6b.6 900 ISM Band Carrier Separation between Hopsets – Pursuant 47 CRF, Part 15.247(a)(1)

The separation between frequencies is measured to be 500 kHz.

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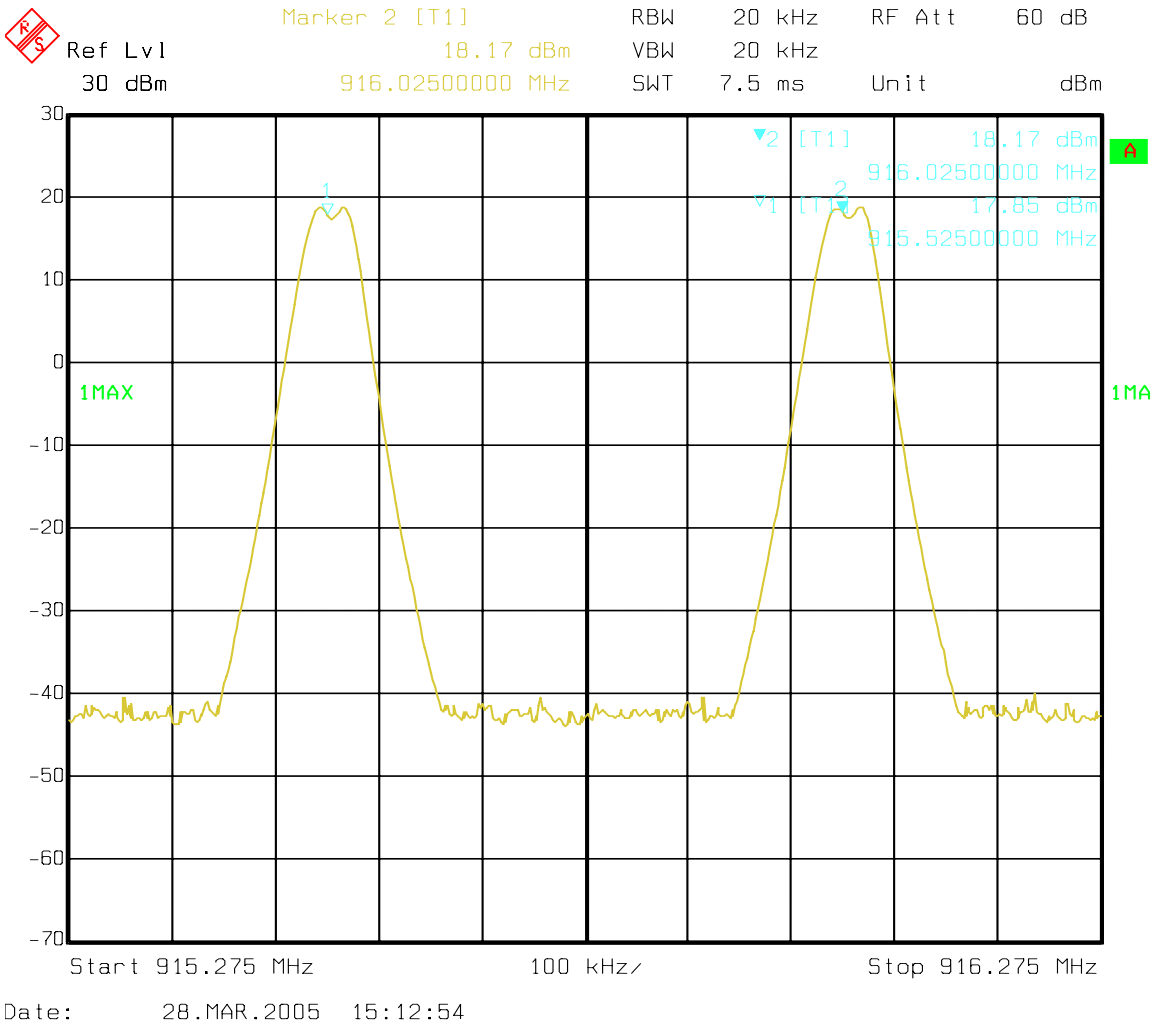

Figure 6b-5. Plot of 900 MHz ISM Band adjacent channel separation within a hops

6b.7 900 ISM Band Hopping Bandwidth between Hopsets –Pursuant 47 CRF, Part 15.247 (a)(1)(i)

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

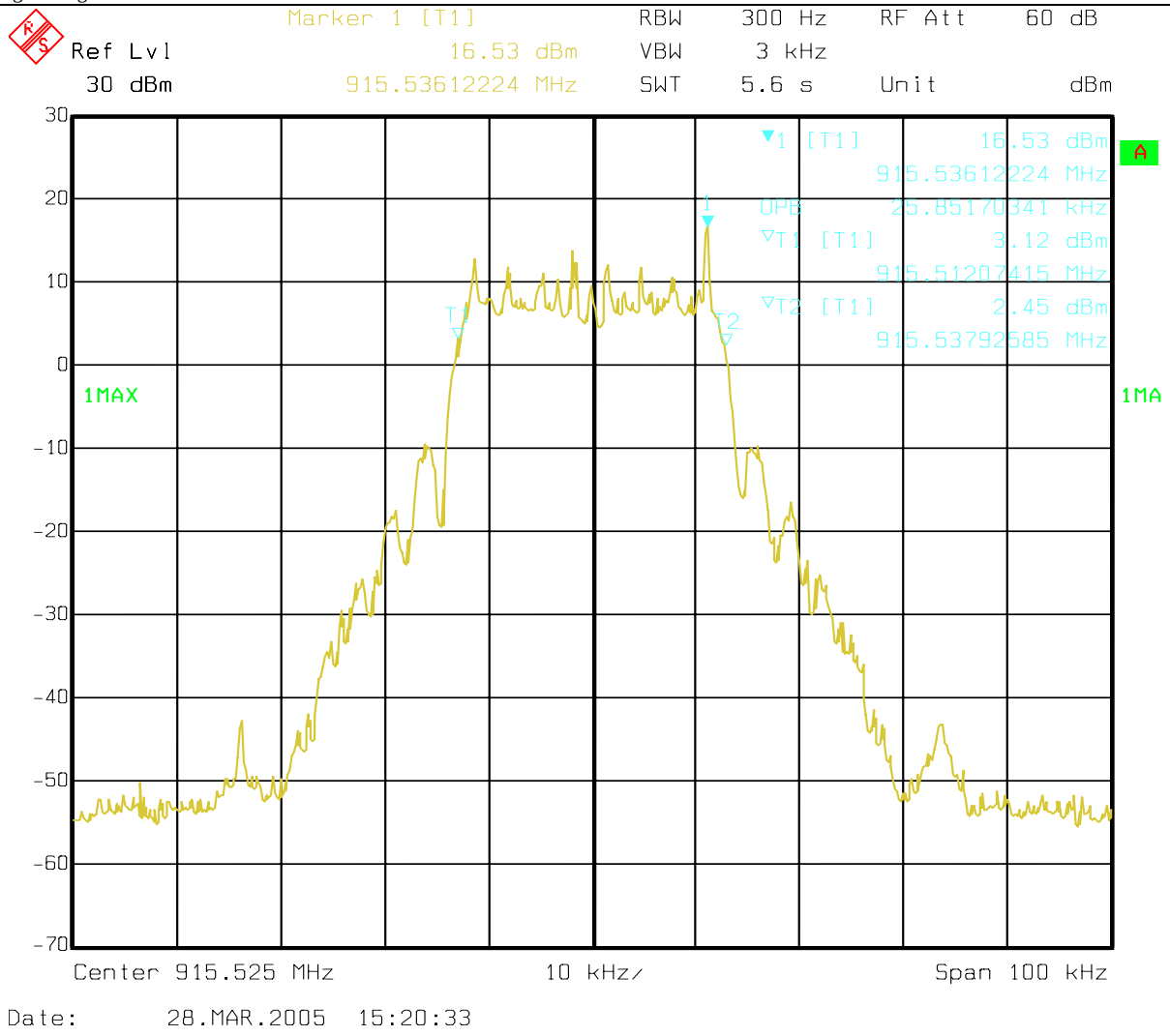

Figure 6b-6. Spectrum analyzer plot of 900 MHz ISM Band 8-FSK traffic channel signal's 99% Bandwidth

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

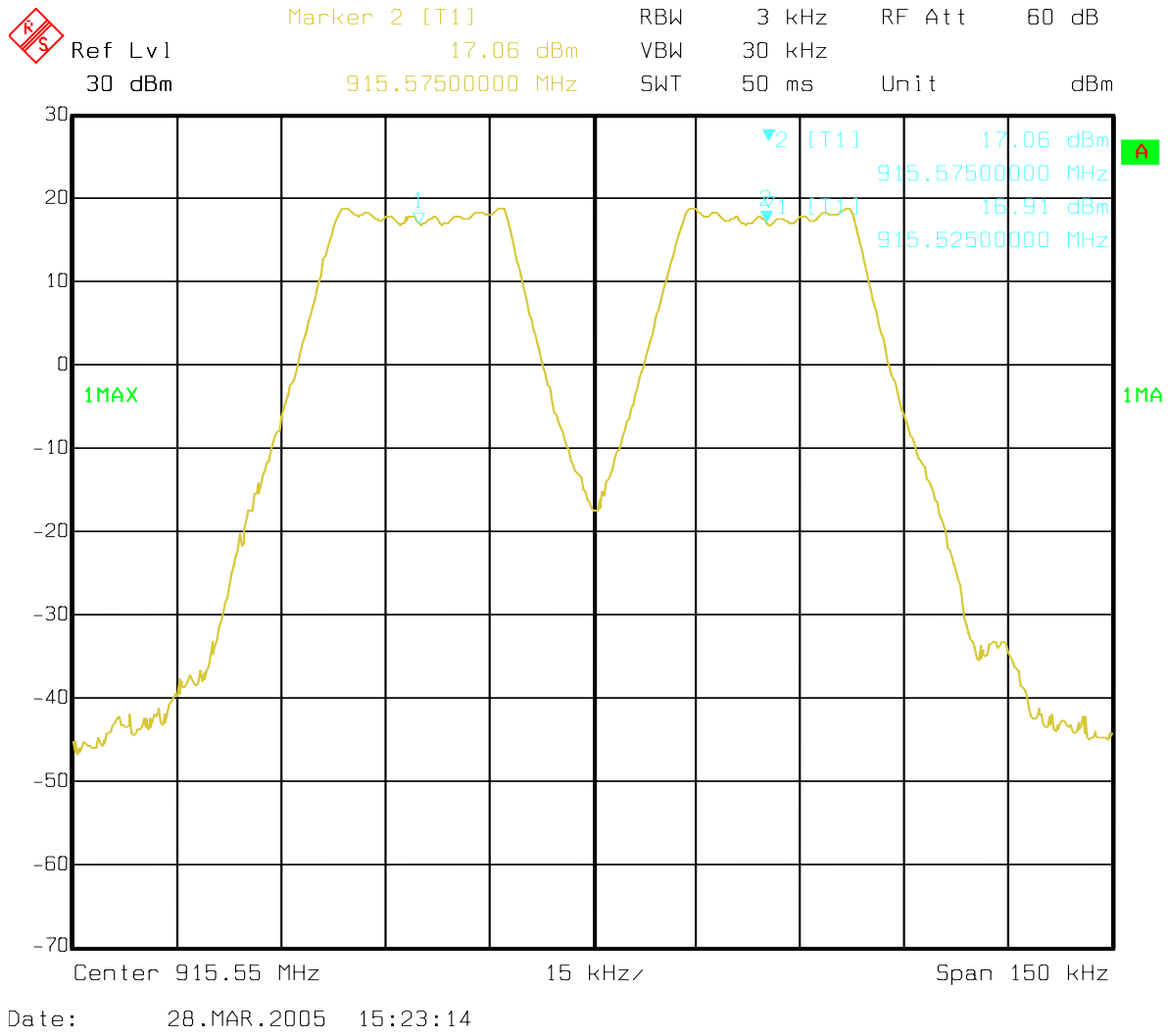

Figure 6b-7. Adjacent hopset separation.

6b.8 900 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 28 kHz.

6b.9 900 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 6b-7. 900 MHz Band Transmitter Frequency Hopsets.

6b.10 900 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 the Figure below.

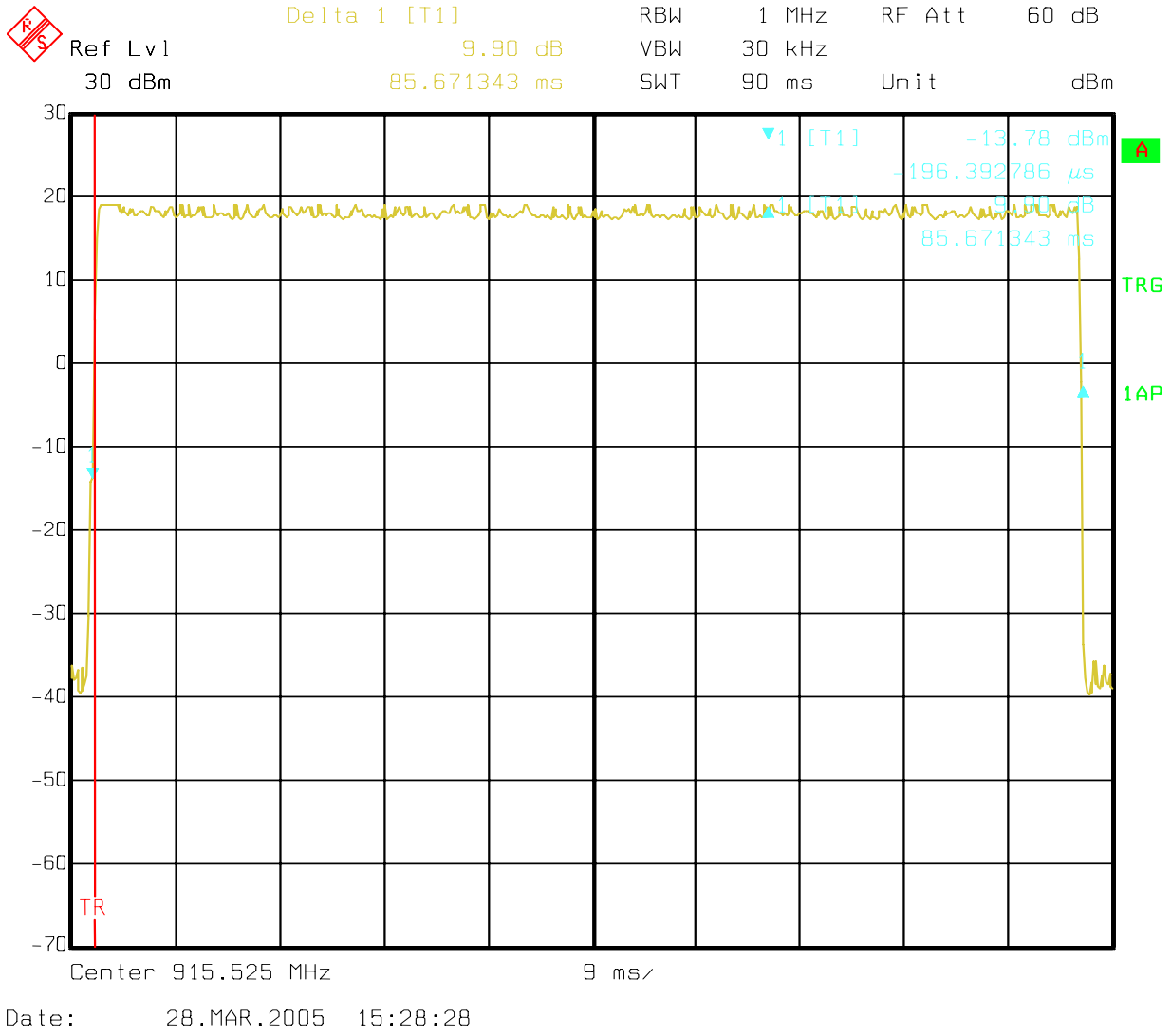

Figure 6b-8. 900 MHz ISM Band Average Measured Time of Occupancy.

6b.11 900 ISM Band Equal Distribution of Hopping Frequencies for Continuous Transmission – Pursuant 47 CFR, Part 15.247(a)(1)(i) & 15.247(g)

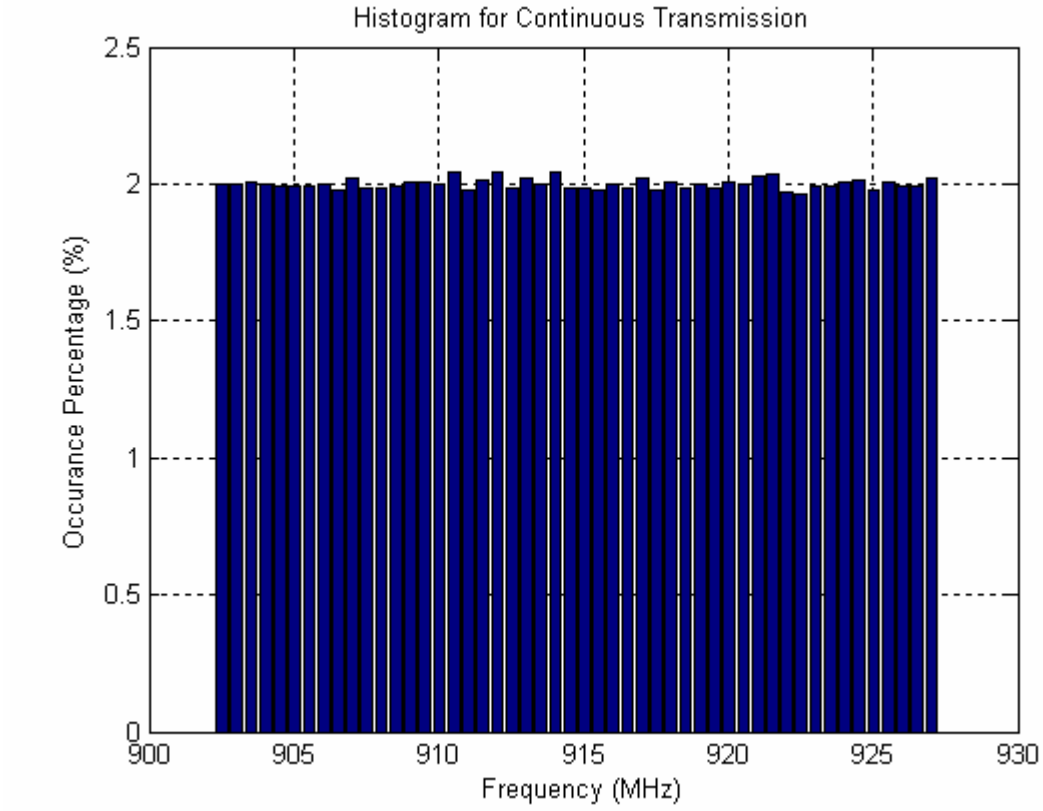

Figure 6b-9. Histogram for 900 MHz ISM Band Continuous Transmission

6b.12 900 ISM Band Equal Distribution of Hopping Frequencies for Discontinuous Transmission - Pursuant 47 CFR, Part 15.247(a)(1)(i) & 15.247(g)

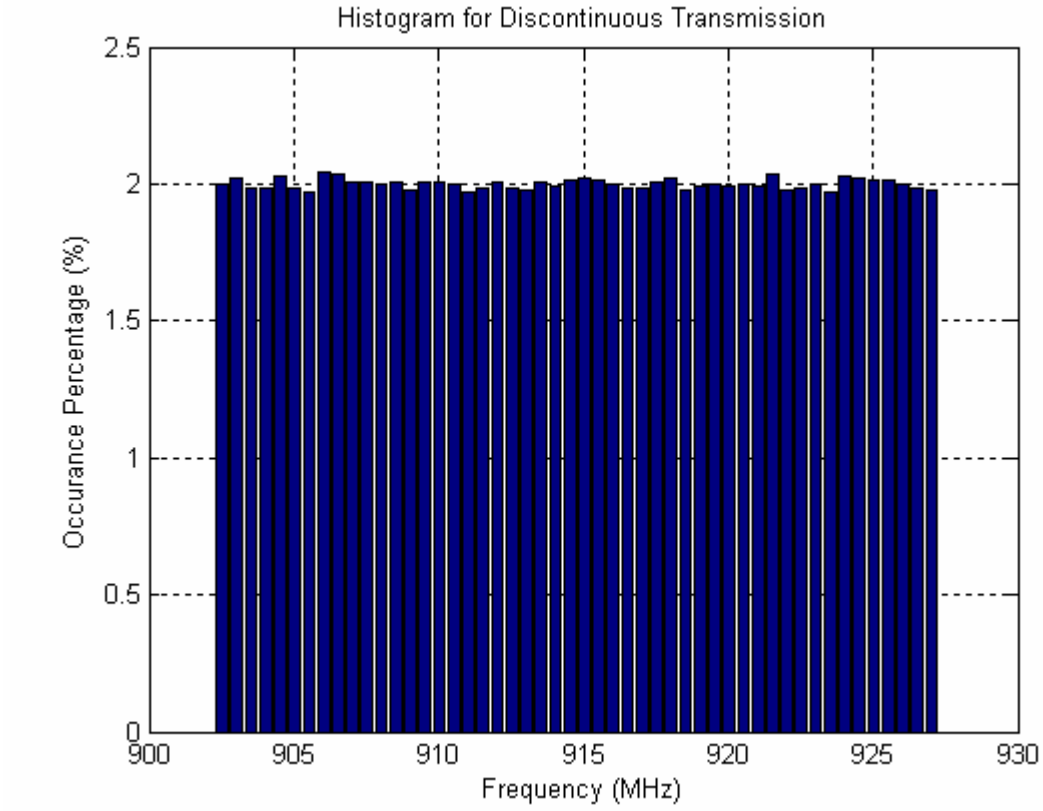

Figure 6b-10. Histogram for 900 MHz ISM Band Discontinuous Transmission