

Fig.98. 20dB Bandwidth: GFSK, Channel 0

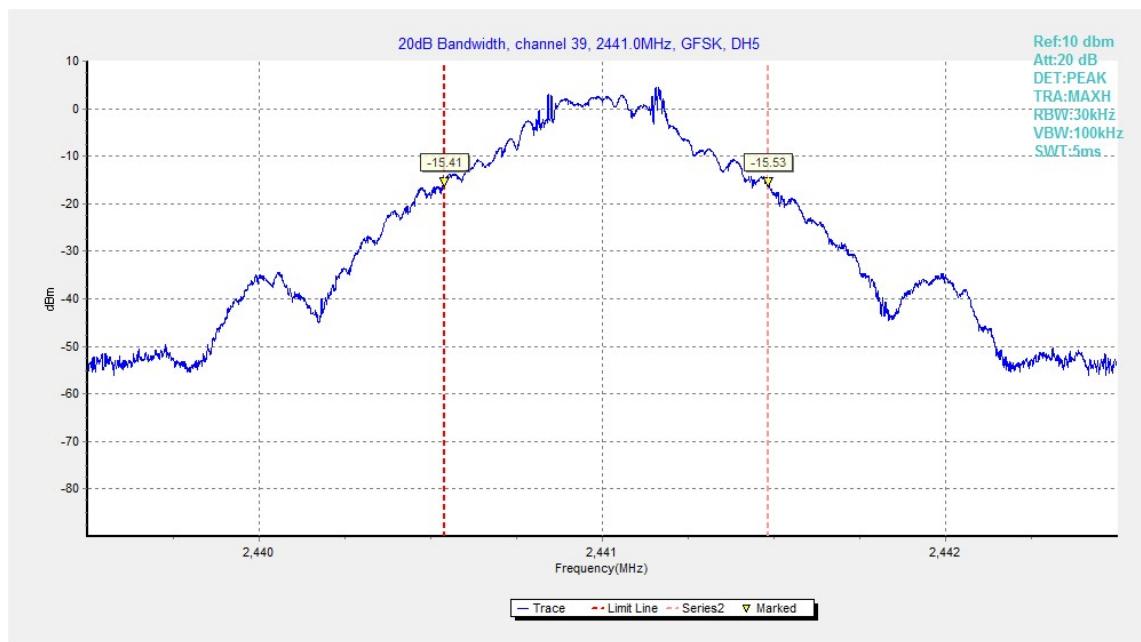


Fig.99. 20dB Bandwidth: GFSK, Channel 39

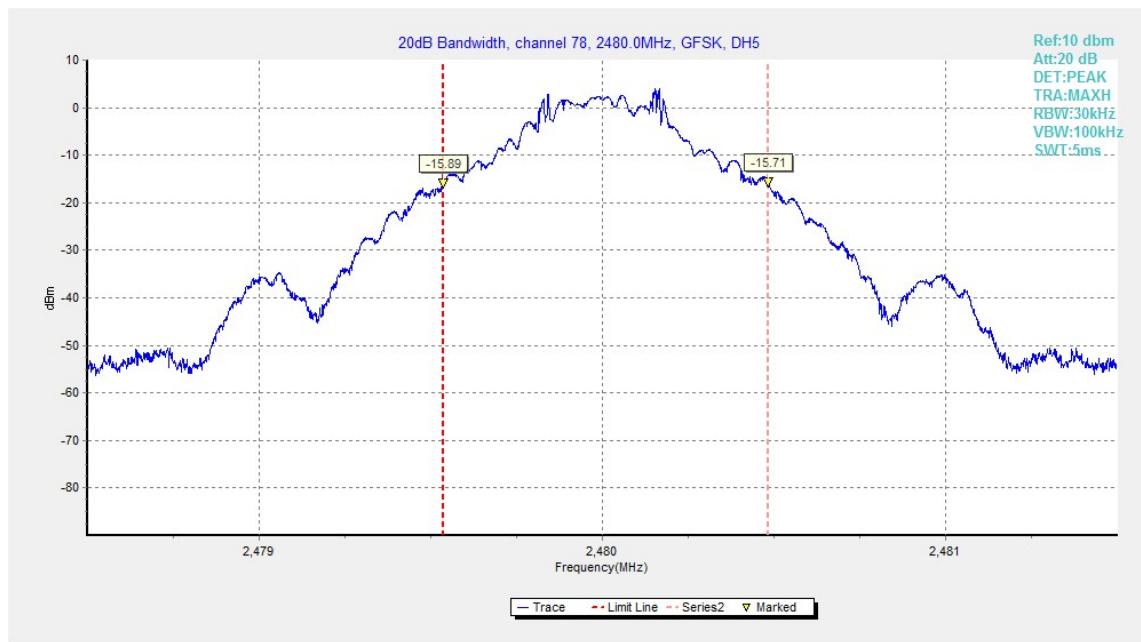


Fig.100. 20dB Bandwidth: GFSK, Channel 78

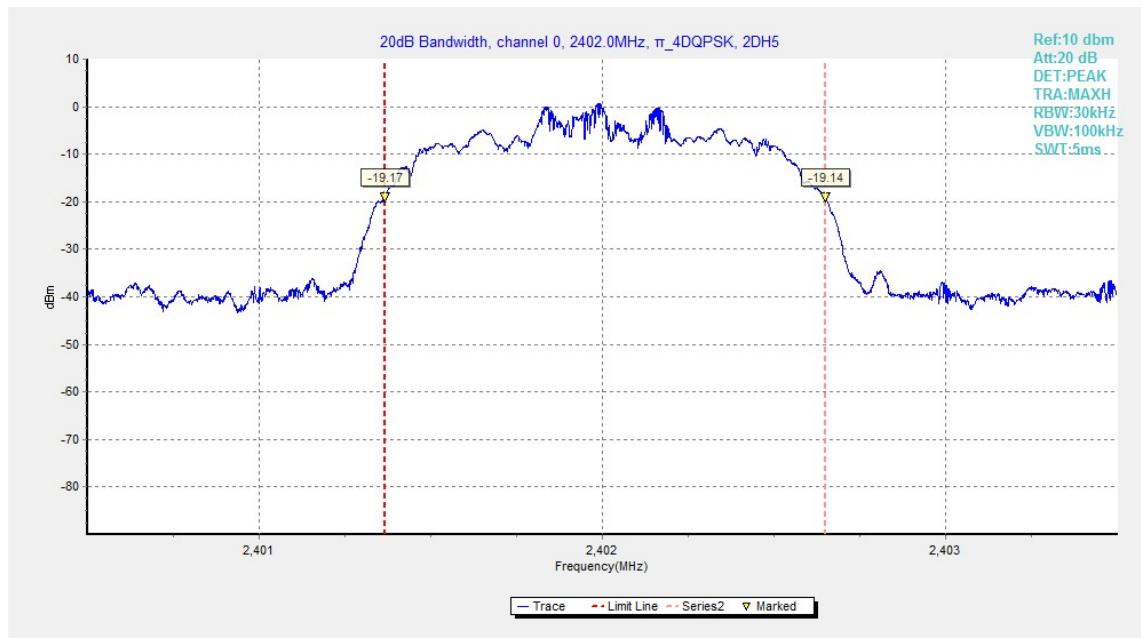


Fig.101. 20dB Bandwidth:  $\pi$ /4 DQPSK, Channel 0

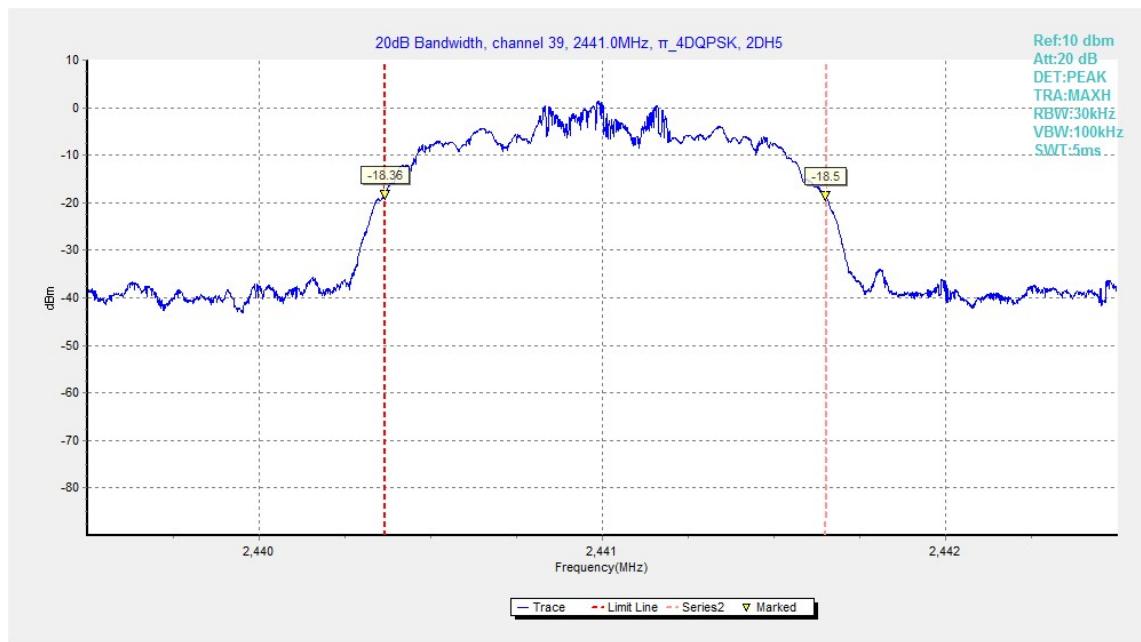


Fig.102. 20dB Bandwidth:  $\pi/4$  DQPSK, Channel 39

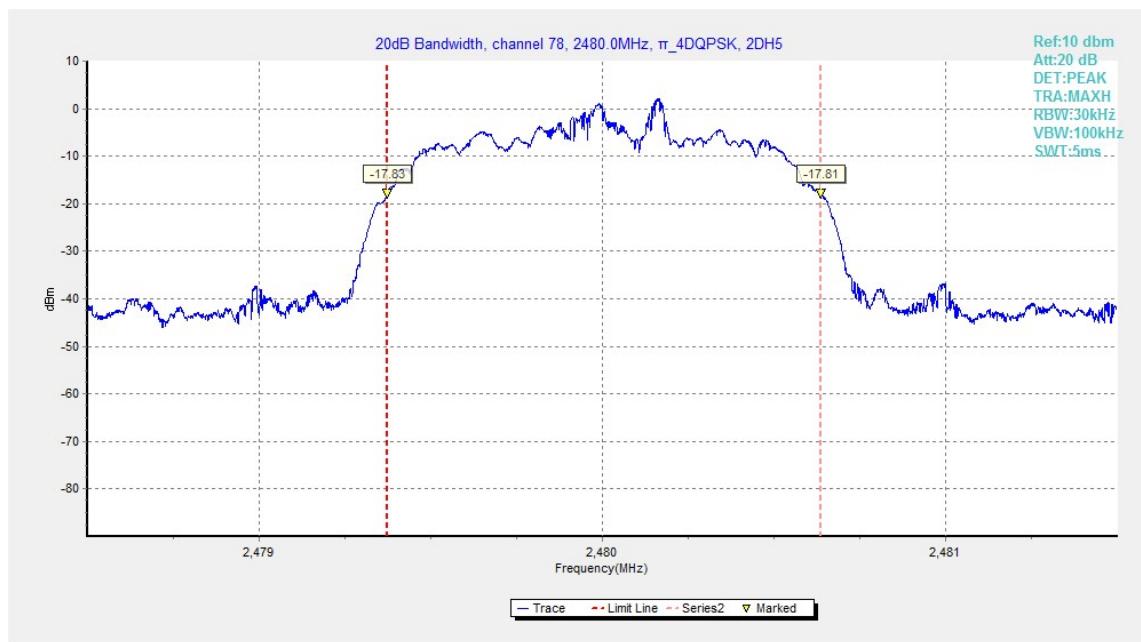


Fig.103. 20dB Bandwidth:  $\pi/4$  DQPSK, Channel 78

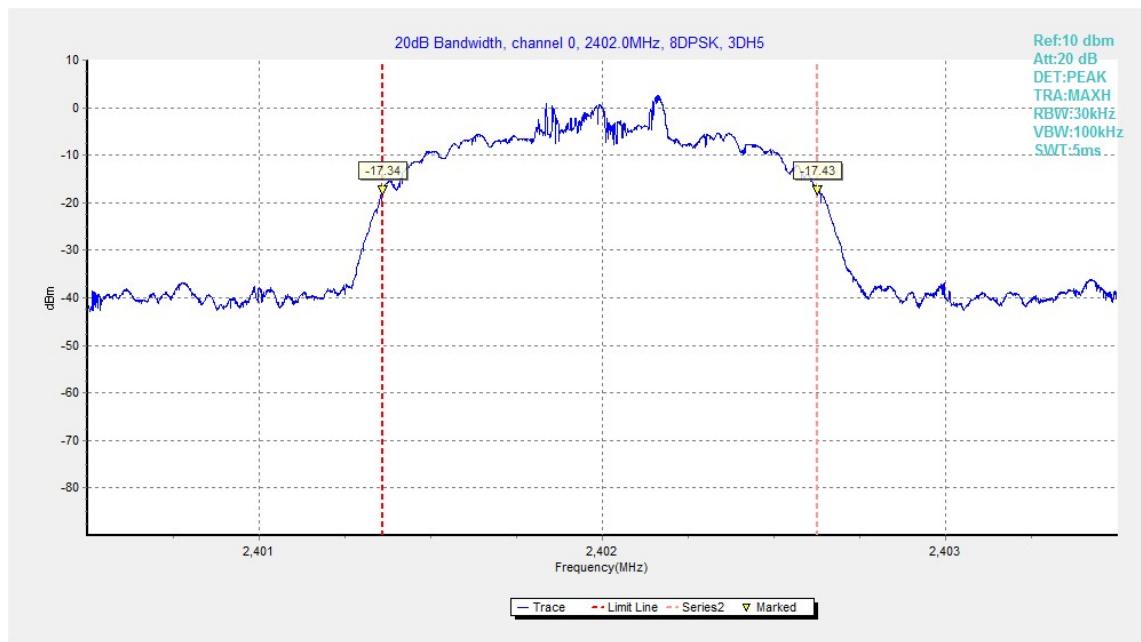


Fig.104. 20dB Bandwidth: 8DPSK, Channel 0

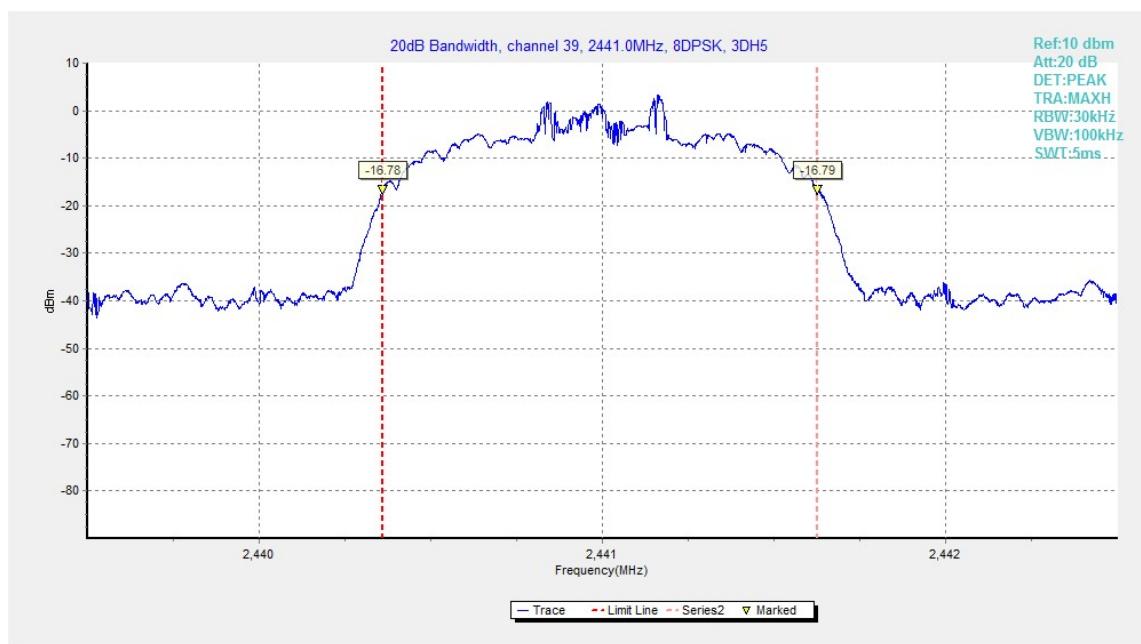


Fig.105. 20dB Bandwidth: 8DPSK, Channel 39

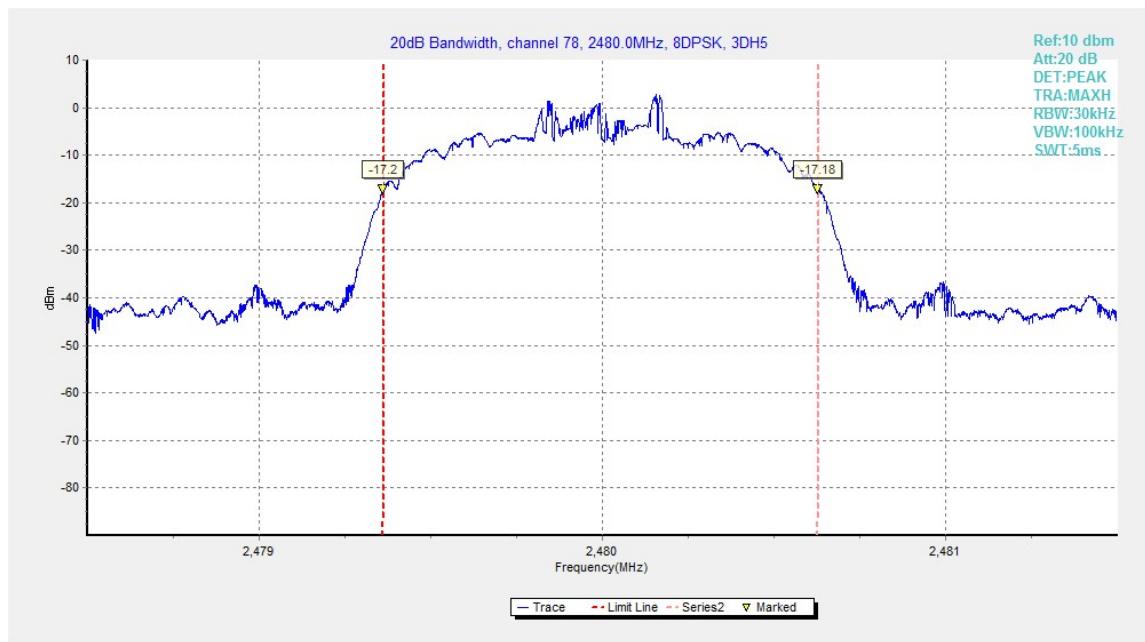


Fig.106. 20dB Bandwidth: 8DPSK, Channel 78

## A.8. Carrier Frequency Separation

### Method of Measurement: See ANSI C63.10-clause 7.8.2

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

- Span = 3MHz
- RBW=300kHz
- VBW=300kHz
- Sweep = auto
- Detector function = peak
- Trace = max hold
- Allow the trace to stabilize

Search the peak marks of the middle frequency and adjacent channel, then record the separation between them.

\* Comment: This limit should be over 25 kHz or  $(2/3) * 20\text{dB}$  bandwidth, whichever is greater.

#### Measurement Limit:

Standard	Limit(kHz)
FCC 47 CFR Part 15.247(a)(1)	over 25 kHz or $(2/3) * 20\text{dB}$ bandwidth

#### Measurement Result:

##### For GFSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.107	1124.00	P

##### For $\pi/4$ DQPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.108	1325.00	P

##### For 8DPSK

Channel	Carrier frequency separation (kHz)		Conclusion
39	Fig.109	990.00	P

**Conclusion: PASS**

**Test graphs as below:**

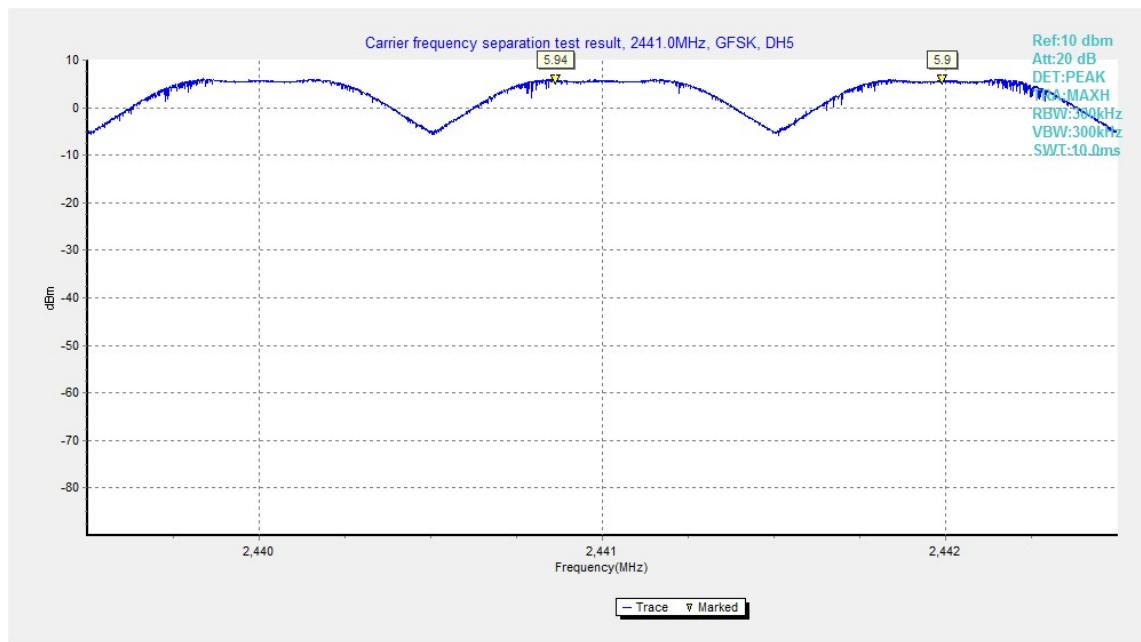


Fig.107. Carrier frequency separation measurement: GFSK, Channel 39

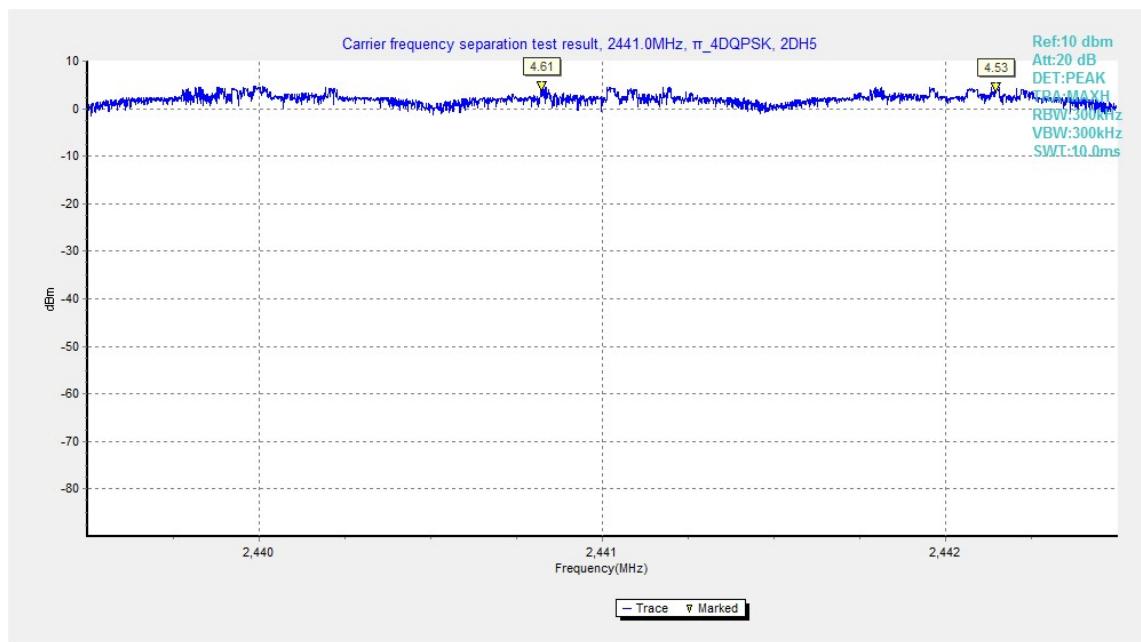


Fig.108. Carrier frequency separation measurement:  $\pi/4$  DQPSK, Channel 39

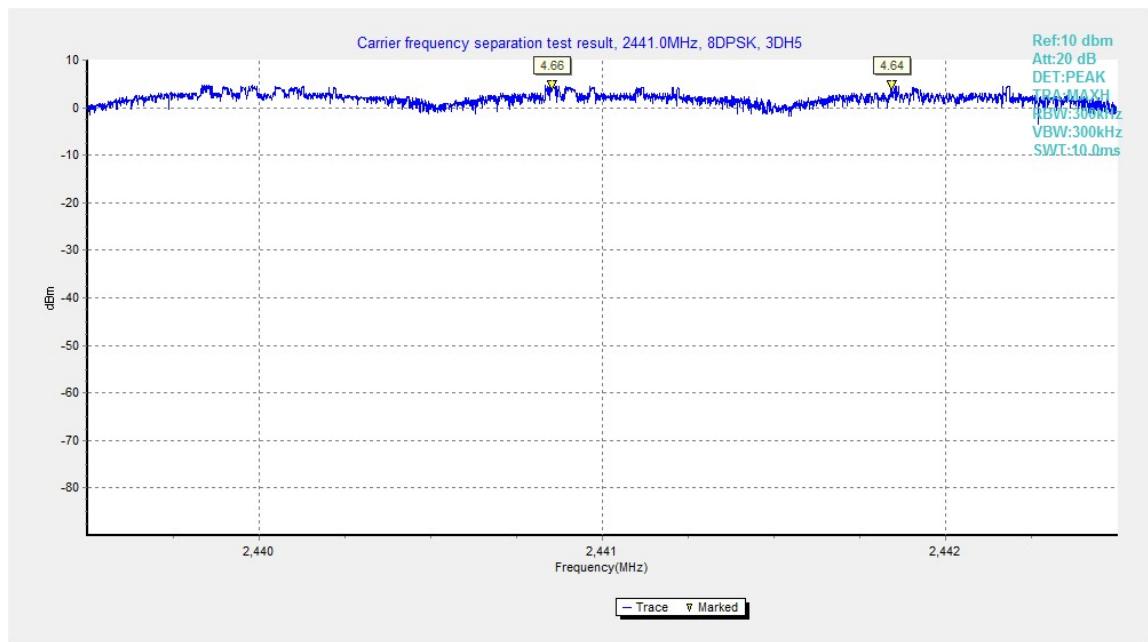


Fig.109. Carrier frequency separation measurement: 8DPSK, Channel 39

## A.9. Number of Hopping Channels

### Method of Measurement: See ANSI C63.10-clause 7.8.3

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

- Span = the frequency band of operation
- RBW = 500kHz
- VBW = 500kHz
- Sweep = auto
- Detector function = peak
- Trace = max hold
- Allow the trace to stabilize

It might prove necessary to break the span up into subranges to show clearly all of the hopping frequencies. Compliance of an EUT with the appropriate regulatory limit shall be determined for the number of hopping channels. A plot of the data shall be included in the test report.

#### Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.247(a) (1)(iii)	At least 15 non-overlapping channels

#### Measurement Result:

##### For GFSK

Channel	Number of hopping channels	Conclusion
0~39	Fig.110	
40~78	Fig.111	P

##### For 4 DQPSK

Channel	Number of hopping channels	Conclusion
0~39	Fig.112	
40~78	Fig.113	P

##### For 8DPSK

Channel	Number of hopping channels	Conclusion
0~39	Fig.114	
40~78	Fig.115	P

#### Conclusion: PASS

#### Test graphs as below:

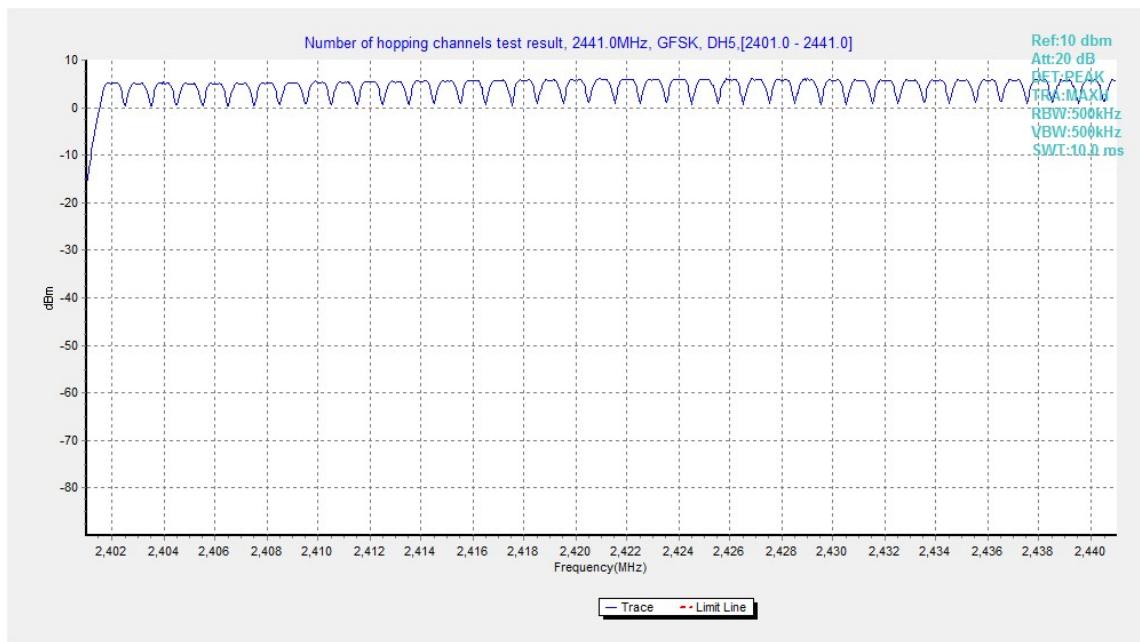


Fig.110. Number of hopping frequencies: GFSK, Channel 0 - 39

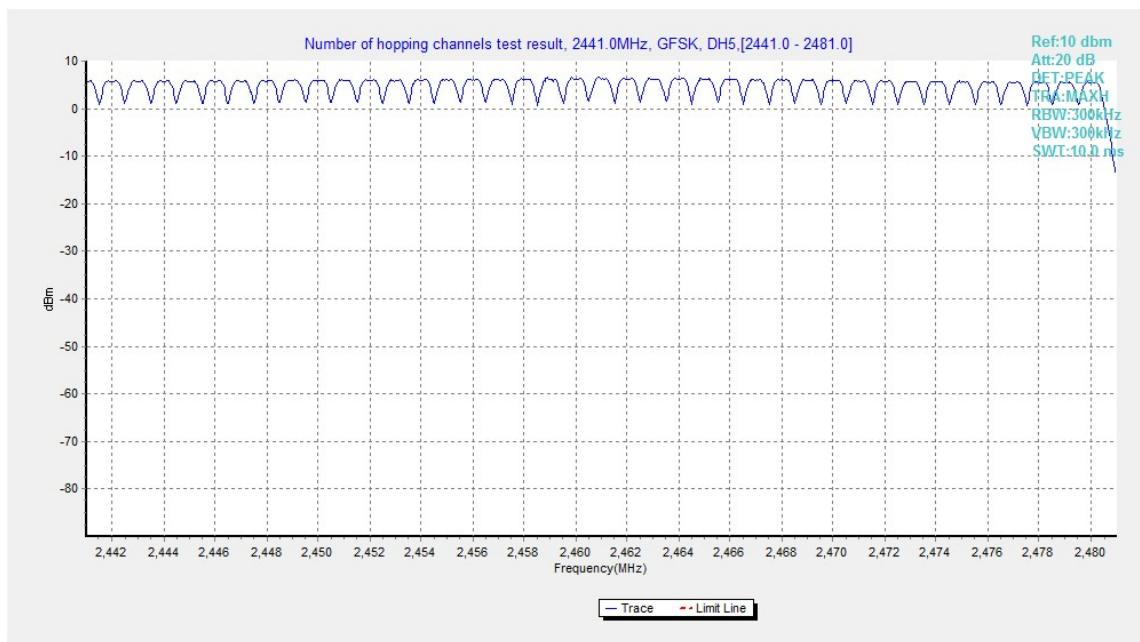
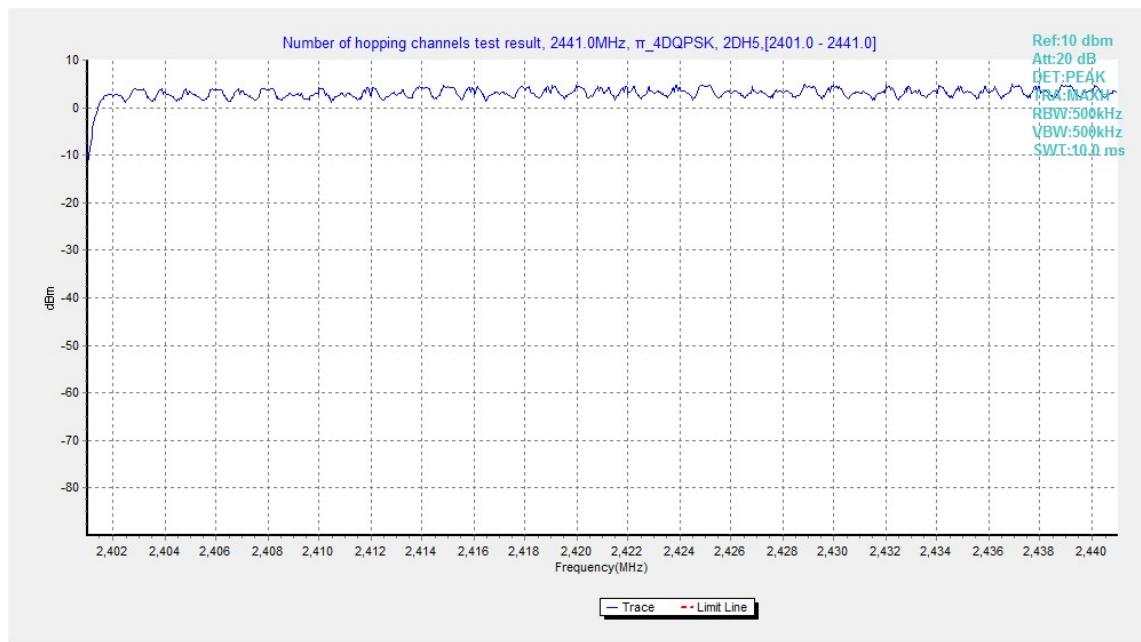
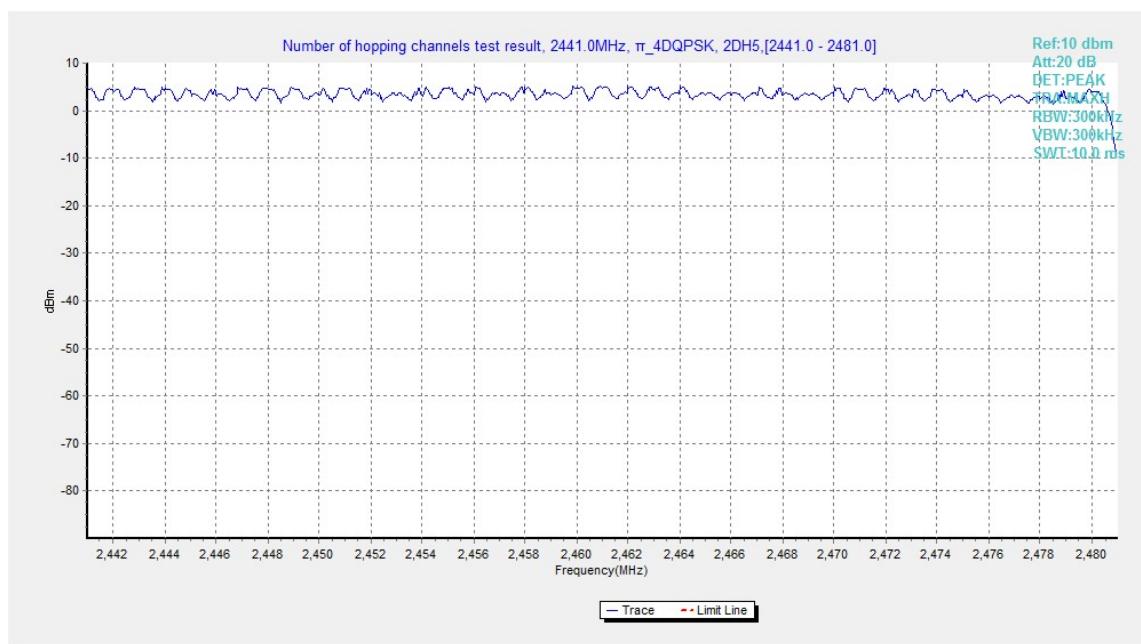


Fig.111. Number of hopping frequencies: GFSK, Channel 40 - 78


 Fig.112. Number of hopping frequencies:  $\pi/4$  DQPSK, Channel 0 - 39

 Fig.113. Number of hopping frequencies:  $\pi/4$  DQPSK, Channel 40 - 78

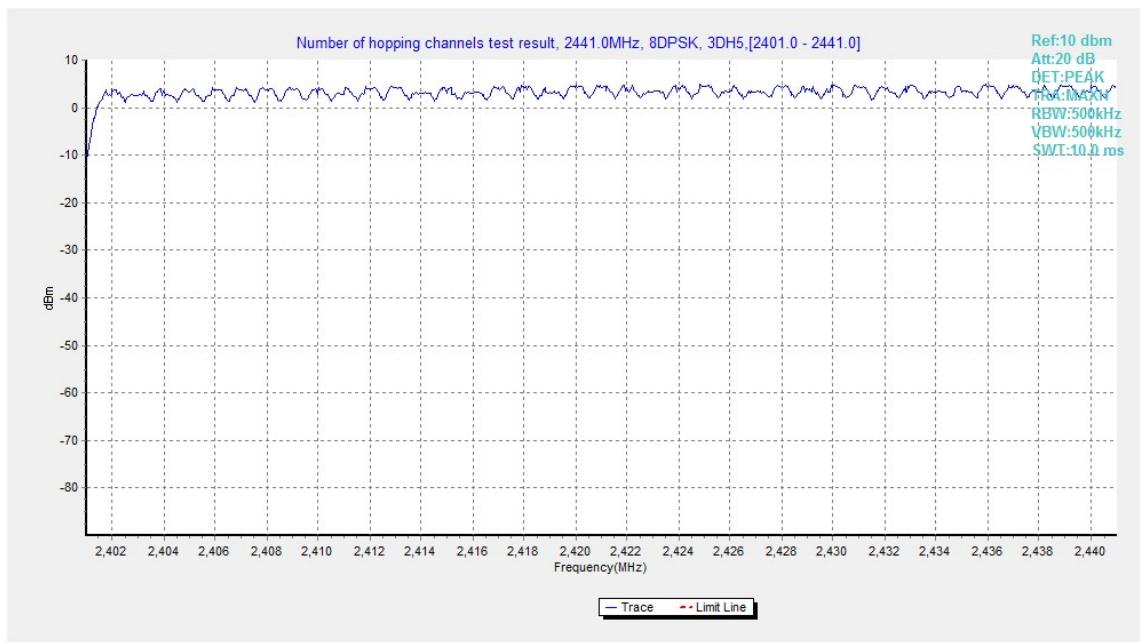


Fig.114. Number of hopping frequencies: 8DPSK, Channel 0 - 39

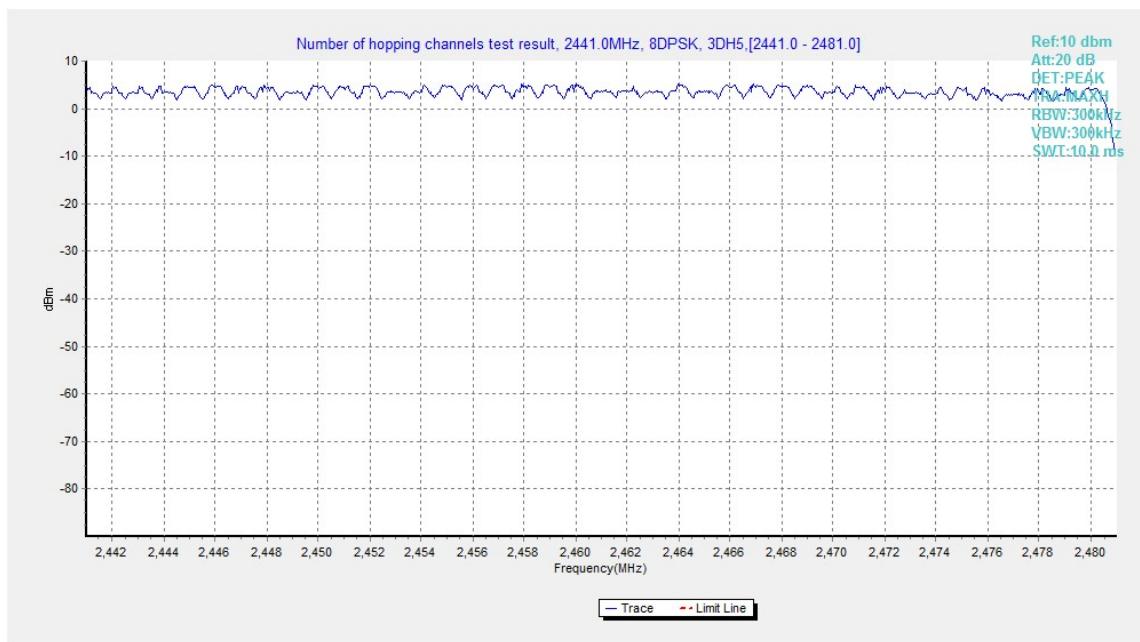


Fig.115. Number of hopping frequencies: 8DPSK, Channel 40 - 78

## A.10. AC Powerline Conducted Emission

### Test Condition

Voltage (V)	Frequency (Hz)
120	60

### Measurement Result and limit:

#### Bluetooth (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Conclusion
0.15 to 0.5	66 to 56	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.

#### Bluetooth (Average Limit)

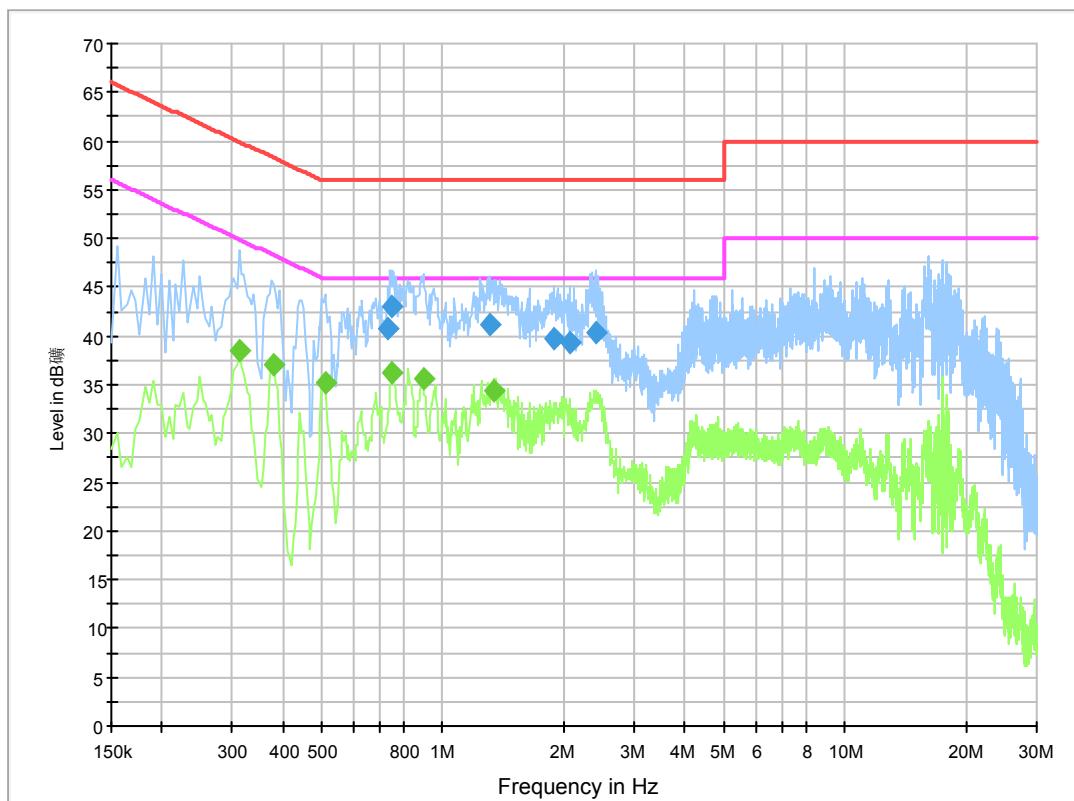
Frequency range (MHz)	Average Limit (dB $\mu$ V)	Conclusion
0.15 to 0.5	56 to 46	P
0.5 to 5	46	
5 to 30	50	

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

The measurement is made according to ANSI C63.10

**Conclusion: PASS**

**Traffic: Set.10**



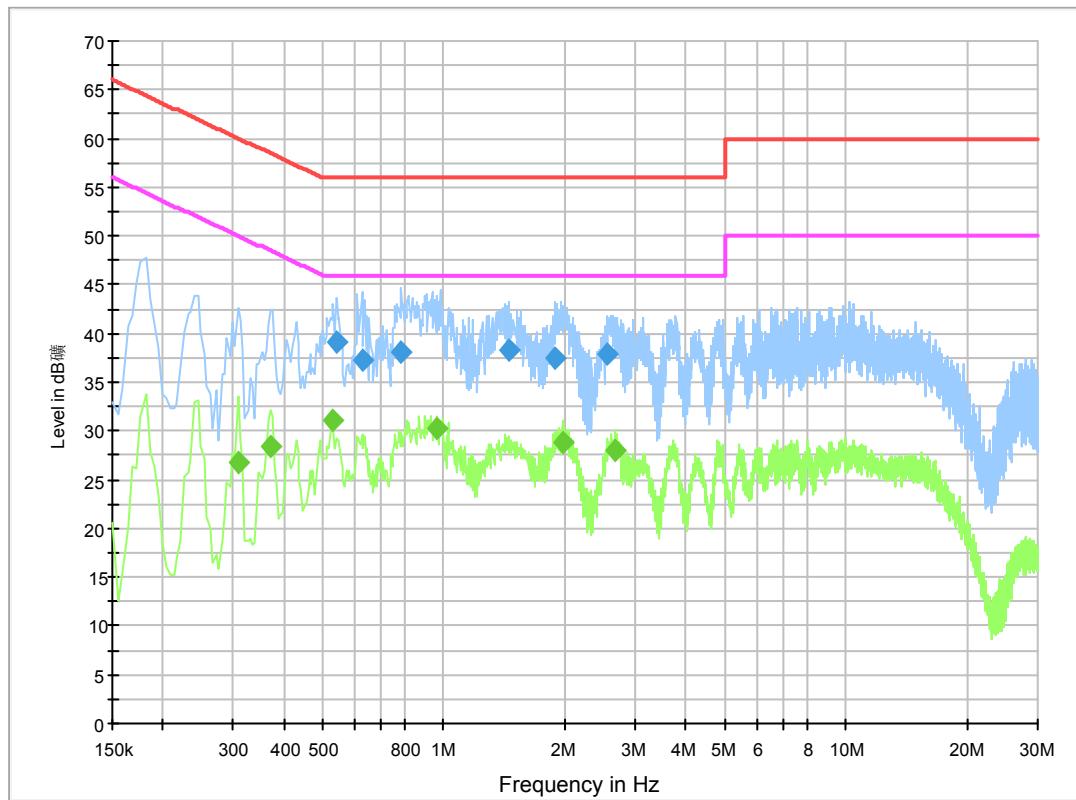
## Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.730500	40.8	GND	L1	10.3	15.2	56.0
0.748500	43.0	GND	L1	10.3	13.0	56.0
1.306500	41.2	GND	L1	10.3	14.8	56.0
1.896000	39.8	GND	L1	10.4	16.2	56.0
2.067000	39.4	GND	L1	10.4	16.6	56.0
2.395500	40.3	GND	L1	10.4	15.7	56.0

## Final Result 2

Frequency (MHz)	Average (dBµV)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.312000	38.4	GND	L1	10.3	11.5	49.9
0.379500	37.0	GND	L1	10.3	11.2	48.3
0.510000	35.1	GND	L1	10.3	10.9	46.0
0.748500	36.3	GND	L1	10.3	9.7	46.0
0.892500	35.7	GND	L1	10.3	10.3	46.0
1.342500	34.4	GND	L1	10.3	11.6	46.0

Traffic: Set.11



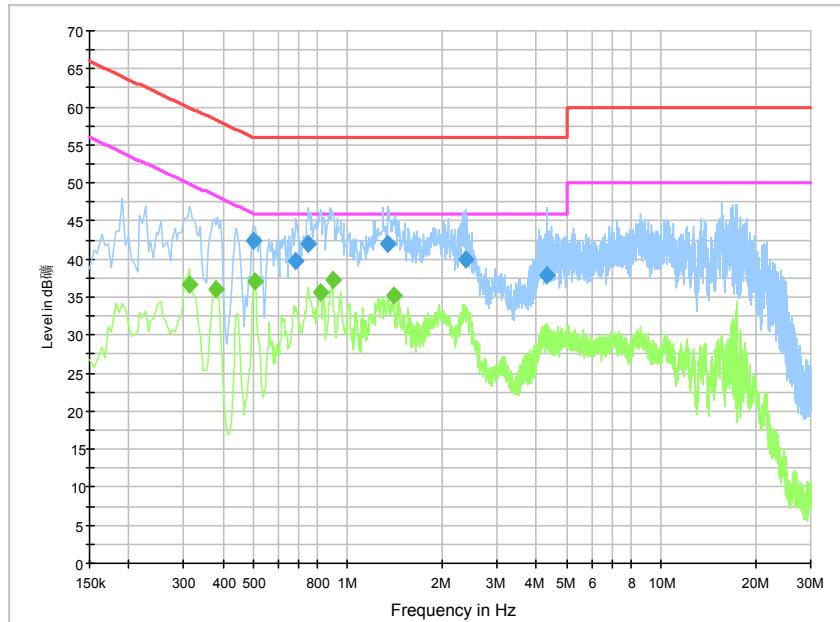
## Final Result 1

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.541500	39.1	GND	L1	10.3	16.9	56.0
0.627000	37.3	GND	L1	10.3	18.7	56.0
0.784500	38.2	GND	L1	10.3	17.8	56.0
1.455000	38.2	GND	L1	10.3	17.8	56.0
1.887000	37.5	GND	L1	10.4	18.5	56.0
2.562000	37.9	GND	L1	10.4	18.1	56.0

## Final Result 2

Frequency (MHz)	Average (dB $\mu$ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.307500	26.8	GND	L1	10.3	23.2	50.0
0.370500	28.4	GND	L1	10.3	20.1	48.5
0.528000	31.1	GND	L1	10.3	14.9	46.0
0.964500	30.3	GND	L1	10.3	15.7	46.0
1.990500	28.9	GND	L1	10.4	17.1	46.0
2.679000	28.0	GND	L1	10.4	18.0	46.0

Idle: Set.10



## Final Result 1

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.501000	42.4	GND	L1	10.3	13.6	56.0
0.685500	39.7	GND	L1	10.3	16.3	56.0
0.748500	42.1	GND	L1	10.3	13.9	56.0
1.347000	42.0	GND	L1	10.3	14.0	56.0
2.368500	39.9	GND	L1	10.4	16.1	56.0
4.317000	37.9	GND	L1	10.5	18.1	56.0

## Final Result 2

Frequency (MHz)	Average (dB $\mu$ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.312000	36.7	GND	L1	10.3	13.3	49.9
0.379500	36.1	GND	L1	10.3	12.2	48.3
0.505500	37.0	GND	L1	10.3	9.0	46.0
0.820500	35.6	GND	L1	10.3	10.4	46.0
0.892500	37.3	GND	L1	10.3	8.7	46.0
1.401000	35.3	GND	L1	10.3	10.7	46.0

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