EXHIBIT 6a: MEASURED DATA – Pursuant 47 CFR 2.1041

6.1 ISM Band Transmitter Output Power -- Pursuant 47 CFR 2.1033(b)(6) and 15.247(b)(2)

The ISM transmitter operating in the 902-928 MHz band is a frequency hopped, fixed output power type. Output power (as defined in 47 CFR 15.247) is controlled as described in Exhibit 12.

Maximum peak output power rating: 1000 milliwatts (30 dBm), peak power.

6.2 DC Power Used by Final Amplifier Device -- Pursuant 47 CFR 2.1033(c 8)

In order to prevent the malfunctions that can occur due to directly measuring the DC characteristics of the final RF amplifying stage, data was obtained by measuring the entire radio DC current and is reported herein for the entire radio.

The DC current and the RF output power was a conducted measurement using a power supply set to supply the radio with the maximum battery voltage of 4.0 V for a fully charged battery. The characteristics were measured during a transmission pulse and are listed in the Table 6-1:

Characteristics	**902-928 MHz**
DC Voltage (Volts)	4
DC Current (A)	1.1
Output Power (mW)	1000

Table 6-1 Characteristics for DTR series ISM 900 MHz bands radios

EXHIBIT 6b: MEASURED DATA – Pursuant 47 CFR 2.1041

6.3 900 MHz ISM Band Modulation Characteristics and Necessary Bandwidth

In the 900 MHz ISM band, the subject radio makes use of Frequency Shift Keying. The modulation can vary from 2FSK, 4FSK, 6FSK or 8FSK.

The data symbols are up-sampled to a rate Ns times the symbol rate, and pulse shaped by a filter having impulse response p_n. The pulse shape filter is the cascade of a square pulse, of duration equal to one symbol interval, convolved with a Gaussian filter with 3 dB bandwidth equal to 8000 Hz or BT = 2.5. The pulse-shaped signal is integrated using a backward-summation, and then mapped to in-phase (I) and quadrature (Q) channels using the cosine and sine functions, respectively. A scaling factor of π/Ns is required to convert the integrator output to modulated phase. This modulation is shown in Figure X.

The pre-modulation filter has the continuous-time impulse response

$$p(t) = Q\left[\frac{2\pi B}{\sqrt{\ln 2}}\left(t - \frac{T}{2}\right)\right] - Q\left[\frac{2\pi B}{\sqrt{\ln 2}}\left(t + \frac{T}{2}\right)\right]$$

where t is time in seconds, T = 1/3200 is the symbol interval in seconds, B is the 8000 Hz 3-dB bandwidth, and Q(x) is the complimentary distribution function for a Gaussian random variable with zero mean and unit variance, given by

$$Q(x) = \int_x^{\infty} \frac{1}{\sqrt{2\pi}} e^{-x^2/2} dx$$

The discrete-time impulse response is generated by sampling the continuous-time function. In theory, p (t) has infinite time span, but, for all practical purposes, it is time-limited to the interval

$$-3T/4 < t < 3T/4$$

Given this, the discrete-time version is generated as

$$p_n = p\left(t_0 + \frac{nT}{N_s}\right) \qquad n = 0, 1, \ldots, N_p - 1$$

where t_0 is the time of the first sample, N_s is the number of samples per second, and N_p is the filter length.

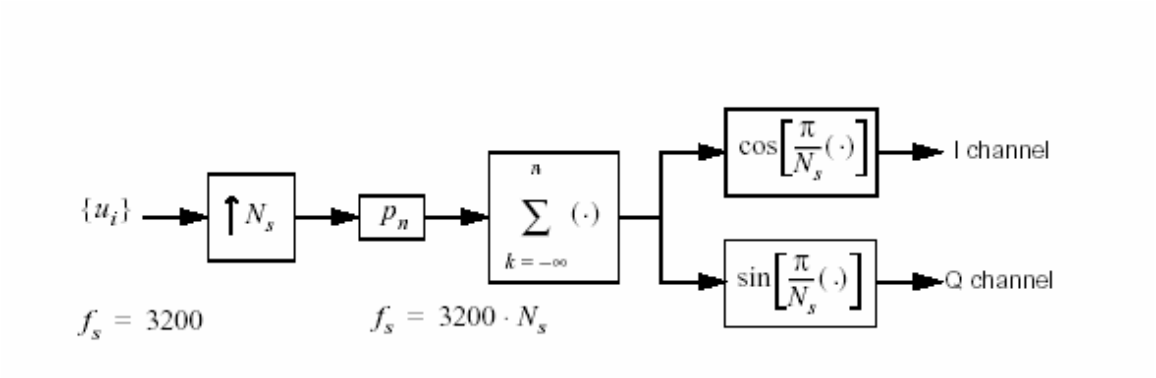


Figure 6-23. FSK Modulator

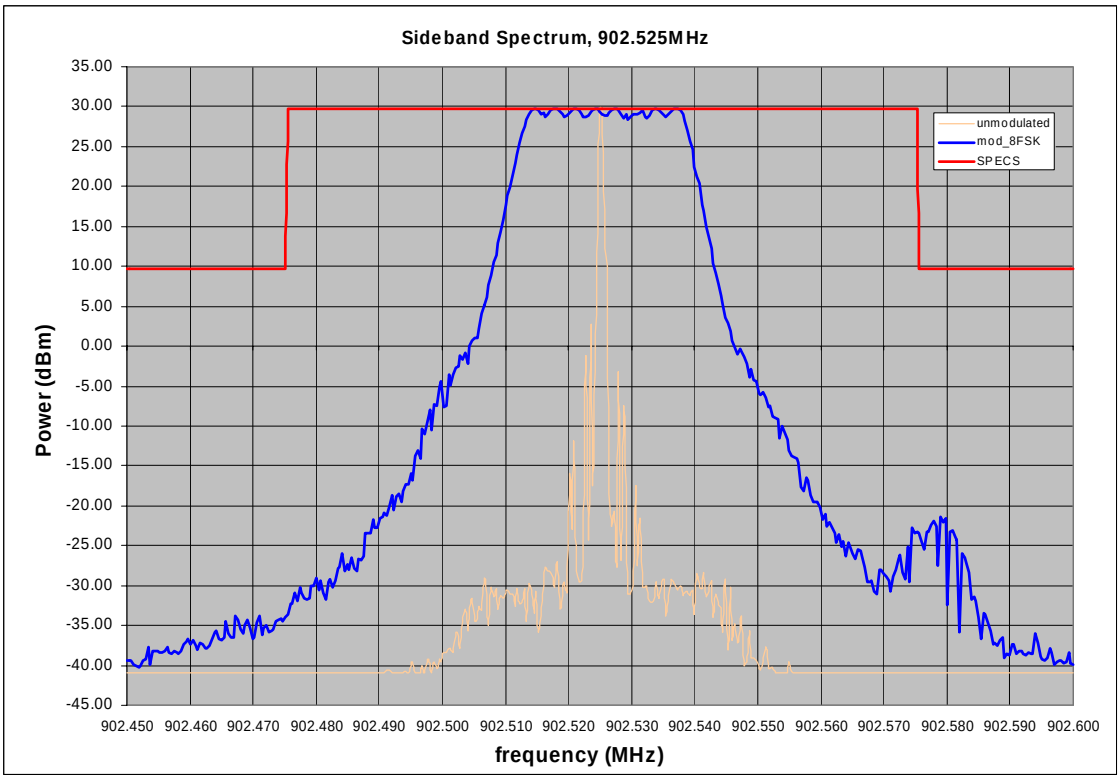


Figure 6-3A: Occupied bandwidth for 902.525 MHz 8FSK Spectrum.

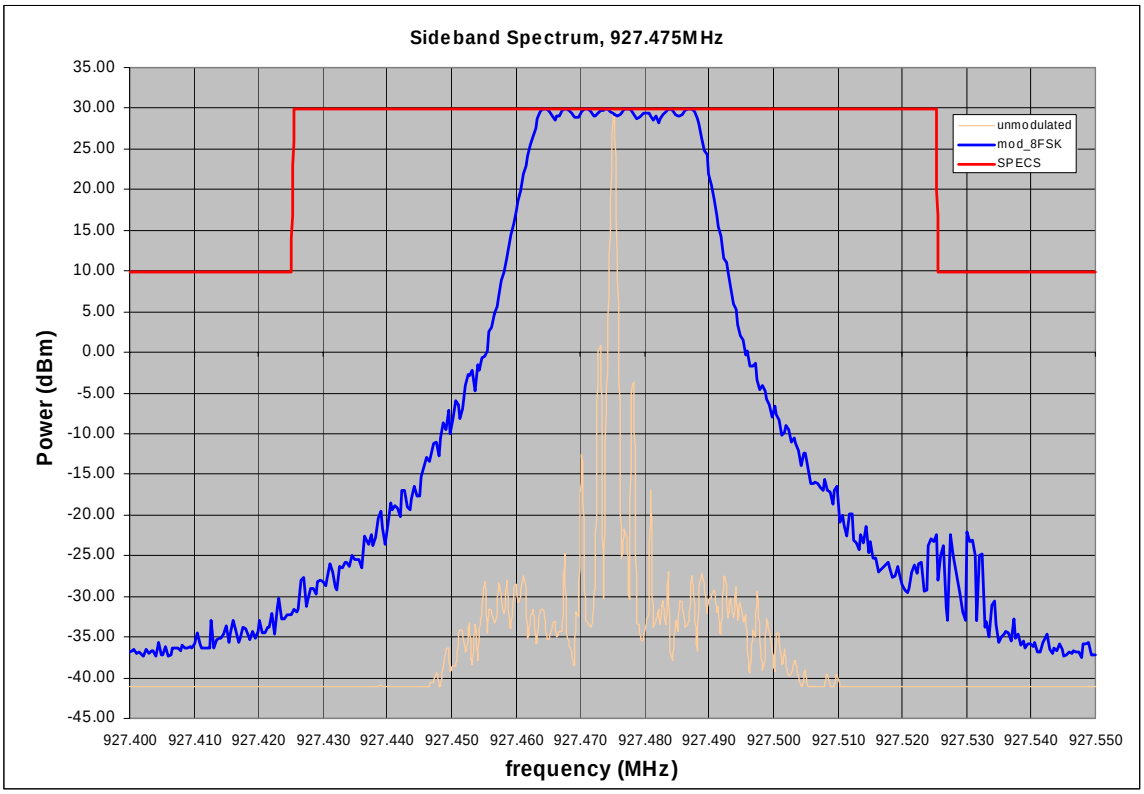


Figure 6-3B. Occupied bandwidth for 927.475MHz 8FSK Spectrum

The emission requirements specified for operation in the 902-928 MHz ISM Band include a requirement that there is no emission greater than –20 dBc detectable in a 100 KHz bandwidth at all frequencies outside the ISM band. For this measurement the transmitter is tuned to maximum output power at the lowest operating frequency. A similar measurement was made at the upper ISM band edge with the transmitter operating at the maximum ISM band operating frequency.

EXHIBIT 6c: MEASURED DATA – Pursuant 47 CFR 2.1041

6.4 Radiated Spurious Emissions -- Pursuant 47 CFR 2.1053, 2.1057, 90.210(g) (3), 90.691(a) (2), 15.247(c)

6.4.1 ISM Band Limits

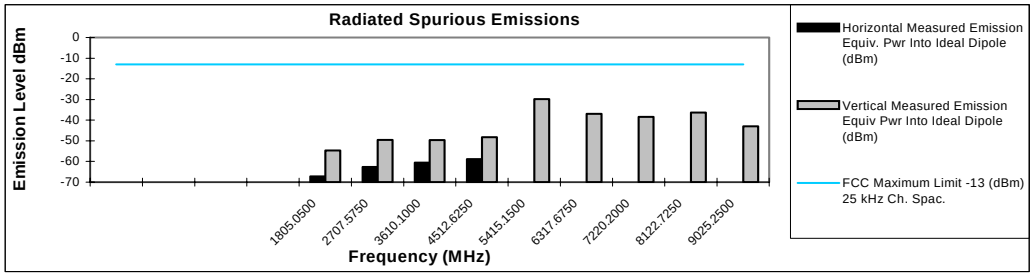
Per 15.247(c) the peak allowable emission shall be less than 10 dBm when measured in a 100 kHz band outside the ISM Band.

Motorola Inc. **FCC ID:AZ489FT5842**

Transmitter Radiated Spurious Emissions: Daytona

902.525 MHz **Channel Spacing 25KHZ S/N 035TEN62VL**

Spur	Frequency (MHz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
		-13		
		-13		
		-13		
		-13		
2XFund	1805.0500	-13	-67.16	-54.61
3XFund	2707.5750	-13	-62.64	-49.53
4XFund	3610.1000	-13	-60.51	-49.68
5XFund	4512.6250	-13	-58.84	-48.21
6XFund	5415.1500	-13	*	-29.81
7XFund	6317.6750	-13	*	-36.97
8XFund	7220.2000	-13	*	-38.39
9XFund	8122.7250	-13	*	-36.31
10XFund	9025.2500	-13	*	-43.00

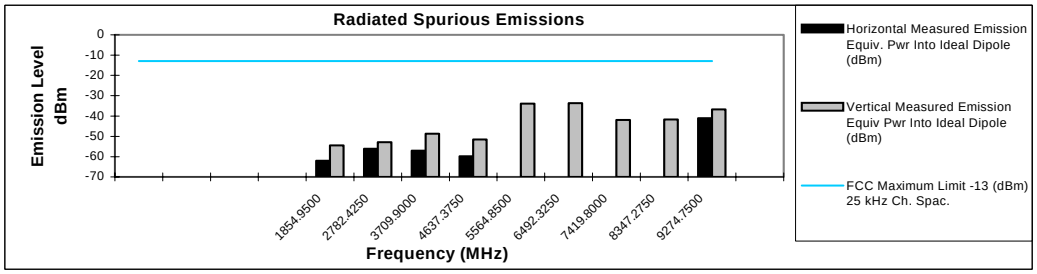


* Indicates the spurious emission could not be detected due to noise limitations or ambients.

Transmitter Radiated Spurious Emissions: Daytona

927.475 MHz **Channel Spacing 25KHZ S/N 035TEN62VL**

Spur	Frequency (MHz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
		-13		
		-13		
		-13		
		-13		
2XFund	1854.9500	-13	-62.00	-54.50
3XFund	2782.4250	-13	-56.05	-52.88
4XFund	3709.9000	-13	-57.09	-48.64
5XFund	4637.3750	-13	-59.76	-51.57
6XFund	5564.8500	-13	*	-33.84
7XFund	6492.3250	-13	*	-33.61
8XFund	7419.8000	-13	*	-41.86
9XFund	8347.2750	-13	*	-41.64
10XFund	9274.7500	-13	-41.10	-36.72



* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Motorola Plantation EMC Lab – Test Performed by: Curt Mc Lennan **October 5, 2004**

FCC Registration: 91932 / Industry Canada: IC3679

Figure 6.4-1: Spurious Emissions 900 MHz ISM Band.

6.5 Frequency Stability in the 900 MHz ISM Band -- Pursuant 47 CFR 2.1055a (1) & 2.1055(d) 2

The transmitter output frequency stability in the ISM band depends upon the inherent frequency stability of the Temperature Compensated Crystal Oscillator (TCXO) used as the frequency reference in the frequency generation scheme described in section 4.2.1 of this application. The total variation of the reference TCXO frequency, including changes caused by ambient temperature, supply voltage variation, and aging of the crystal is specified to be less than 2.25 PPM. This TCXO performance results in a total variation of frequency in the 900 MHz ISM band of less than 2100 Hz from nominal frequency.

No pattern in response to the change in voltage could be identified. There were tens of hertz of noise (uncertainty) in the displayed frequency at all times. This frequency noise appears to have masked the effects of changing the supply voltage.

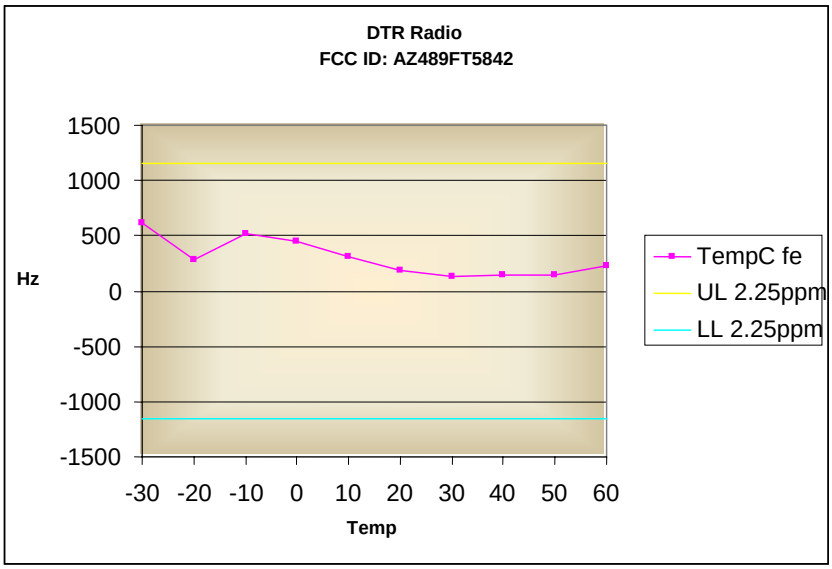


Figure 6-36: Transmitter Frequency Stability (900 MHz ISM band)- Frequency Error vs. Temperature and Voltage

EXHIBIT 6e: MEASURED DATA – Pursuant 47 CFR 2.1041

6.11: 900 ISM Band Carrier separation between Hopsets – Pursuant 47 CRF, Part 15.247(a)(1)

The separation between frequencies is measured to be 500 kHz as shown in Figure 6-41.

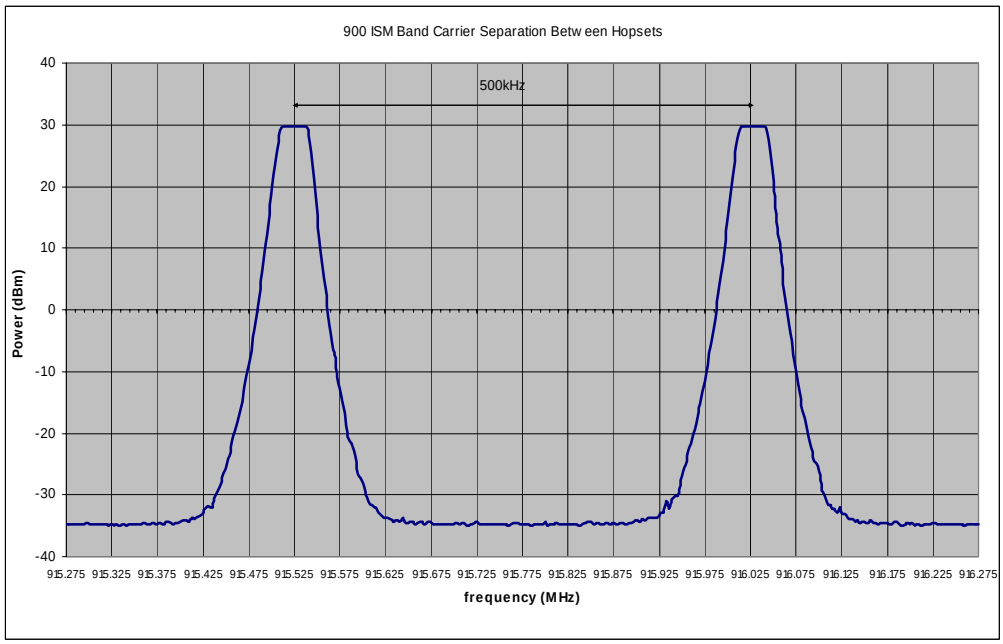


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Figure 6-41: Plot of 900 MHz ISM Band adjacent channel separation within a hopset.

6.12 900 ISM Band Hopping Bandwidth between Hopsets –Pursuant 47 CRF, Part 15.247 (a) (1) (i)

Figure 6-42 shows the plot of the 8-FSK, traffic channel ISM Band spectrum with its 20 dB bandwidth of 25.65 kHz. .

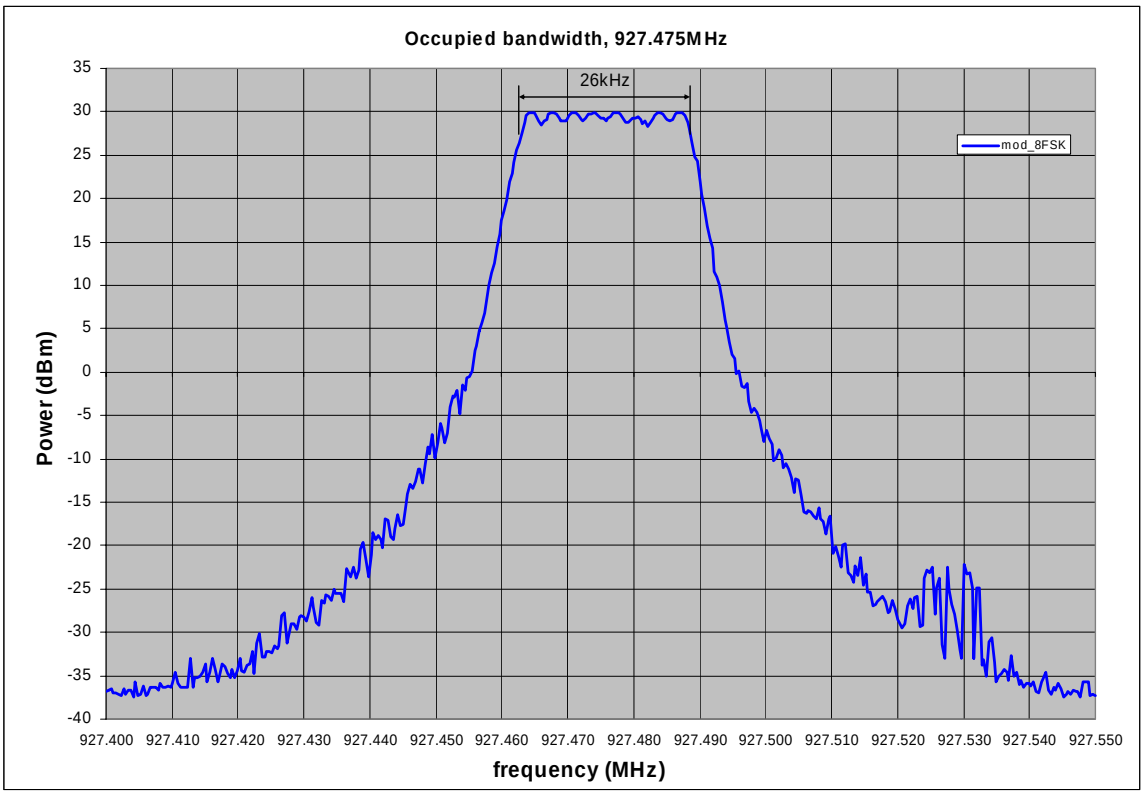
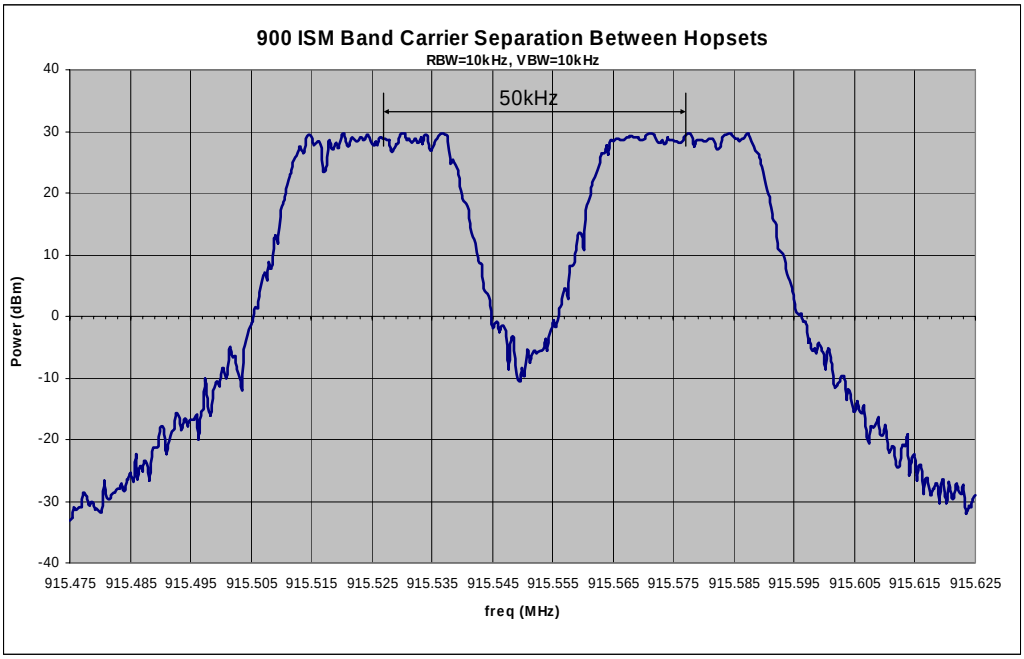


Figure 6-42. Spectrum analyzer plot of 900 MHz ISM Band 8-FSK traffic channel signal's 99% Bandwidth

The adjacent hopset channel separation was measured between hopset @ 915.525 MHz and hopset @ 916.025 MHz which is 50 kHz.

Figure 6-43: Adjacent hopset separation.



6.13 900 ISM Band Receiver Bandwidth – Pursuant 47 CRF, Part 15.247(a)(1)

The receiver bandwidth is limited by a 2-pole analog filter and digital processing that includes a 5th order sinc filter, IIR high-pass programmable bandwidth filter, and a 15th order programmable selectivity filter. The composite 3dB bandwidth is 28kHz.

6.14 900 ISM Band Number of Hopping Frequencies – Pursuant 47 CRF, 15.247(a)(1)(i)

The 900 MHz ISM Band transmitter uses 50 frequencies within each selected hopset.

Hopset	1st Frequency (MHz)	Progression (MHz)	Last (50th) Frequency (MHz)
1	902.525	903.025, 903.525, 904.025...	927.025
2	902.575	903.075, 903.575, 904.075...	927.075
3	902.625	903.125, 903.625, 904.125...	927.125
4	902.675	903.175, 903.675, 904.175...	927.175
5	902.725	903.225, 903.725, 904.225...	927.225
6	902.775	903.275, 903.775, 904.275...	927.275
7	902.825	903.325, 903.825, 904.325...	927.325
8	902.875	903.375, 903.875, 904.375...	927.375
9	902.925	903.425, 903.925, 904.425...	927.425
10	902.975	903.475, 903.975, 904.475...	927.475

Table 6-6: 900 MHz Band Transmitter Frequency Hopsets

6.15 900 ISM Band Average Time of Occupancy – Pursuant 47 CFR, Part 15.247(a)(1)(i)

Worst case scenario (continuous transmission) is as follows:
85.625 ms bursts at 90 ms intervals (hop intervals)
20 seconds per window / 0.09 seconds per hop = 222.22 hops per window
222.22 hops / 50 carriers = 4.444 bursts per carrier window
4.444 bursts * 0.08569183 seconds per burst = 0.381 seconds (less than the 0.4 second requirement)

The calculations show the average time of occupancy of 0.4 seconds or less.

Verification of burst is shown in Figure 6-44 below.

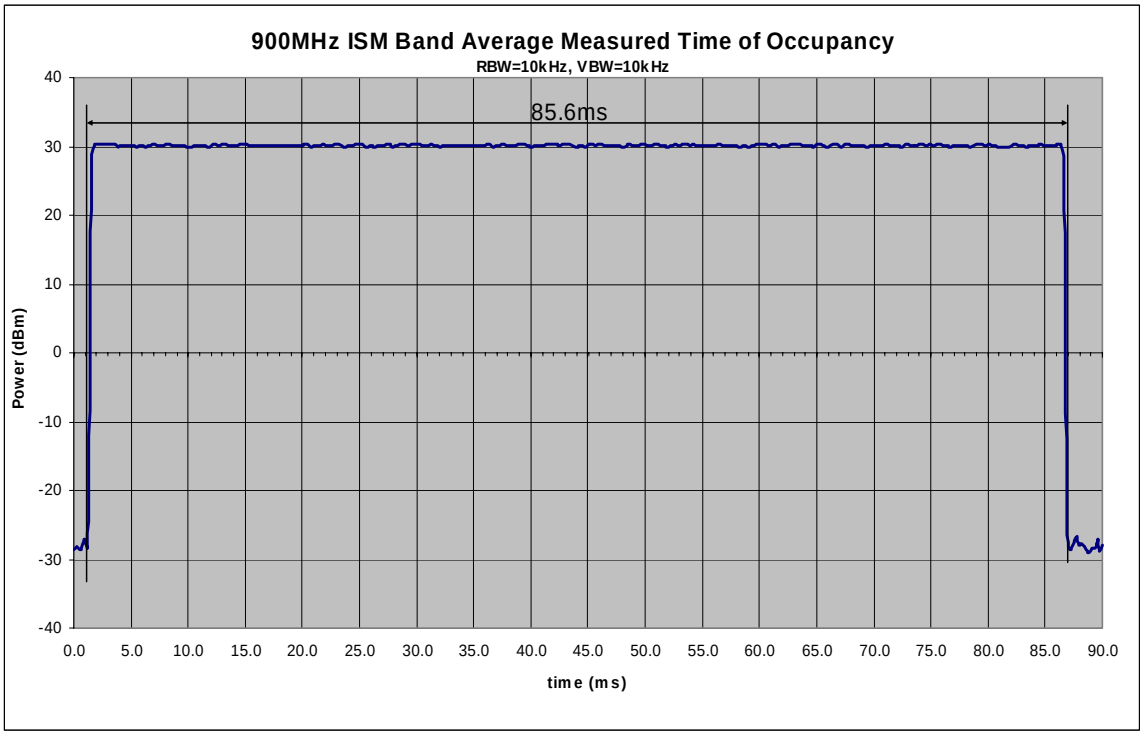


Figure 6-44. 900 MHz ISM Band Average Measured Time of Occupancy.

6.16 900 ISM Band Equal Distribution of Hopping Frequencies for Continuous Transmission – Pursuant 47 CFR, Part 15.247(a) (1) (i) & 15.247(g)

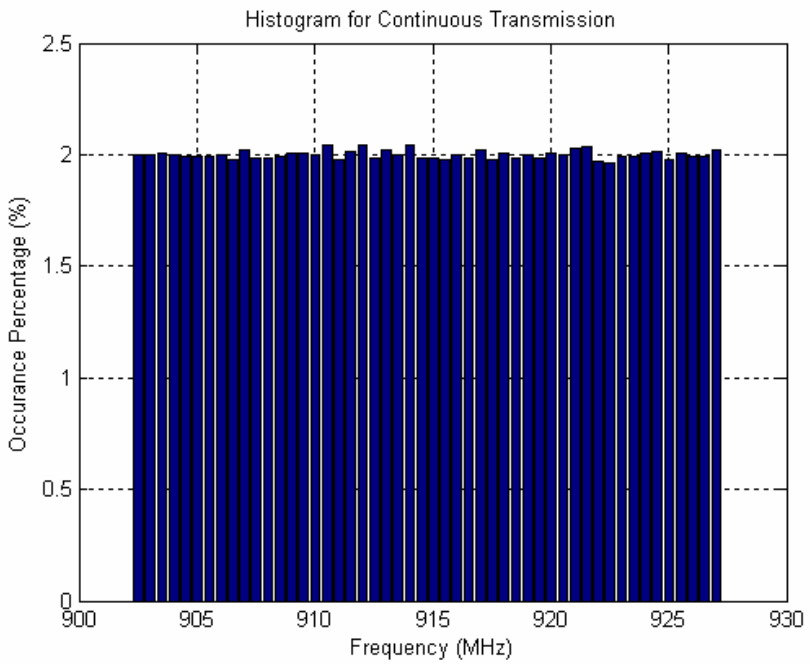


Figure 6-45. Histogram for 900 MHz ISM Band Continuous Transmission

6.17 900 ISM Band Equal Distribution of Hopping Frequencies for Discontinuous Transmission - Pursuant 47 CFR, Part 15.247(a) (1)(i) & 15.247(g)

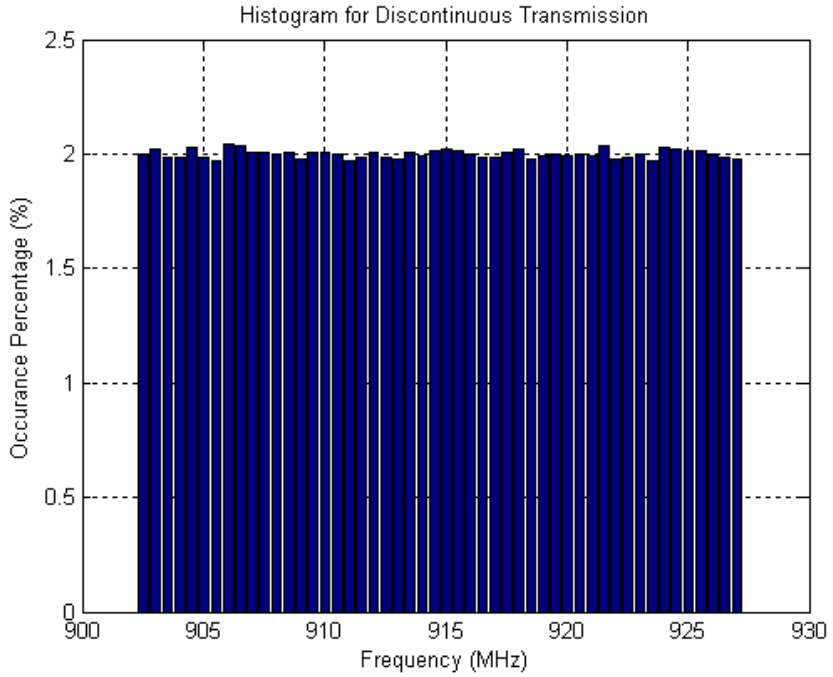


Figure 6-46. Histogram for 900 MHz ISM Band Discontinuous Transmission