

Fig. 72 Time of Occupancy(Dwell Time) ( $\pi/4$  DQPSK, Ch39)

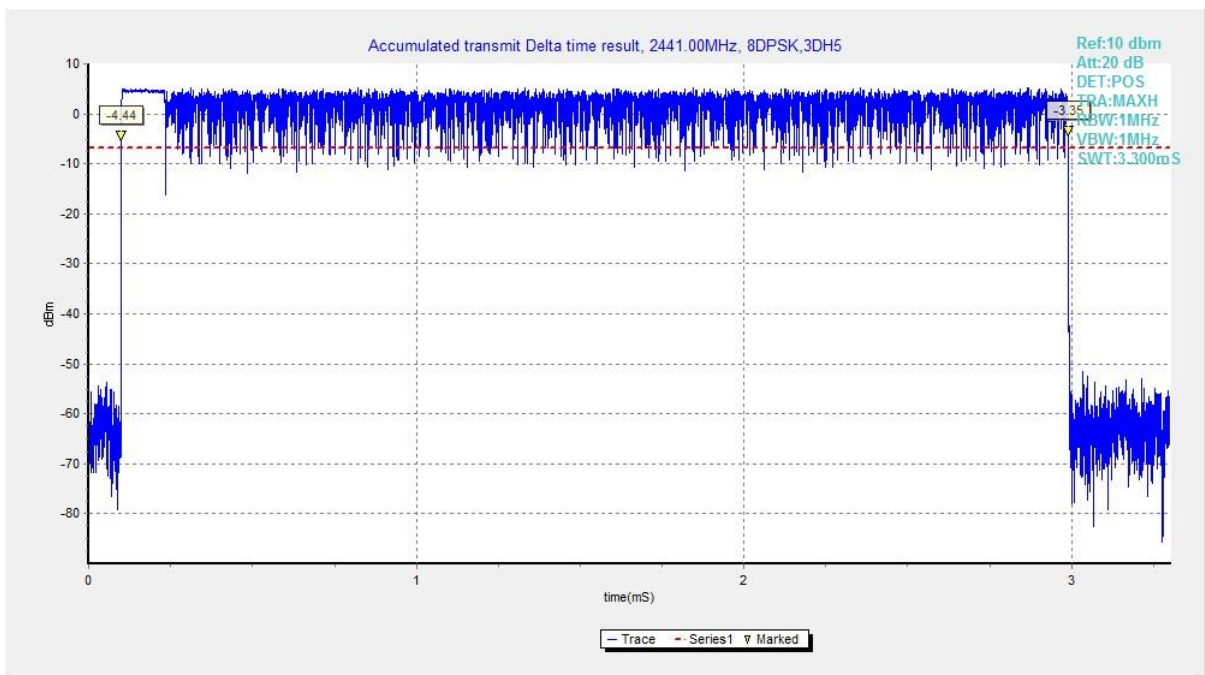


Fig. 73 Time of Occupancy(Dwell Time) (8DPSK, Ch39)

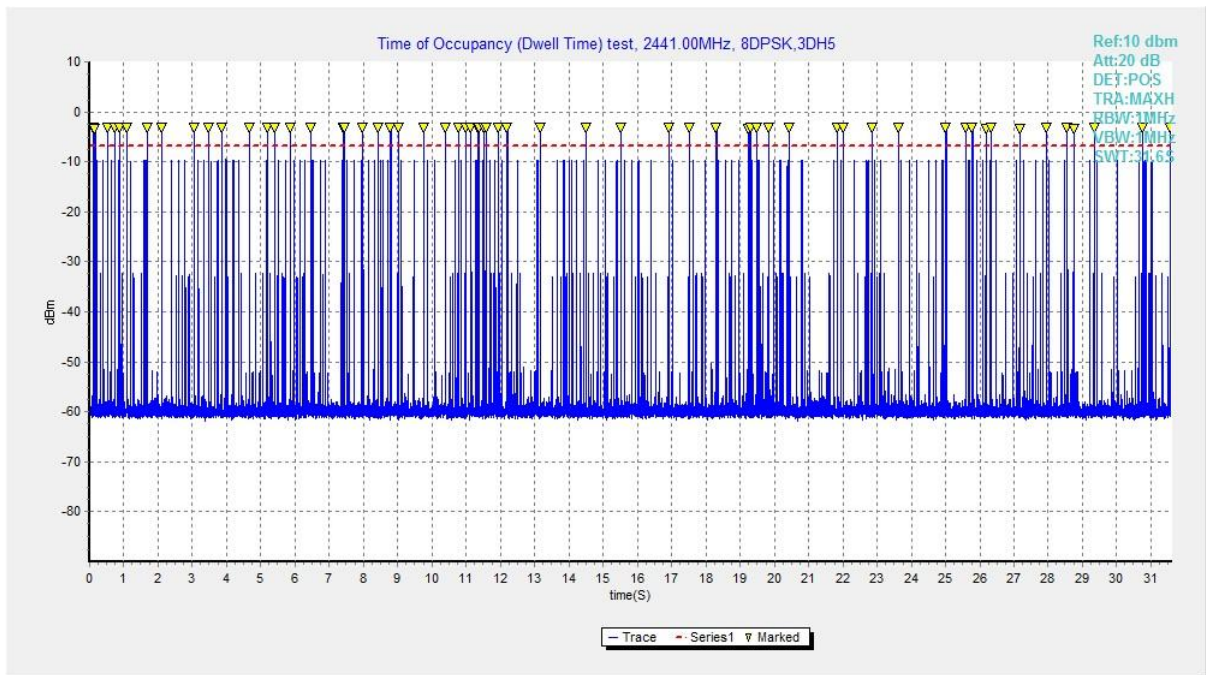


Fig. 74 Time of Occupancy(Dwell Time) (8DPSK, Ch39)

### A.7 Number of Hopping Channels

**Measurement Limit:**

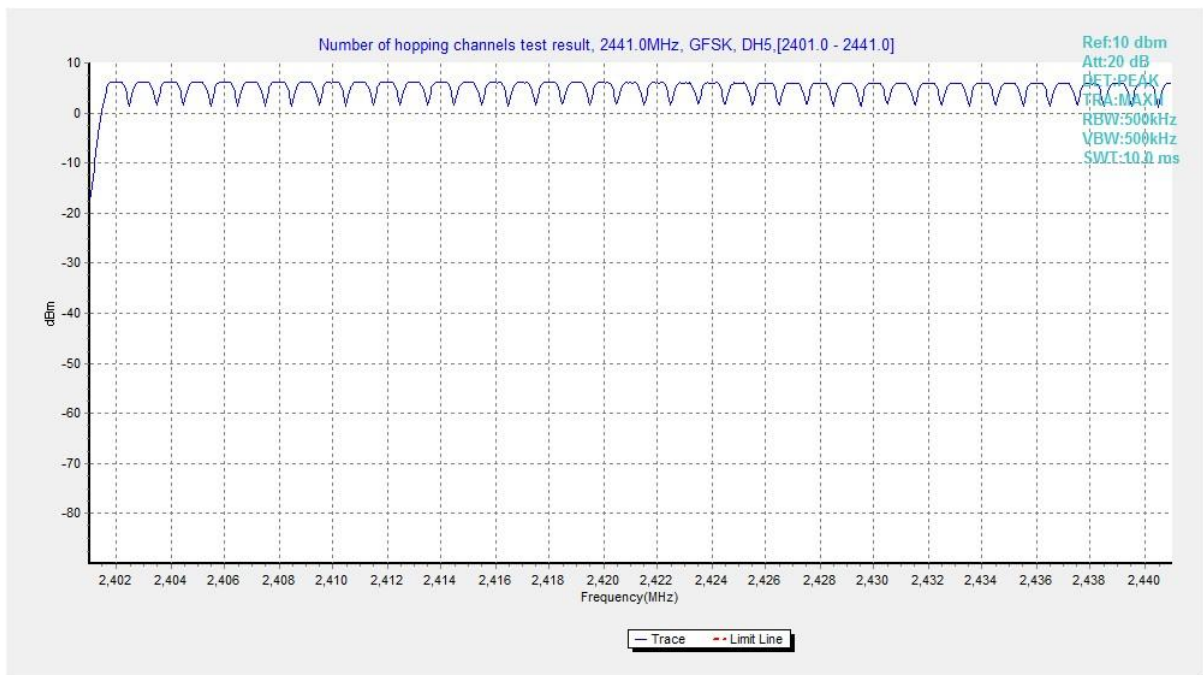
| Standard                  | Limit                                |
|---------------------------|--------------------------------------|
| FCC 47 CFR Part 15.247(a) | At least 15 non-overlapping channels |

**Measurement Results:**

| Mode          | Packet | Number of hopping channels |        | Test result | Conclusion |
|---------------|--------|----------------------------|--------|-------------|------------|
| GFSK          | DH5    | Fig.75                     | Fig.76 | 79          | <b>P</b>   |
| $\pi/4$ DQPSK | 2-DH5  | Fig.77                     | Fig.78 | 79          | <b>P</b>   |
| 8DPSK         | 3-DH5  | Fig.79                     | Fig.80 | 79          | <b>P</b>   |

See below for test graphs.

Conclusion: Pass



**Fig. 75 Hopping channel ch0~39 (GFSK, Ch39)**

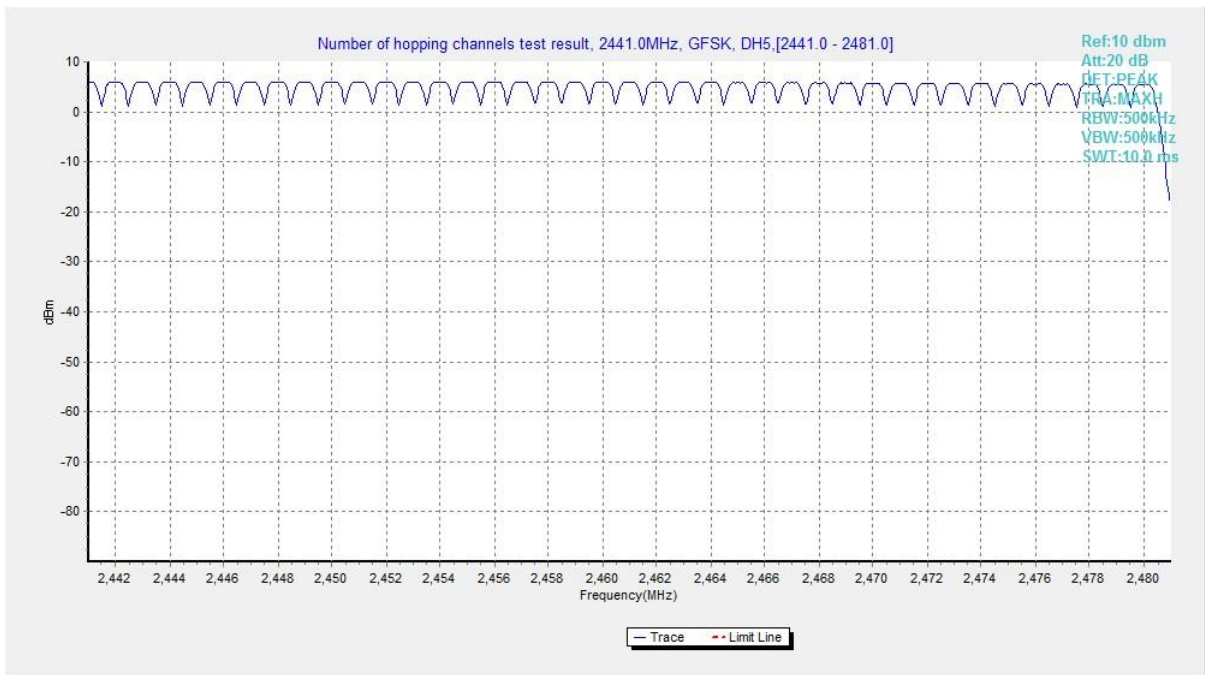


Fig. 76 Hopping channel ch40~78 (GFSK, Ch39)

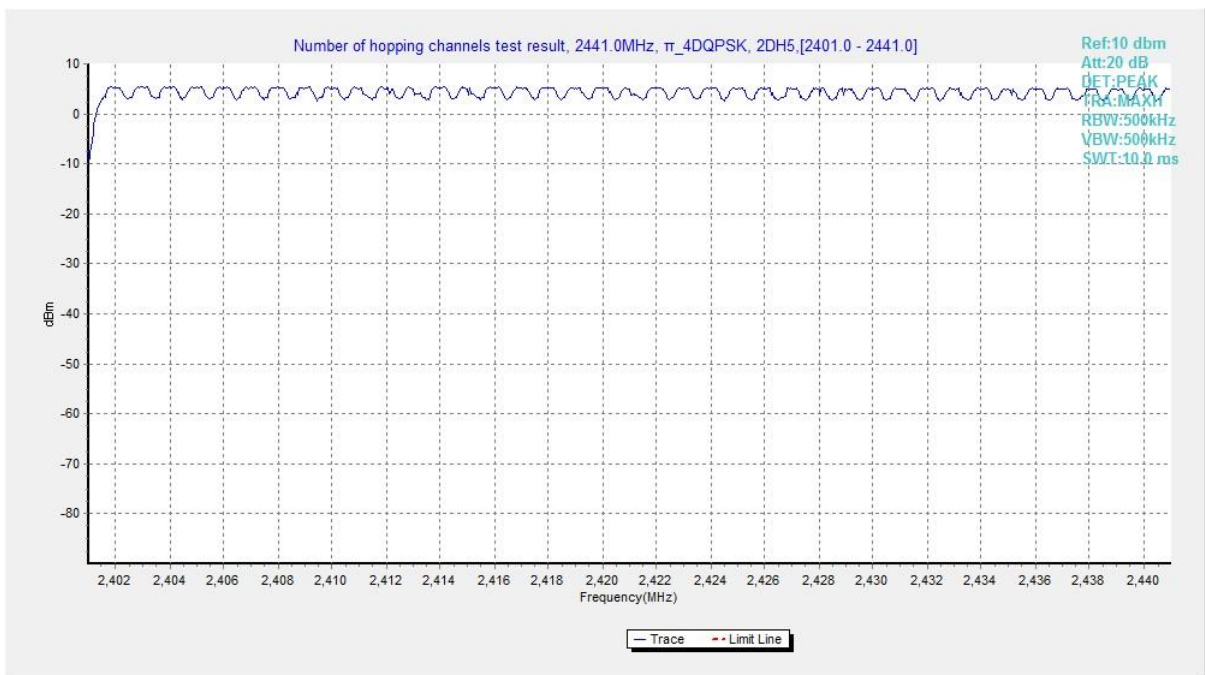


Fig. 77 Hopping channel ch0~39 ( $\pi/4$  DQPSK, Ch39)



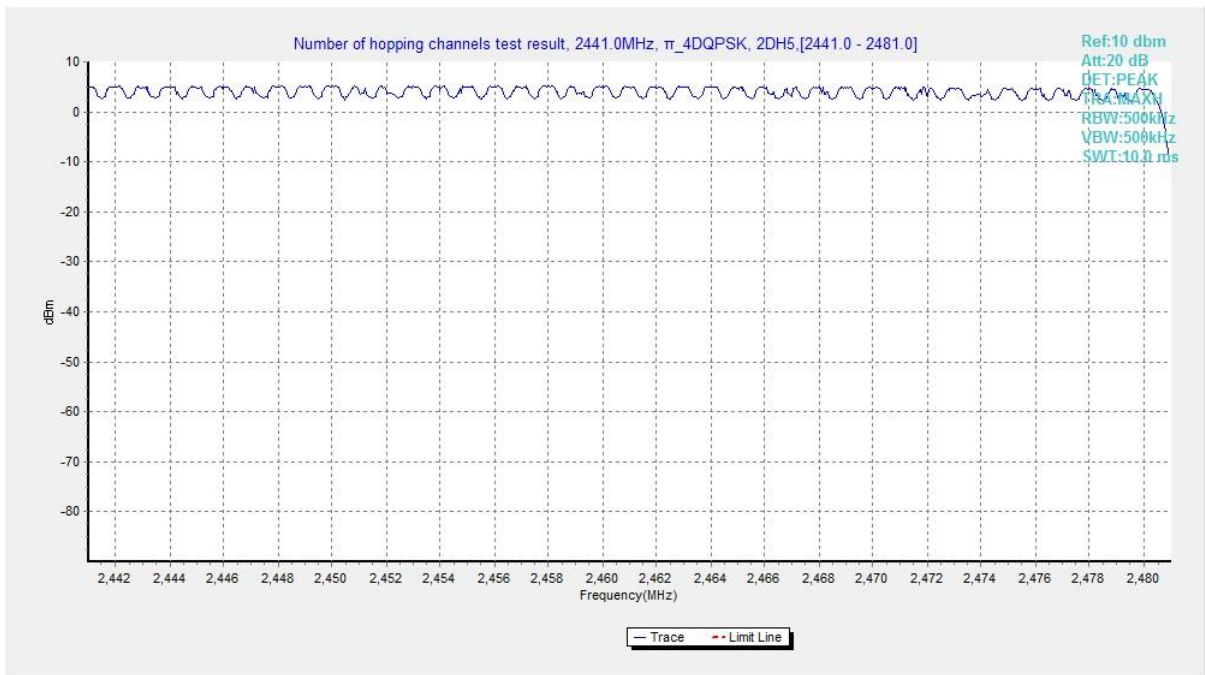


Fig. 78 Hopping channel ch40~78 ( $\pi$ /4 DQPSK, Ch39)

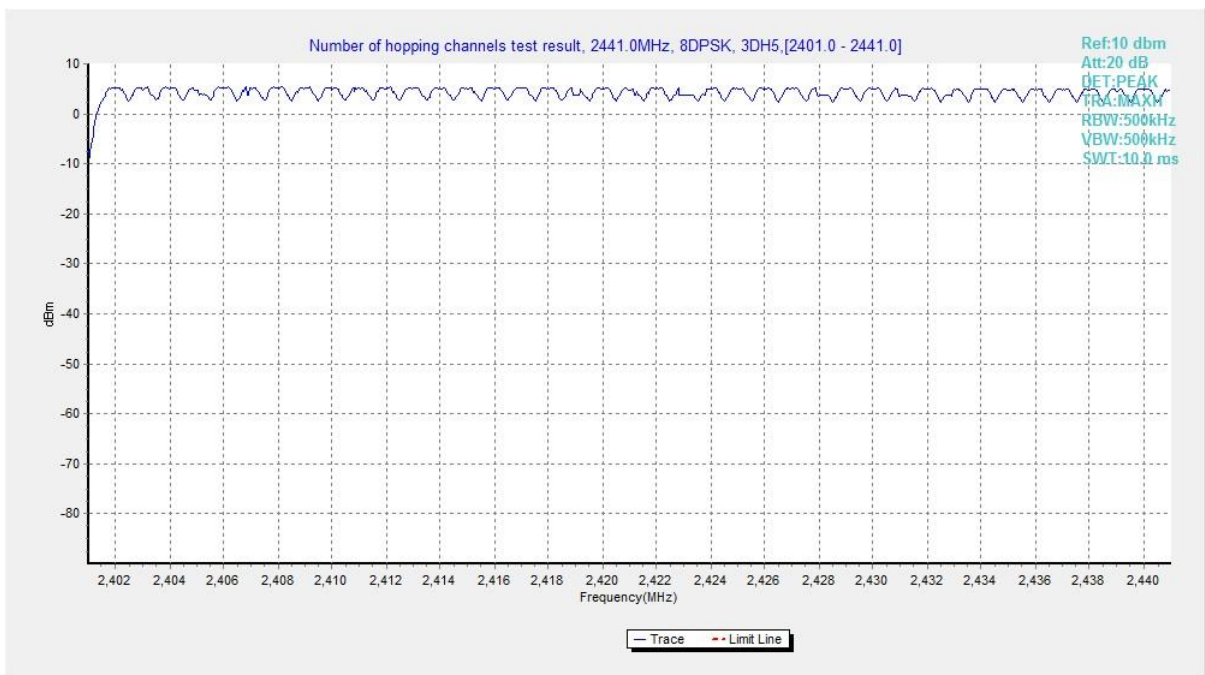


Fig. 79 Hopping channel ch0~39 (8DPSK, Ch39)

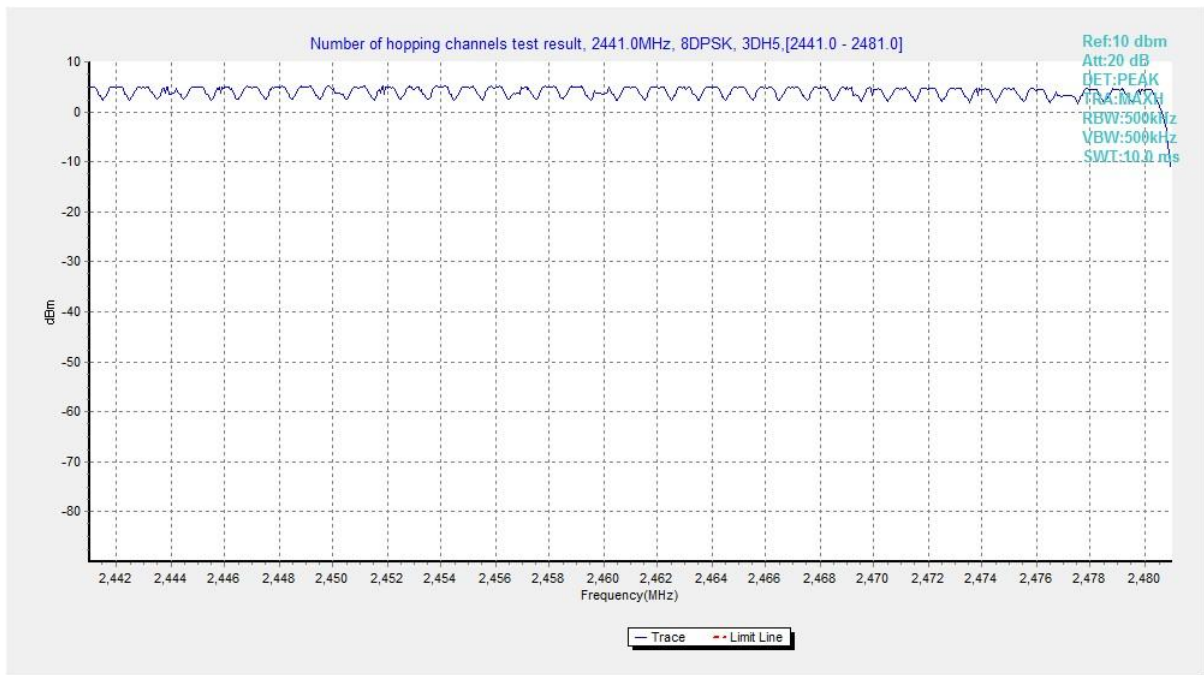


Fig. 80 Hopping channel ch40~78 (8DPSK, Ch39)

### A.8 Carrier Frequency Separation

**Measurement Limit:**

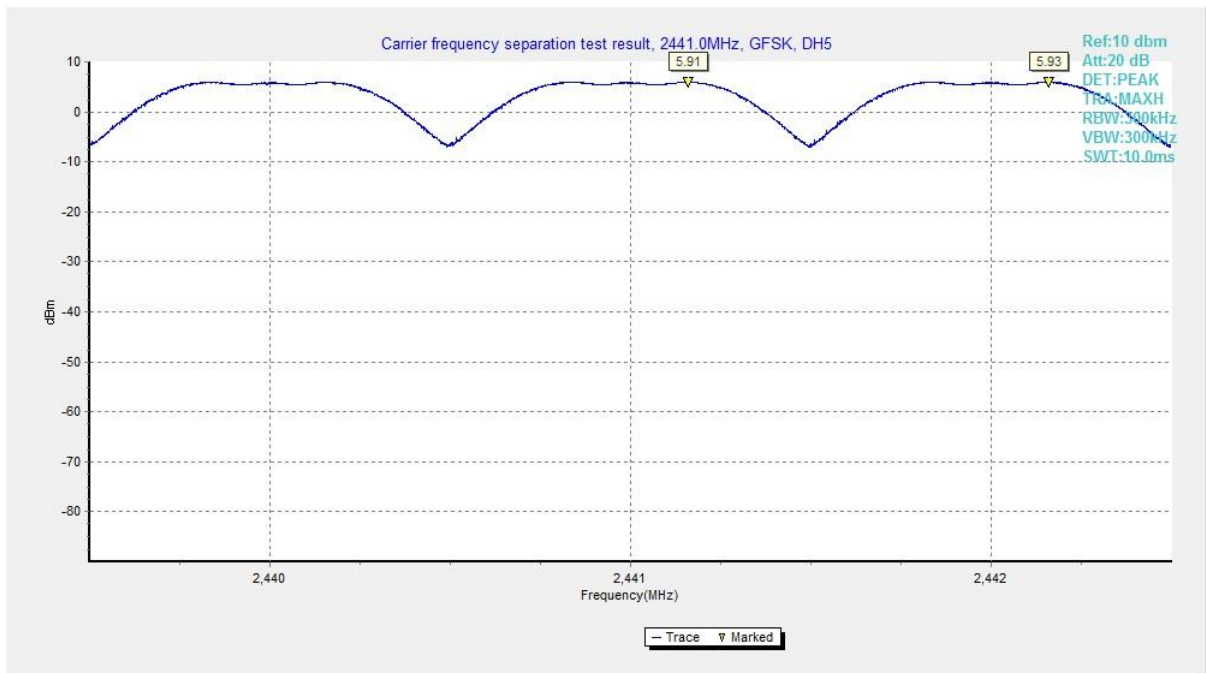
| Standard                  | Limit  |
|---------------------------|--|
| FCC 47 CFR Part 15.247(a) | By a minimum of 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater |

**Measurement Results:**

| Mode          | Channel | Packet | Separation of hopping channels | Test result (MHz) | Conclusion |
|---------------|---------|--------|--------------------------------|-------------------|------------|
| GFSK          | 39      | DH5    | Fig.81                         | 1.00              | <b>P</b>   |
| $\pi/4$ DQPSK | 39      | 2-DH5  | Fig.82                         | 1.00              | <b>P</b>   |
| 8DPSK         | 39      | 3-DH5  | Fig.83                         | 1.01              | <b>P</b>   |

See below for test graphs.

**Conclusion: Pass**



**Fig. 81 Carrier Frequency Separation (GFSK, Ch39)**

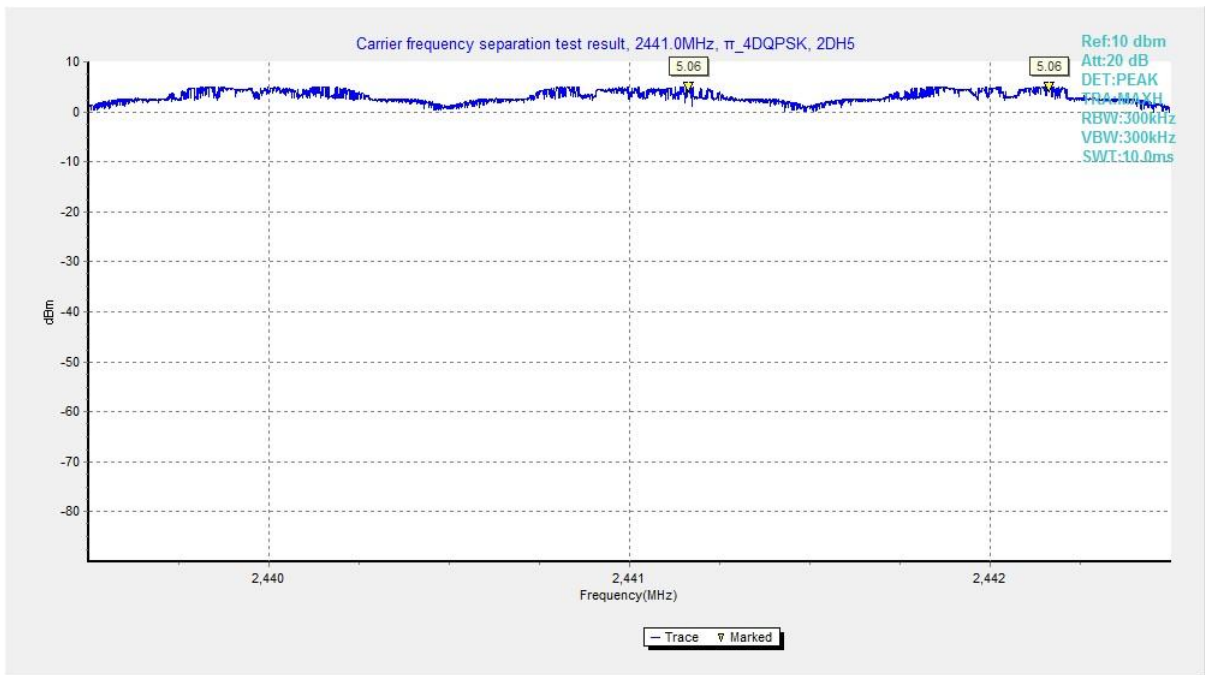


Fig. 82 Carrier Frequency Separation ( $\pi$  /4 DQPSK, Ch39)

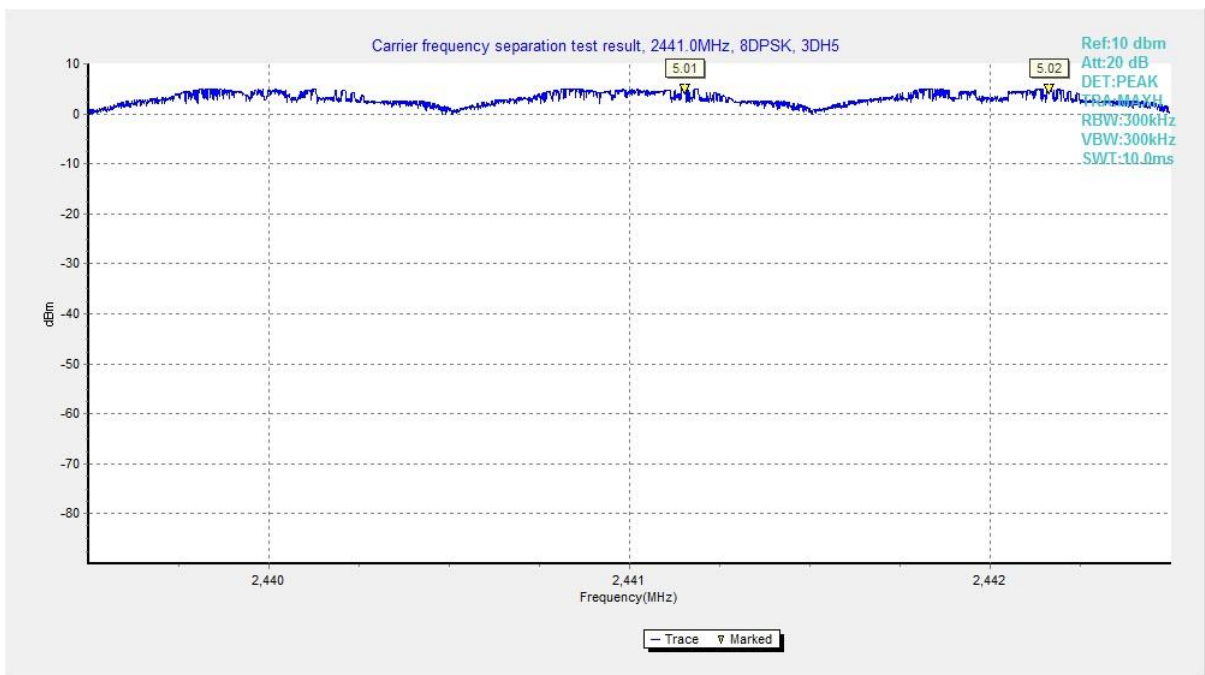


Fig. 83 Carrier Frequency Separation (8DPSK, Ch39)



### A.9 AC Power line Conducted Emission

#### Test Condition:

| Voltage (V) | Frequency (Hz) |
|-------------|----------------|
| 120         | 60             |

#### Measurement Result and limit:

##### BT (Quasi-peak Limit) - AE3

| Frequency range (MHz) | Quasi-peak Limit (dB $\mu$ V) | Result (dB $\mu$ V) |        | Conclusion |
|-----------------------|-------------------------------|---------------------|--------|------------|
|                       |                               | Traffic             | Idle   |            |
| 0.15 to 0.5           | 66 to 56                      | Fig.84              | Fig.85 | P          |
| 0.5 to 5              | 56                            |                     |        |            |
| 5 to 30               | 60                            |                     |        |            |

Note: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

##### BT (Average Limit) - AE3

| Frequency range (MHz) | Average-peak Limit (dB $\mu$ V) | Result (dB $\mu$ V) |        | Conclusion |
|-----------------------|---------------------------------|---------------------|--------|------------|
|                       |                                 | Traffic             | Idle   |            |
| 0.15 to 0.5           | 56 to 46                        | Fig.84              | Fig.85 | P          |
| 0.5 to 5              | 46                              |                     |        |            |
| 5 to 30               | 50                              |                     |        |            |

Note: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

##### BT (Quasi-peak Limit) - AE4

| Frequency range (MHz) | Quasi-peak Limit (dB $\mu$ V) | Result (dB $\mu$ V) |        | Conclusion |
|-----------------------|-------------------------------|---------------------|--------|------------|
|                       |                               | Traffic             | Idle   |            |
| 0.15 to 0.5           | 66 to 56                      | Fig.86              | Fig.87 | P          |
| 0.5 to 5              | 56                            |                     |        |            |
| 5 to 30               | 60                            |                     |        |            |

Note: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

##### BT (Average Limit) - AE4

| Frequency range (MHz) | Average-peak Limit (dB $\mu$ V) | Result (dB $\mu$ V) |        | Conclusion |
|-----------------------|---------------------------------|---------------------|--------|------------|
|                       |                                 | Traffic             | Idle   |            |
| 0.15 to 0.5           | 56 to 46                        | Fig.86              | Fig.87 | P          |
| 0.5 to 5              | 46                              |                     |        |            |
| 5 to 30               | 50                              |                     |        |            |

Note: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.



No. I20N03427-BT

Note: The measurement results include the L1 and N measurements.

**See below for test graphs.**

**Conclusion: Pass**

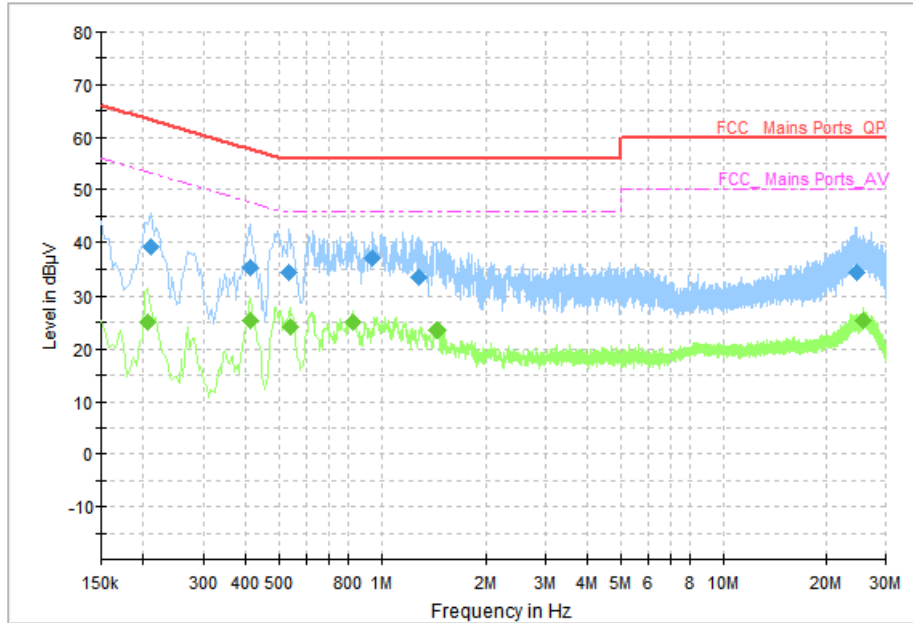


Fig. 84 AC Powerline Conducted Emission (Traffic, AE3, 120V)

Measurement Results: Quasi Peak

| Frequency (MHz) | Quasi Peak (dBµV) | Limit (dBµV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|-------------------|--------------|-------------|------|--------|------------|
| 0.210000        | 39.13             | 63.21        | 24.07       | L1   | ON     | 10         |
| 0.410000        | 35.17             | 57.65        | 22.48       | N    | ON     | 10         |
| 0.534000        | 34.31             | 56.00        | 21.69       | N    | ON     | 10         |
| 0.942000        | 37.01             | 56.00        | 18.99       | N    | ON     | 10         |
| 1.294000        | 33.25             | 56.00        | 22.75       | N    | ON     | 10         |
| 24.650000       | 34.21             | 60.00        | 25.79       | N    | ON     | 10         |

Measurement Results: Average

| Frequency (MHz) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|----------------|--------------|-------------|------|--------|------------|
| 0.206000        | 25.19          | 53.37        | 28.17       | N    | ON     | 10         |
| 0.410000        | 25.40          | 47.65        | 22.25       | N    | ON     | 10         |
| 0.538000        | 24.29          | 46.00        | 21.71       | N    | ON     | 10         |
| 0.826000        | 25.06          | 46.00        | 20.94       | N    | ON     | 10         |
| 1.450000        | 23.58          | 46.00        | 22.42       | N    | ON     | 10         |
| 25.758000       | 25.40          | 50.00        | 24.60       | N    | ON     | 10         |

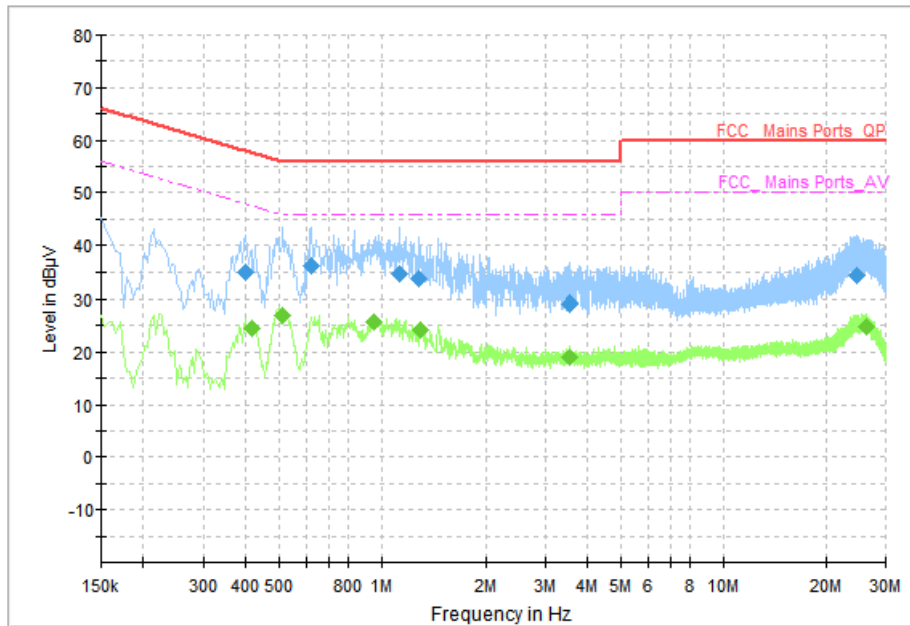


Fig. 85 AC Power line Conducted Emission (Idle, AE3, 120V)

**Measurement Results: Quasi Peak**

| Frequency (MHz) | Quasi Peak (dBµV) | Limit (dBµV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|-------------------|--------------|-------------|------|--------|------------|
| 0.398000        | 34.85             | 57.90        | 23.04       | N    | ON     | 10         |
| 0.622000        | 36.11             | 56.00        | 19.89       | N    | ON     | 10         |
| 1.134000        | 34.59             | 56.00        | 21.41       | N    | ON     | 10         |
| 1.294000        | 33.65             | 56.00        | 22.35       | N    | ON     | 10         |
| 3.542000        | 28.95             | 56.00        | 27.05       | N    | ON     | 10         |
| 24.566000       | 34.22             | 60.00        | 25.78       | N    | ON     | 10         |

**Measurement Results: Average**

| Frequency (MHz) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|----------------|--------------|-------------|------|--------|------------|
| 0.414000        | 24.63          | 47.57        | 22.94       | N    | ON     | 10         |
| 0.510000        | 27.04          | 46.00        | 18.96       | N    | ON     | 10         |
| 0.954000        | 25.62          | 46.00        | 20.38       | N    | ON     | 10         |
| 1.306000        | 24.30          | 46.00        | 21.70       | N    | ON     | 10         |
| 3.546000        | 19.11          | 46.00        | 26.89       | N    | ON     | 10         |
| 26.454000       | 24.93          | 50.00        | 25.07       | N    | ON     | 10         |

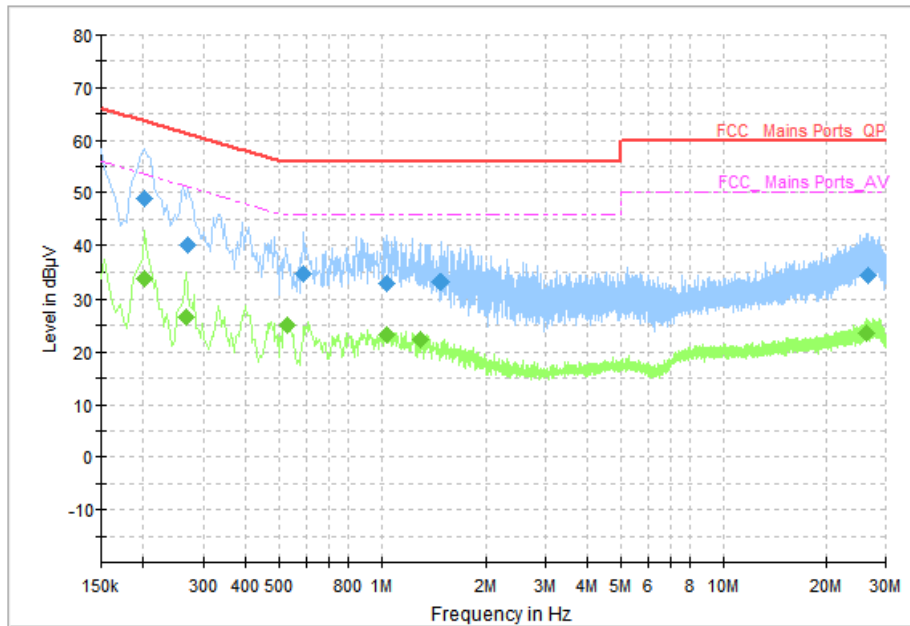


Fig. 86 AC Powerline Conducted Emission (Traffic, AE4, 120V)

**Measurement Results: Quasi Peak**

| Frequency (MHz) | Quasi Peak (dBµV) | Limit (dBµV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|-------------------|--------------|-------------|------|--------|------------|
| 0.202000        | 48.82             | 63.53        | 14.71       | N    | ON     | 10         |
| 0.270000        | 40.04             | 61.12        | 21.07       | N    | ON     | 10         |
| 0.590000        | 34.48             | 56.00        | 21.52       | L1   | ON     | 10         |
| 1.038000        | 32.85             | 56.00        | 23.15       | L1   | ON     | 10         |
| 1.490000        | 33.08             | 56.00        | 22.92       | L1   | ON     | 10         |
| 26.662000       | 34.35             | 60.00        | 25.65       | L1   | ON     | 10         |

**Measurement Results: Average**

| Frequency (MHz) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|----------------|--------------|-------------|------|--------|------------|
| 0.202000        | 33.77          | 53.53        | 19.76       | N    | ON     | 10         |
| 0.266000        | 26.57          | 51.24        | 24.67       | N    | ON     | 10         |
| 0.530000        | 25.03          | 46.00        | 20.97       | N    | ON     | 10         |
| 1.034000        | 23.20          | 46.00        | 22.80       | L1   | ON     | 10         |
| 1.306000        | 22.25          | 46.00        | 23.75       | L1   | ON     | 10         |
| 26.230000       | 23.71          | 50.00        | 26.29       | L1   | ON     | 10         |



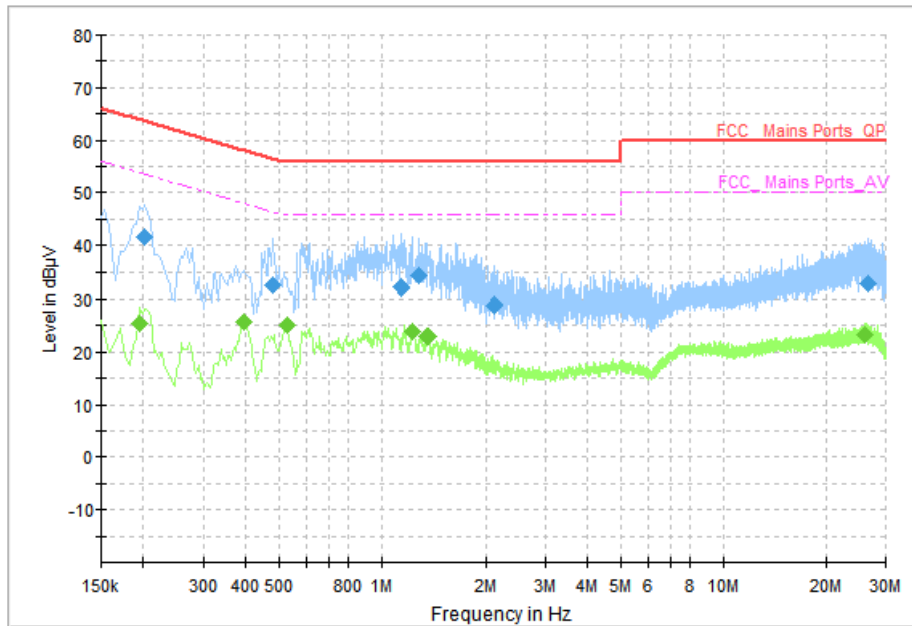


Fig. 87 AC Power line Conducted Emission (Idle, AE4, 120V)

**Measurement Results: Quasi Peak**

| Frequency (MHz) | Quasi Peak (dBµV) | Limit (dBµV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|-------------------|--------------|-------------|------|--------|------------|
| 0.202000        | 41.46             | 63.53        | 22.07       | L1   | ON     | 10         |
| 0.478000        | 32.31             | 56.37        | 24.06       | L1   | ON     | 10         |
| 1.138000        | 32.07             | 56.00        | 23.93       | L1   | ON     | 10         |
| 1.290000        | 34.31             | 56.00        | 21.69       | L1   | ON     | 10         |
| 2.122000        | 28.63             | 56.00        | 27.37       | L1   | ON     | 10         |
| 26.502000       | 32.83             | 60.00        | 27.17       | L1   | ON     | 10         |

**Measurement Results: Average**

| Frequency (MHz) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|----------------|--------------|-------------|------|--------|------------|
| 0.194000        | 25.32          | 53.86        | 28.54       | N    | ON     | 10         |
| 0.394000        | 25.70          | 47.98        | 22.28       | N    | ON     | 10         |
| 0.526000        | 25.06          | 46.00        | 20.94       | N    | ON     | 10         |
| 1.234000        | 23.83          | 46.00        | 22.17       | L1   | ON     | 10         |
| 1.362000        | 22.86          | 46.00        | 23.14       | L1   | ON     | 10         |
| 26.182000       | 23.18          | 50.00        | 26.82       | L1   | ON     | 10         |

\*\*\*END OF REPORT\*\*\*