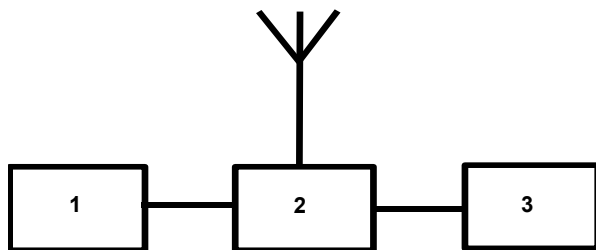


Figure T8-3

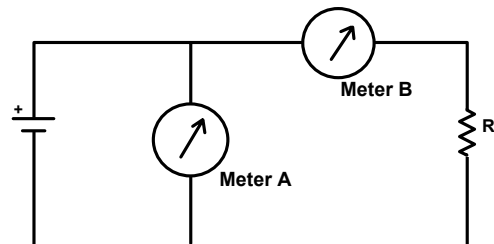


Figure T8-9

Figure T0- 1

(A) Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	Electrical Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	----	----	f/300	6
1500-100,000	----	----	5	6

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electrical Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	----	----	f/1500	30
1500-100,000	----	----	1.0	30

f=frequency in MHz *=Plane-wave equivalent power density

Estimated distances to meet RF power density guidelines in the main beam of a 17-element Yagi on a five-wavelength boom designed for weak signal communications on the 144 MHz amateur radio band (estimated gain, 16.8 dBi). Calculations include the EPA ground reflection factor of 2.56.

Frequency: 144 MHz
 Estimated antenna gain: 16.8 dBi
 Controlled limit: 1 mw/cm²
 Uncontrolled limit: 0.2 mw/cm²

Transmitter power (watts)	Distance to controlled limit	Distance to uncontrolled limit
10	10.2'	22.9'
100	32.4'	72.4'
500	72.4'	162'
1500	125.5'	280.6'

Figure T0- 2

Estimated distances to meet RF power density guidelines with a horizontal half-wave dipole antenna (estimated gain, 2 dBi). Calculations include the EPA ground reflection factor of 2.56.

Frequency: 7 MHz
 Estimated antenna gain: 2 dBi
 Controlled limit: 18.37 mw/cm²
 Uncontrolled limit: 3.67 mw/cm²

Transmitter power (watts)	Distance to controlled limit	Distance to uncontrolled limit
100	1.4'	3.1'
500	3.1'	6.9'
1000	4.3'	9.7'
1500	5.3'	11.9'

Estimated distances to meet RF power density guidelines with a VHF quarter-wave ground plane or mobile whip antenna (estimated gain, 1 dBi). Calculations include the EPA ground reflection factor of 2.56.

Frequency: 146 MHz
 Estimated antenna gain: 1 dBi
 Controlled limit: 1 mw/cm²
 Uncontrolled limit: 0.2 mw/cm²

Transmitter power (watts)	Distance to controlled limit	Distance to uncontrolled limit
10	1.7'	3.7'
50	3.7'	8.3'
150	6.4'	14.4'

Estimated distances to meet RF power density guidelines in the main beam of a typical 3-element "triband" Yagi for the 14, 21 and 28 MHz amateur radio bands. Calculations include the EPA ground reflection factor of 2.56.

Frequency: 28 MHz
 Antenna gain: 8 dBi
 Controlled limit: 1.15 mw/cm²
 Uncontrolled limit: 0.23 mw/cm²

Transmitter power (watts)	Distance to controlled limit	Distance to uncontrolled limit
100	11'	24.5'
500	24.5'	54.9'
1000	34.7'	77.6'
1500	42.5'	95.1'

Estimated distances to meet RF power density guidelines in the main beam of UHF 5/8 ground plane or mobile whip antenna (estimated gain, 4 dBi). Calculations include the EPA ground reflection factor of 2.56.

Frequency: 446 MHz
 Estimated antenna gain: 4 dBi
 Controlled limit: 1.49 mw/cm²
 Uncontrolled limit: 0.3 mw/cm²

Transmitter power (watts)	Distance to controlled limit	Distance to uncontrolled limit
10	1.9'	4.3'
50	4.3'	9.6'
150	7.5'	16.7'