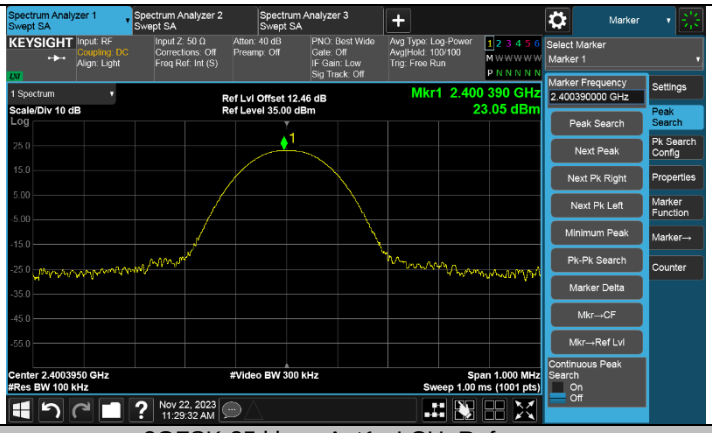
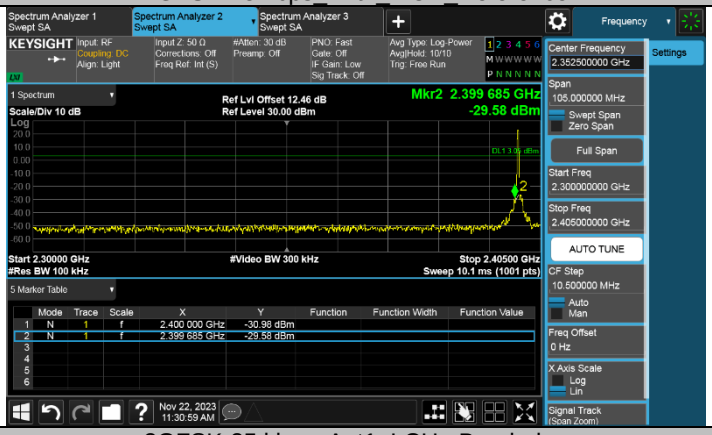
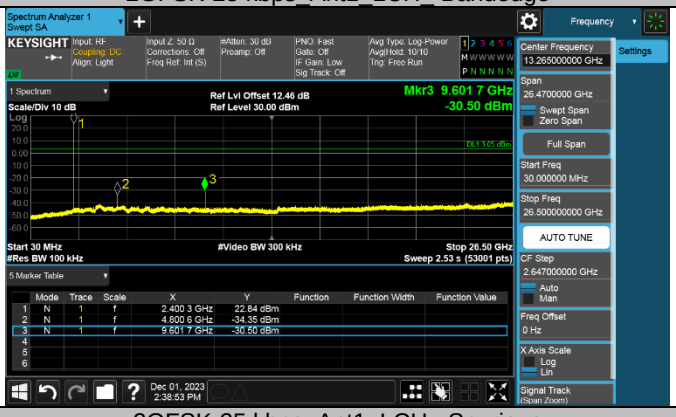
### 11.6.2. Test Graphs



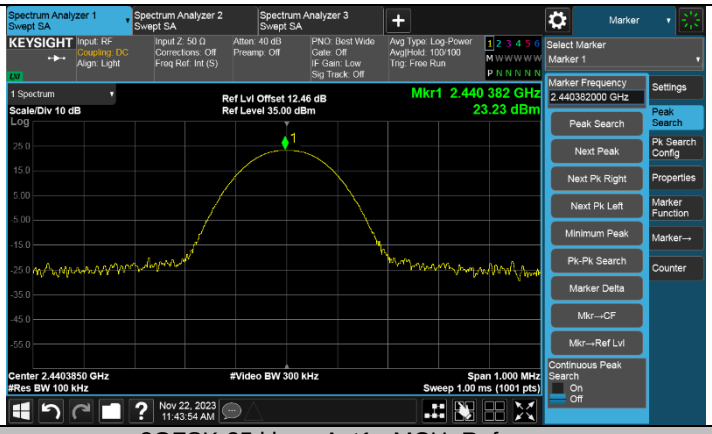

2GFSK-25 kbps_Ant1_ LCH_Reference




2GFSK-25 kbps_Ant1_ LCH_ Bandedge

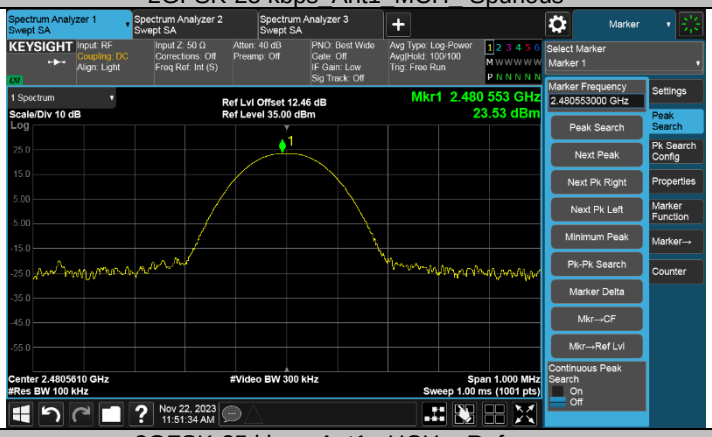



2GFSK-25 kbps_Ant1_LCH_ Spurious

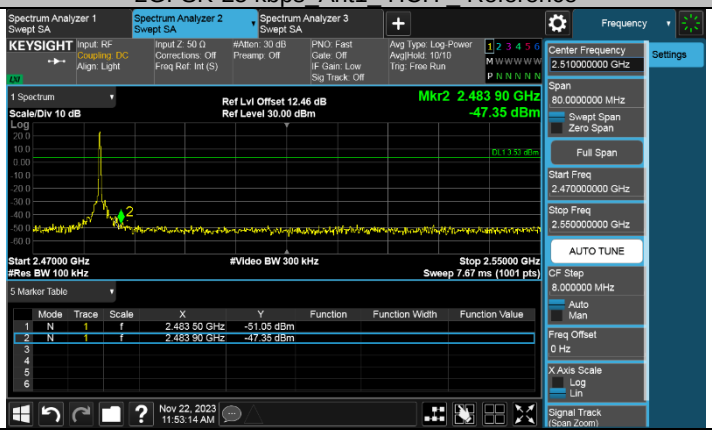


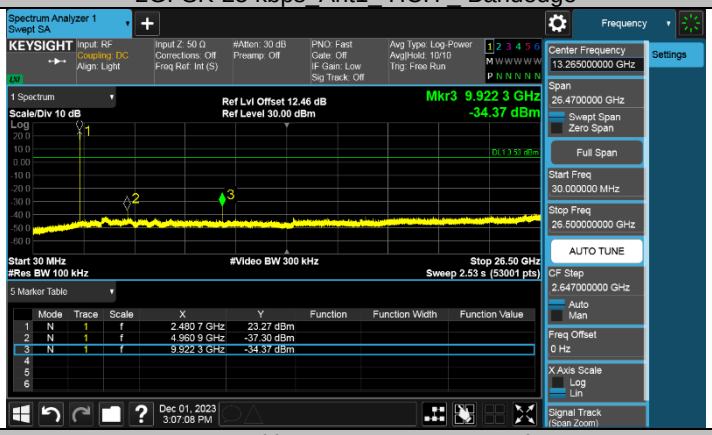

2GFSK-25 kbps_Ant1_MCH_Reference

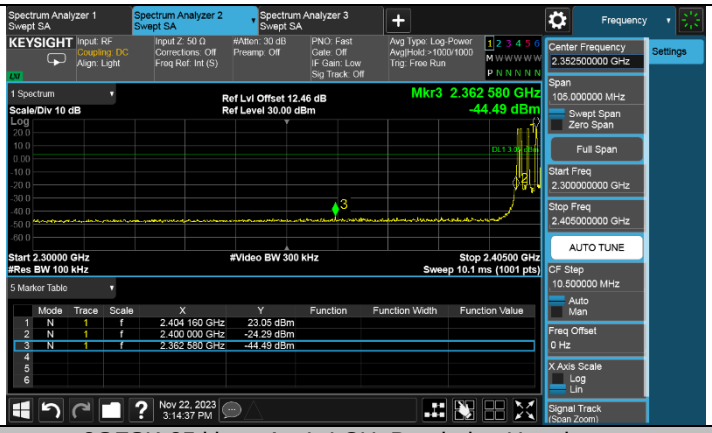

2GFSK-25 kbps_Ant1_MCH_Spurious



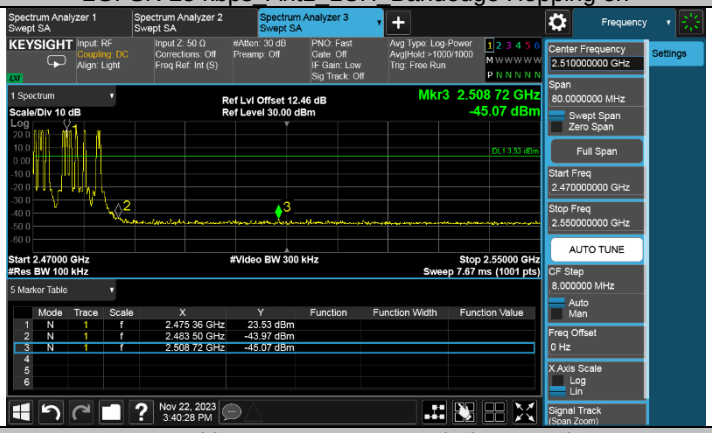

2GFSK-25 kbps_Ant1_HCH_Reference



| 2GFSK-25 kbps_Ant1_ HCH _ Bandedge |
| --- |
|  |
| 2GFSK-25 kbps_Ant1_ HCH _ Spurious |




2GFSK-25 kbps_Ant1_LCH_Bandedge Hopping on




2GFSK-25 kbps_Ant1_HCH_Bandedge Hopping on

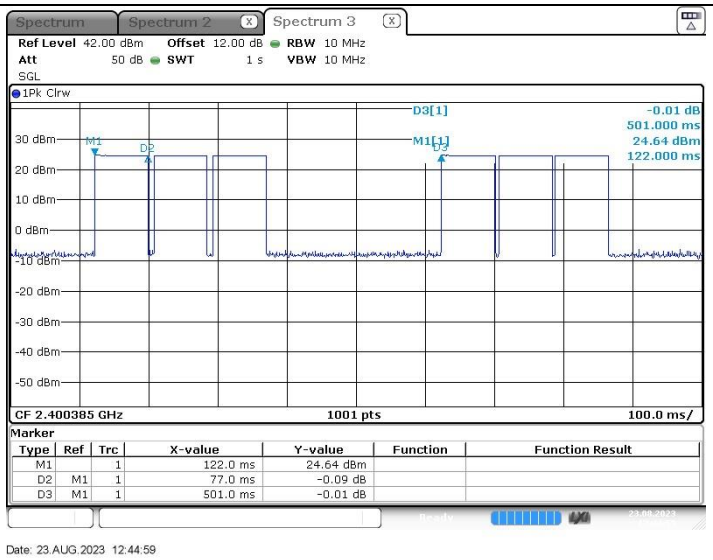
## 11.7. Appendix G1: Duty Cycle

### 11.7.1. Test Result

| Test Mode | On Time (msec) | Period (msec) | Duty Cycle x (Linear) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | 1/T Minimum VBW (kHz) | Final setting For VBW (kHz) |
|---|---|---|---|---|---|---|---|
| 2GFSK-25 kbps | 231 | 501 | 0.4611 | 46.11% | 3.36 | 0.0043 | 0.01 |

Note:
Duty Cycle Correction Factor=10log (1/x).
Where: x is Duty Cycle (Linear)
Where: T is On Time
On Time=D2*3=77*3=231 ms
If that calculated VBW is not available on the analyzer then the next higher value should be used.

## 11.7.2. Test Graphs




2GFSK-25 kbpskbps_Ant1

# 12. FCC.2400M.2GFSK.40kbps

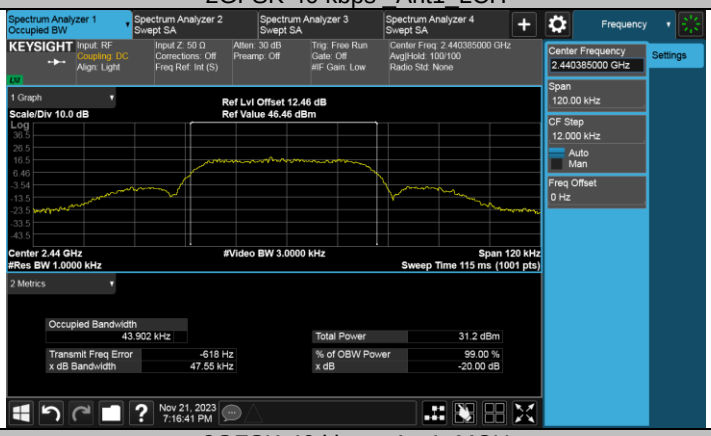
## 12.1. Appendix A2: 20dB Emission Bandwidth and Occupied Channel Bandwidth

### 12.1.1. Test Result

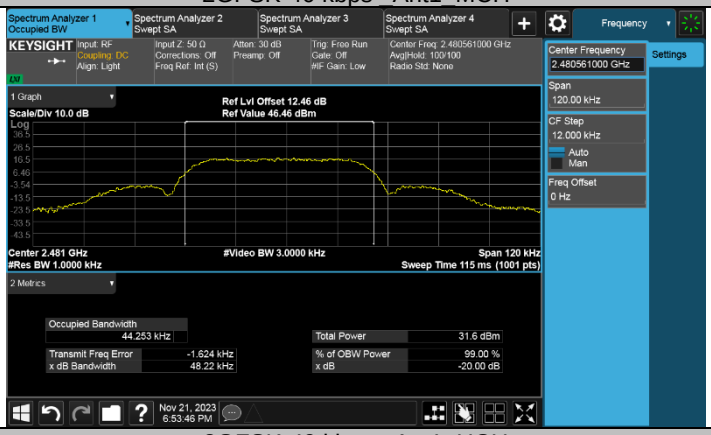
| Test Mode | Antenna | Channel | 20db EBW[MHz] | OCB [MHz] | Verdict |
|---|---|---|---|---|---|
| 2GFSK-40 kbps | Ant1 | LCH | 0.04830 | 0.044085 | PASS |
| | | MCH | 0.04755 | 0.043902 | PASS |
| | | HCH | 0.04822 | 0.044253 | PASS |

## 12.1.2. Test Graphs


2GFSK-40 kbps _Ant1_LCH




2GFSK-40 kbps _Ant1_MCH




2GFSK-40 kbps _Ant1_HCH

## 12.2. Appendix B2: Maximum conducted output power

### 12.2.1. Test Result

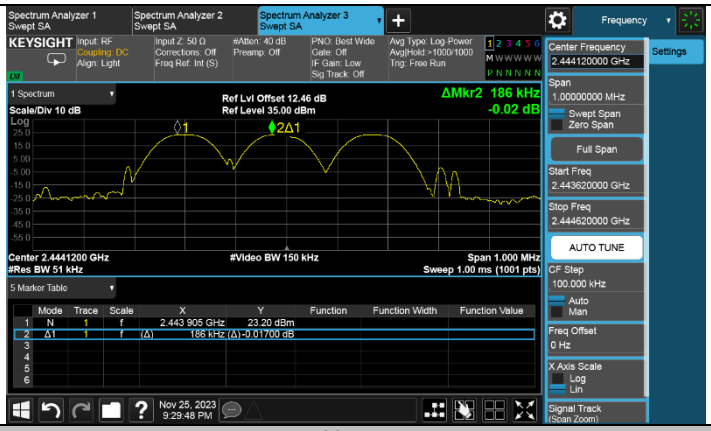
| Test Mode | Antenna | Channel | PEAK Result[dBm] | AVG Result[dBm] | Limit[dBm] | Verdict |
|---|---|---|---|---|---|---|
| 2GFSK-40 kbps | Ant1 | LCH | 24.37 | 24.21 | ≤30 | PASS |
| | | MCH | 24.14 | 23.99 | ≤30 | PASS |
| | | HCH | 24.68 | 24.55 | ≤30 | PASS |

## 12.3. Appendix C2: Carrier frequency separation

### 12.3.1. Test Result

| Test Mode | Antenna | Channel | Result [MHz] | Limit [MHz] | Verdict |
|---|---|---|---|---|---|
| 2GFSK-40 kbps | Ant1 | Hop | 0.186 | ≥0.04830 | PASS |

## 12.3.2. Test Graphs




2GFSK-40 kbps _Ant1_HOP

## 12.4. Appendix D2: Time of occupancy

### 12.4.1. Test Result

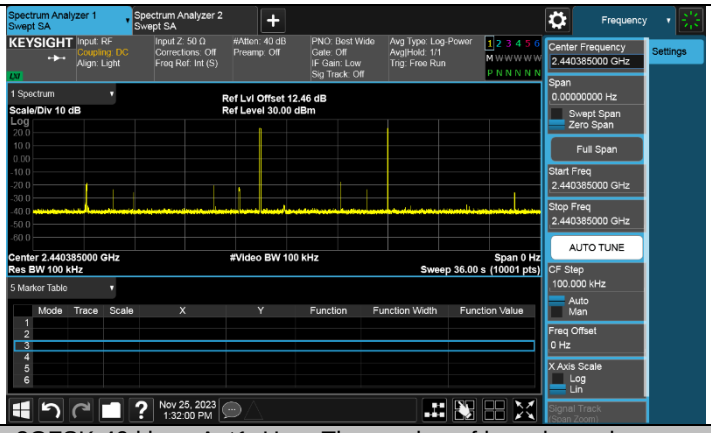
| Test Mode | Antenna | Channel | Time of single slot 1 [ms] | number of single slot 1 | Burst Width 1 [ms/hop/ch] | The number of hop channel appear |
|---|---|---|---|---|---|---|
| 2GFSK-40 kbps | Ant1 | Hop | 14.20 | 6 | 85.20 | 1 |

| Test Mode | Antenna | Channel | Time of single slot 2 [ms] | number of single slot 2 | Burst Width 2 [ms/hop/ch] | The number of hop channel appear |
|---|---|---|---|---|---|---|
| 2GFSK-40 kbps | Ant1 | Hop | 8.40 | 1 | 8.40 | 1 |

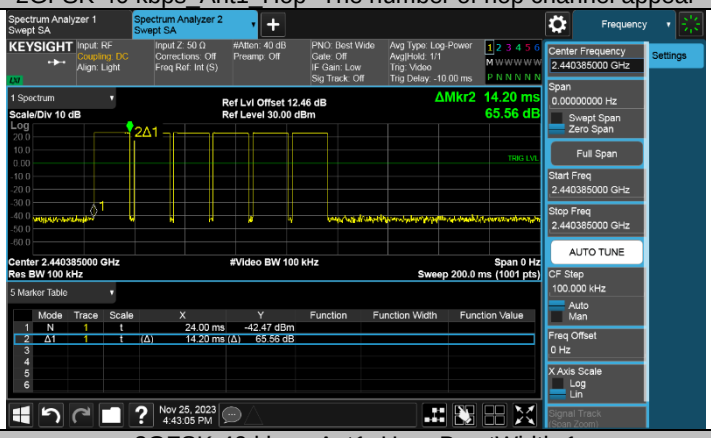
| Test Mode | Antenna | Channel | Dwell Time1 [ms] | Dwell Time 2 [ms] | Dwell Time [ms] | Limit [ms] | Results |
|---|---|---|---|---|---|---|---|
| 2GFSK-40 kbps | Ant1 | Hop | 85.20 | 8.40 | 93.60 | 400 | PASS |

Note:
2GFSK-40 kbps: The dwell time = Time of single slot * The number of hop channel appear within (0.4 * the number of hopping channels employed)s
BurstWidth =Time of single slot*number of single slot

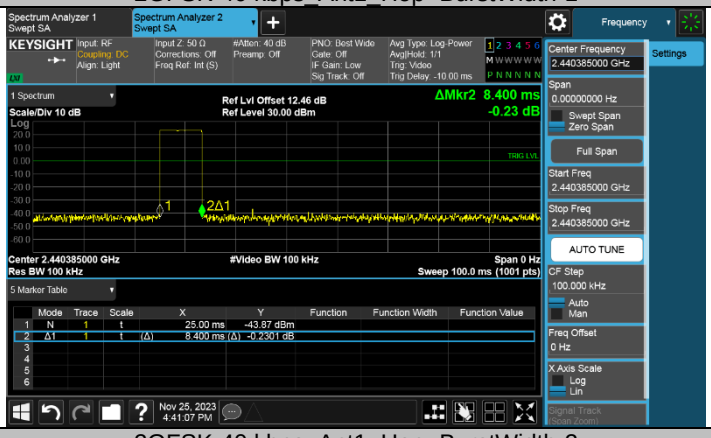
## 12.4.2. Test Graphs




2GFSK-40 kbps_Ant1_Hop- The number of hop channel appear




2GFSK-40 kbps_Ant1_Hop- BurstWidth-1




2GFSK-40 kbps_Ant1_Hop- BurstWidth-2

## 12.5. Appendix E2: Number of hopping channels

### 12.5.1. Test Result

| Test Mode | Antenna | Channel | Result[Num] | Limit[Num] | Verdict |
|---|---|---|---|---|---|
| 2GFSK-40 kbps | Ant1 | Hop | 90 | ≥15 | PASS |

## 12.5.2. Test Graphs

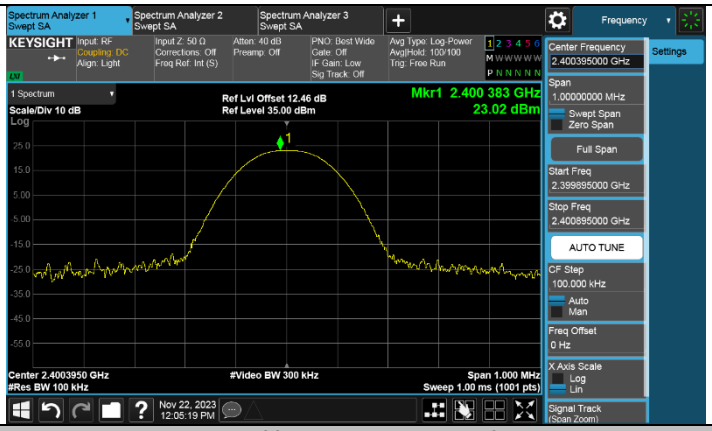

2GFSK-40 kbps_Ant1_Hop

## 12.6. Appendix F2: Band edge measurements& Conducted Spurious Emission

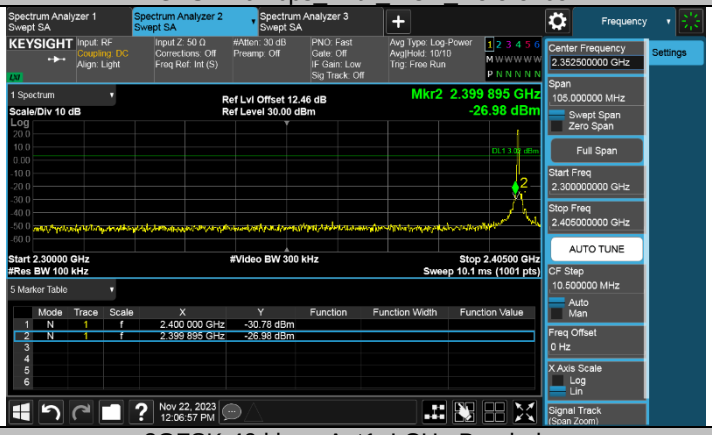
### 12.6.1. Test Result

| Test Mode | Antenna | ChName | Result [dBm] | Verdict |
|---|---|---|---|---|
| 2GFSK-40 kbps | Ant1 | LCH | See the below graphs | PASS |
| | | MCH | | PASS |
| | | HCH | | PASS |
| | | Hop_ LCH | | PASS |
| | | Hop_ HCH | | PASS |

### 12.6.2. Test Graphs

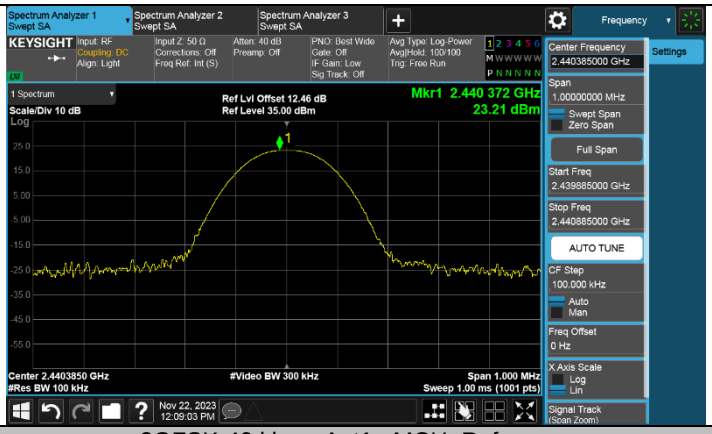



2GFSK-40 kbps_Ant1_ LCH_Reference

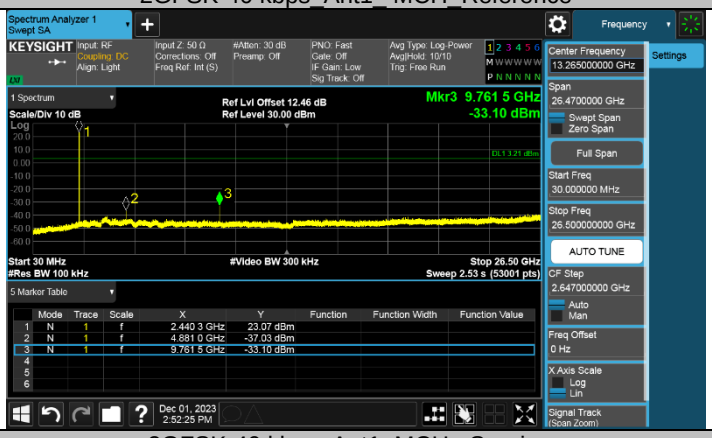



2GFSK-40 kbps_Ant1_ LCH_ Bandedge

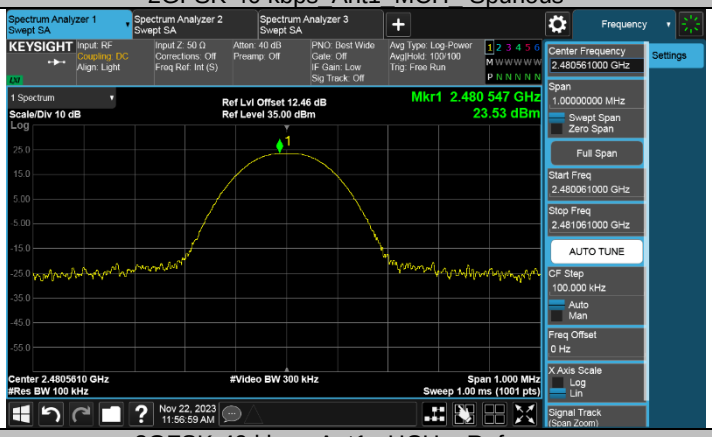

2GFSK-40 kbps_Ant1_LCH_ Spurious



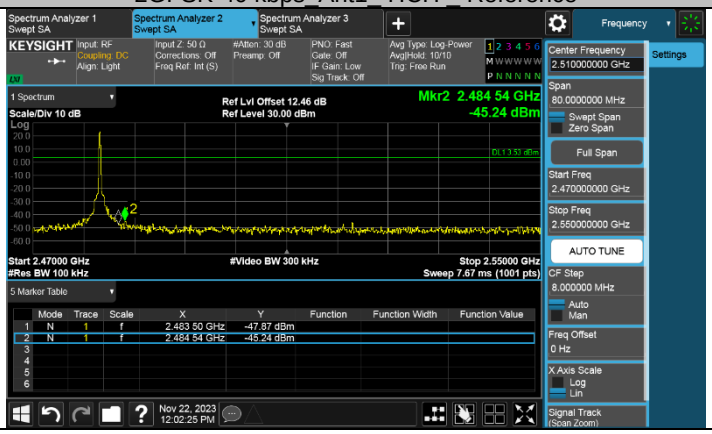

2GFSK-40 kbps_Ant1_MCH_Reference

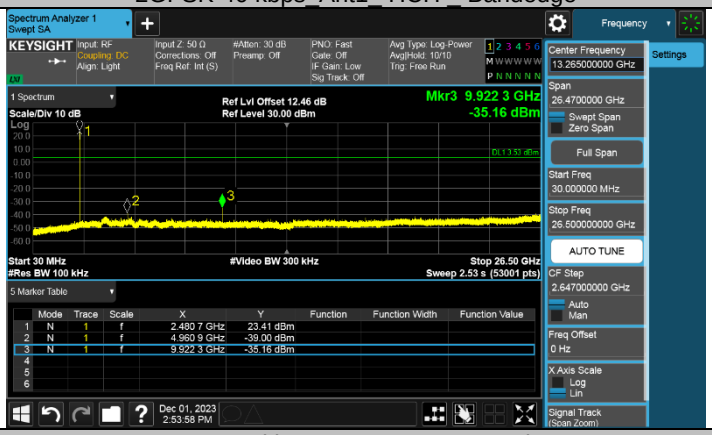


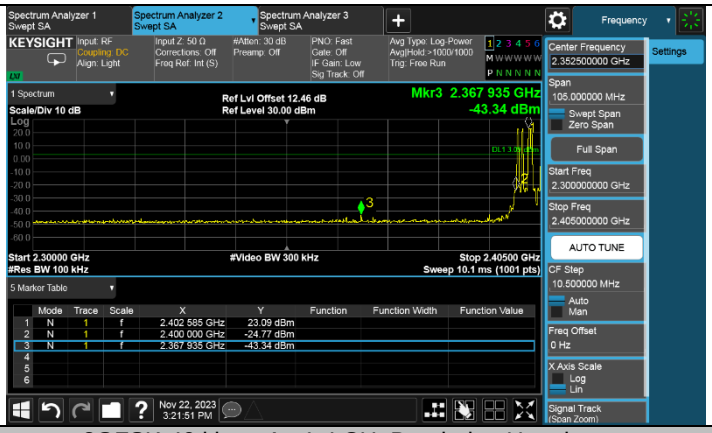

2GFSK-40 kbps_Ant1_MCH_Spurious



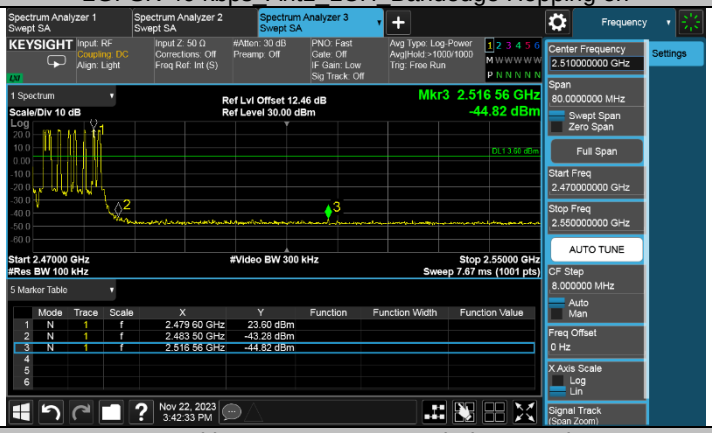

2GFSK-40 kbps_Ant1_HCH_Reference



| 2GFSK-40 kbps_Ant1_ HCH _ Bandedge |
| --- |
|  |
| 2GFSK-40 kbps_Ant1_ HCH _ Spurious |




2GFSK-40 kbps_Ant1_LCH_Bandedge Hopping on




2GFSK-40 kbps_Ant1_HCH_Bandedge Hopping on

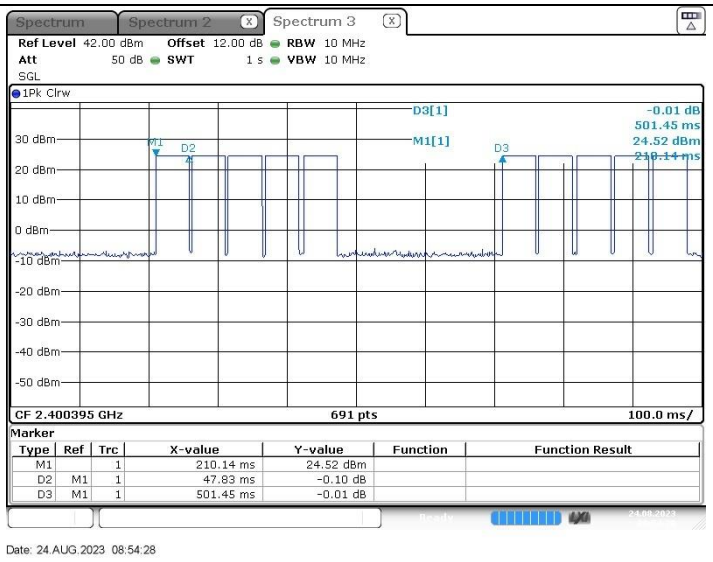
## 12.7. Appendix G2: Duty Cycle

### 12.7.1. Test Result

| Test Mode | On Time (msec) | Period (msec) | Duty Cycle x (Linear) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | 1/T Minimum VBW (kHz) | Final setting For VBW (kHz) |
|---|---|---|---|---|---|---|---|
| 2GFSK-40 kbps | 239.15 | 501.45 | 0.4769 | 47.69% | 3.22 | 0.0042 | 0.01 |

Note:
Duty Cycle Correction Factor=10log (1/x).
Where: x is Duty Cycle (Linear)
Where: T is On Time
On Time=D2*3=47.83*5=239.15 ms
If that calculated VBW is not available on the analyzer then the next higher value should be used.

## 12.7.2. Test Graphs




2GFSK-40 kbpskbps_Ant1

# 13. FCC.2400M.2GFSK.60kbps

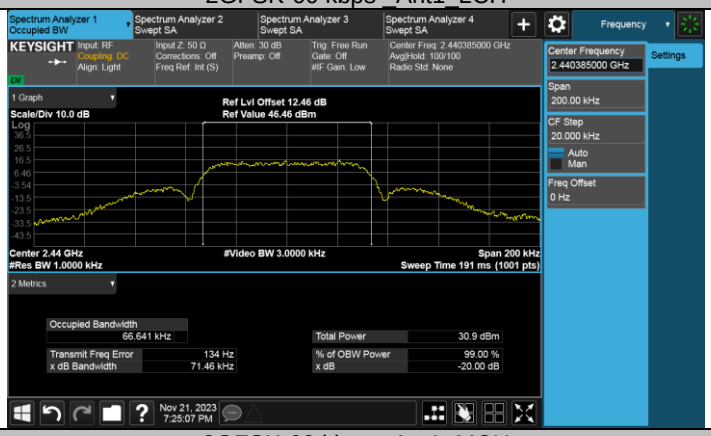
## 13.1. Appendix A3: 20dB Emission Bandwidth and Occupied Channel Bandwidth

### 13.1.1. Test Result

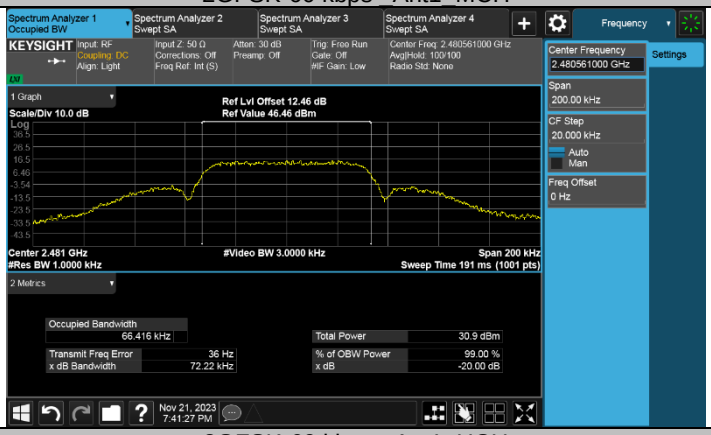
| Test Mode | Antenna | Channel | 20db EBW[MHz] | OCB [MHz] | Verdict |
|---|---|---|---|---|---|
| 2GFSK-60 kbps | Ant1 | LCH | 0.07135 | 0.066605 | PASS |
| | | MCH | 0.07146 | 0.066641 | PASS |
| | | HCH | 0.07222 | 0.066416 | PASS |

## 13.1.2. Test Graphs


2GFSK-60 kbps _Ant1_LCH




2GFSK-60 kbps _Ant1_MCH




2GFSK-60 kbps _Ant1_HCH

## 13.2. Appendix B3: Maximum conducted output power

### 13.2.1. Test Result

| Test Mode | Antenna | Channel | PEAK Result[dBm] | AVG Result[dBm] | Limit[dBm] | Verdict |
|---|---|---|---|---|---|---|
| 2GFSK-60 kbps | Ant1 | LCH | 24.49 | 24.24 | ≤30 | PASS |
| | | MCH | 24.25 | 24.06 | ≤30 | PASS |
| | | HCH | 24.78 | 24.64 | ≤30 | PASS |

## 13.3. Appendix C3: Carrier frequency separation

### 13.3.1. Test Result

| Test Mode | Antenna | Channel | Result [MHz] | Limit [MHz] | Verdict |
|---|---|---|---|---|---|
| 2GFSK-60 kbps | Ant1 | Hop | 0.377 | ≥0.07222 | PASS |

## 13.3.2. Test Graphs


2GFSK-60 kbps _Ant1_HOP

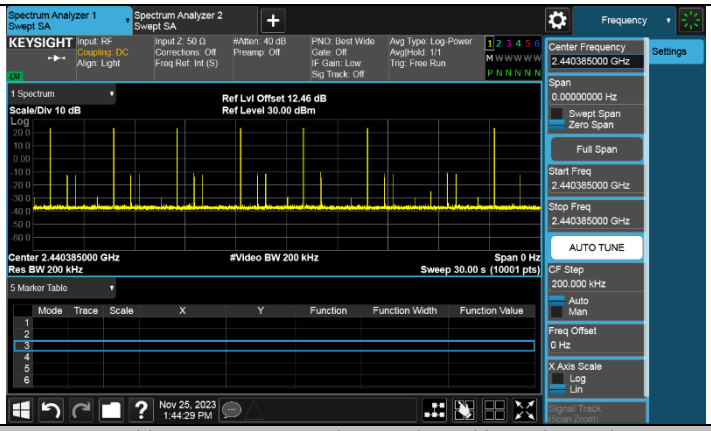
## 13.4. Appendix D3: Time of occupancy

### 13.4.1. Test Result

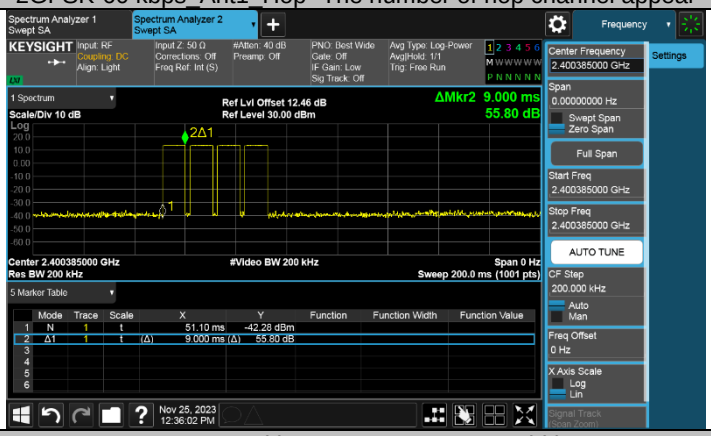
| FHSS Mode | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test Mode | Antenna | Channel | Time of single slot [ms] | number of single slot | BurstWidth [ms] | The number of hop channel appear | Result[ms] | Limit[ms] | Verdict |
| 2GFSK-60 kbps | Ant1 | Hop | 9.00 | 4 | 36.00 | 7 | 252.00 | <=400 | PASS |

Note:
2GFSK-60 kbps: The dwell time = Time of single slot * The number of hop channel appear within (0.4 * the number of hopping channels employed)s
BurstWidth =Time of single slot*number of single slot

## 13.4.2. Test Graphs




2GFSK-60 kbps_Ant1_Hop- The number of hop channel appear



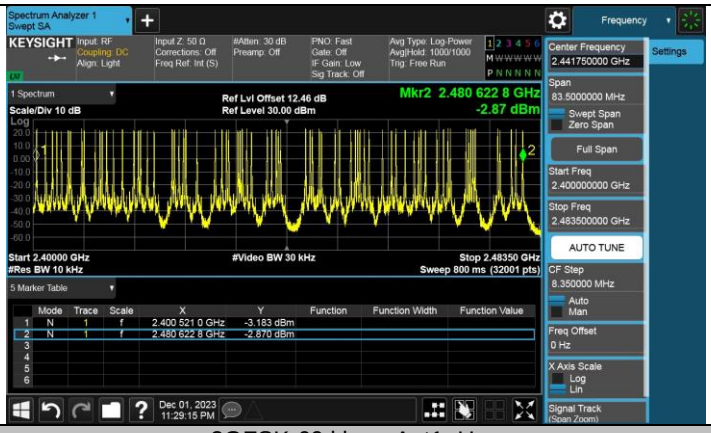

2GFSK-60 kbps_Ant1_Hop- BurstWidth

## 13.5. Appendix E3: Number of hopping channels

### 13.5.1. Test Result

| Test Mode | Antenna | Channel | Result[Num] | Limit[Num] | Verdict |
|---|---|---|---|---|---|
| 2GFSK-60 kbps | Ant1 | Hop | 75 | ≥15 | PASS |

### 13.5.2. Test Graphs



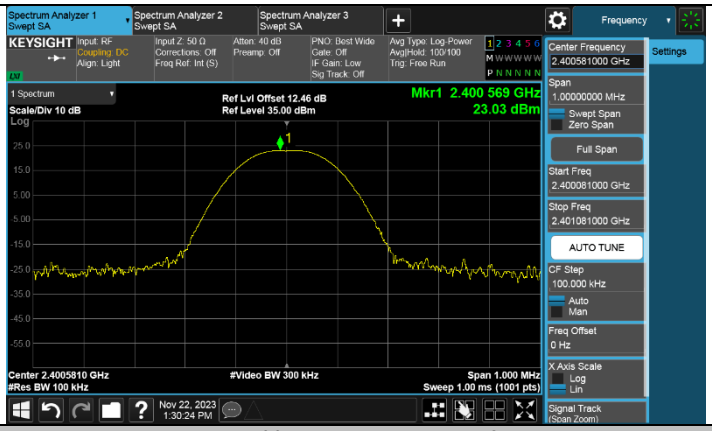

2GFSK-60 kbps_Ant1_Hop

## 13.6. Appendix F3: Band edge measurements& Conducted Spurious Emission

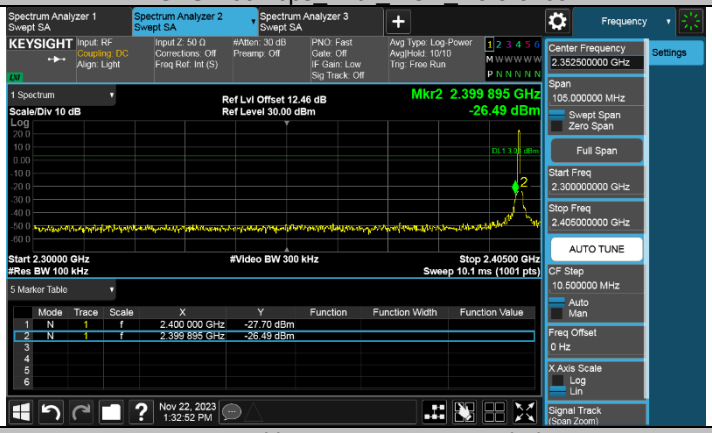
### 13.6.1. Test Result

| Test Mode | Antenna | ChName | Result [dBm] | Verdict |
|---|---|---|---|---|
| 2GFSK-60 kbps | Ant1 | LCH | See the below graphs | PASS |
| | | MCH | | PASS |
| | | HCH | | PASS |
| | | Hop_ LCH | | PASS |
| | | Hop_ HCH | | PASS |

### 13.6.2. Test Graphs

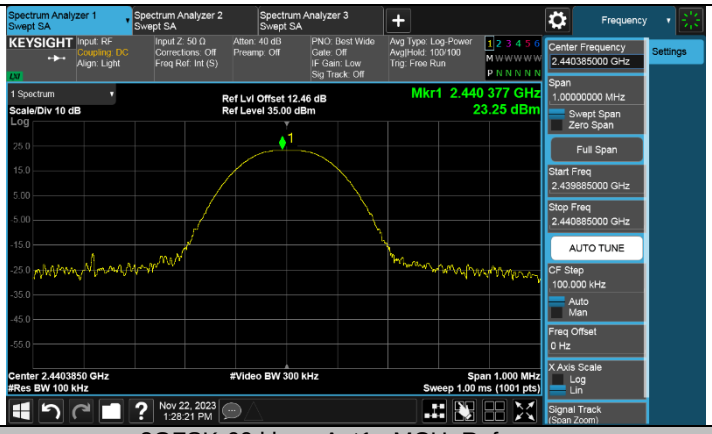



2GFSK-60 kbps_Ant1_ LCH_Reference



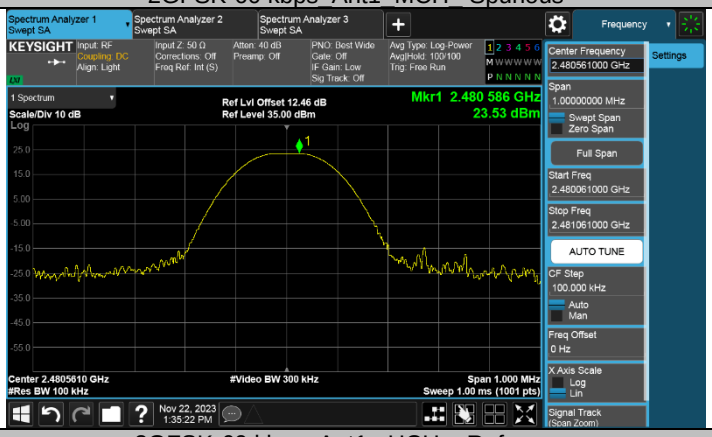

2GFSK-60 kbps_Ant1_LCH_ Bandedge


2GFSK-60 kbps_Ant1_LCH_ Spurious

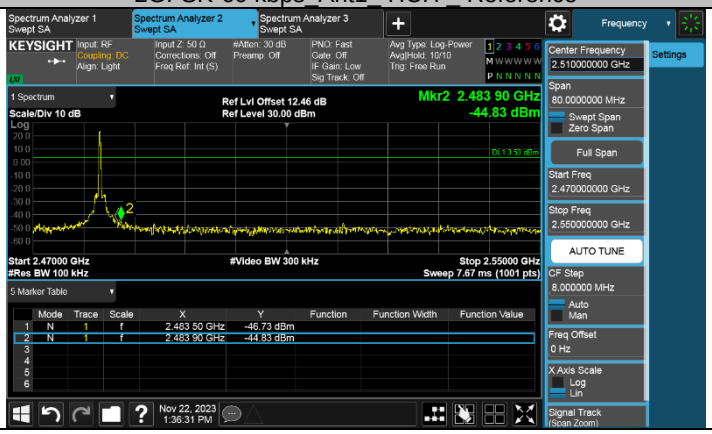


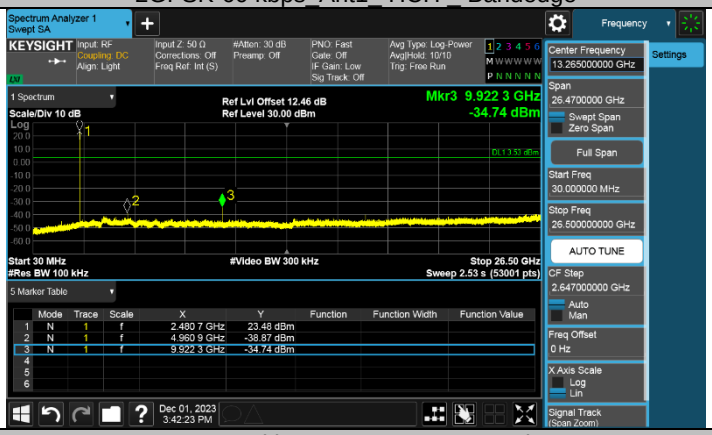

2GFSK-60 kbps_Ant1_MCH_Reference

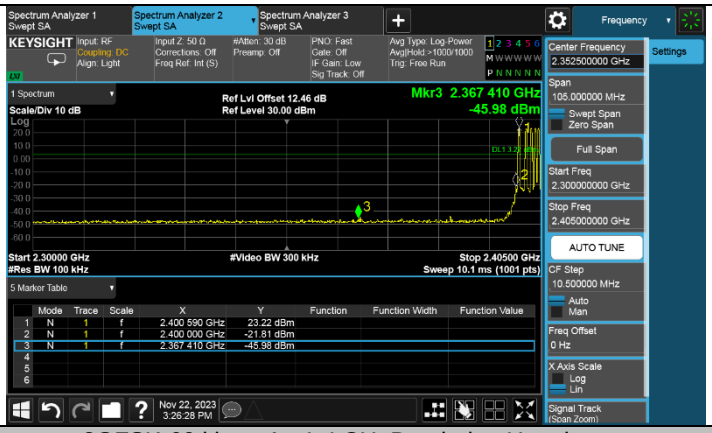

2GFSK-60 kbps_Ant1_MCH_Spurious



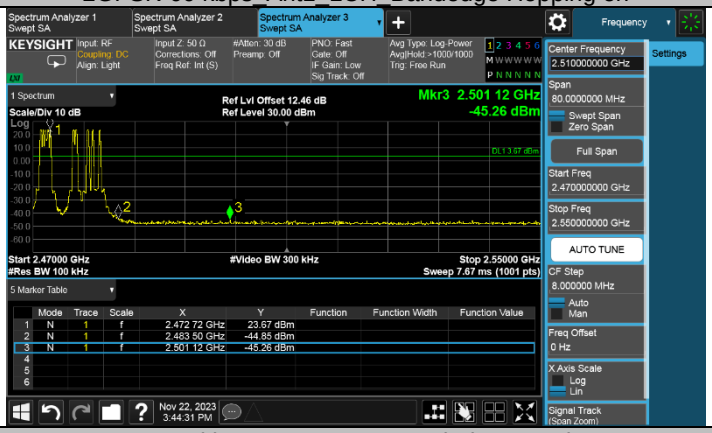

2GFSK-60 kbps_Ant1_HCH_Reference



| 2GFSK-60 kbps_Ant1_ HCH _ Bandedge |
| --- |
|  |
| 2GFSK-60 kbps_Ant1_ HCH _ Spurious |




2GFSK-60 kbps_Ant1_LCH_Bandedge Hopping on




2GFSK-60 kbps_Ant1_HCH_Bandedge Hopping on

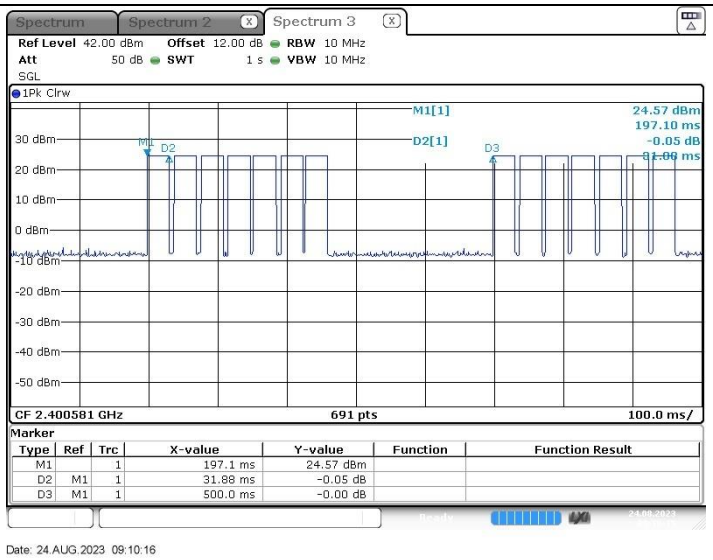
## 13.7. Appendix G3: Duty Cycle

### 13.7.1. Test Result

| Test Mode | On Time (msec) | Period (msec) | Duty Cycle x (Linear) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) | 1/T Minimum VBW (kHz) | Final setting For VBW (kHz) |
|---|---|---|---|---|---|---|---|
| 2GFSK-60 kbps | 223.16 | 500.0 | 0.4463 | 44.63% | 3.50 | 0.0045 | 0.01 |

Note:
Duty Cycle Correction Factor=10log (1/x).
Where: x is Duty Cycle (Linear)
Where: T is On Time
On Time=D2*3=31.88*7=223.16 ms
If that calculated VBW is not available on the analyzer then the next higher value should be used.

## 13.7.2. Test Graphs




2GFSK-60 kbpskbps_Ant1

# 14. FCC.2400M.2GFSK.96kbps

## 14.1. Appendix A4: 20dB Emission Bandwidth and Occupied Channel Bandwidth

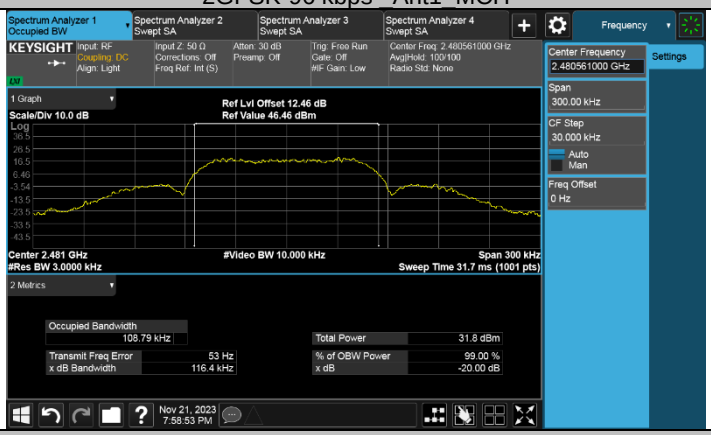
### 14.1.1. Test Result

| Test Mode | Antenna | Channel | 20db EBW[MHz] | OCB [MHz] | Verdict |
|---|---|---|---|---|---|
| 2GFSK-96 kbps | Ant1 | LCH | 0.1161 | 0.10894 | PASS |
| | | MCH | 0.1161 | 0.10856 | PASS |
| | | HCH | 0.1164 | 0.10879 | PASS |

## 14.1.2. Test Graphs


2GFSK-96 kbps _Ant1_LCH


2GFSK-96 kbps _Ant1_MCH




2GFSK-96 kbps _Ant1_HCH

## 14.2. Appendix B4: Maximum conducted output power

### 14.2.1. Test Result

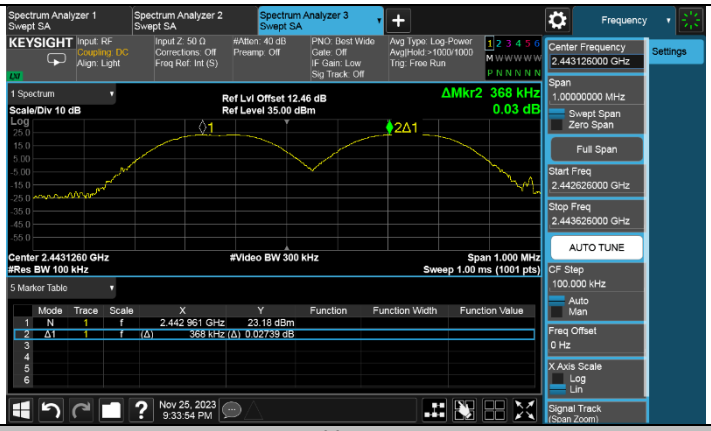
| Test Mode | Antenna | Channel | PEAK Result[dBm] | AVG Result[dBm] | Limit[dBm] | Verdict |
|---|---|---|---|---|---|---|
| 2GFSK-96 kbps | Ant1 | LCH | 24.55 | 24.29 | ≤30 | PASS |
| | | MCH | 24.35 | 24.12 | ≤30 | PASS |
| | | HCH | 24.85 | 24.65 | ≤30 | PASS |

## 14.3. Appendix C4: Carrier frequency separation

### 14.3.1. Test Result

| Test Mode | Antenna | Channel | Result [MHz] | Limit [MHz] | Verdict |
|---|---|---|---|---|---|
| 2GFSK-96 kbps | Ant1 | Hop | 0.368 | ≥0.1164 | PASS |

## 14.3.2. Test Graphs




2GFSK-96 kbps _Ant1_HOP

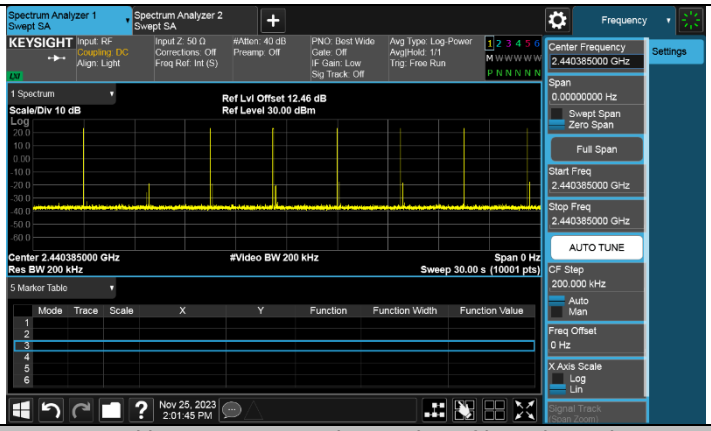
## 14.4. Appendix D4: Time of occupancy

### 14.4.1. Test Result

| FHSS Mode | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Test Mode | Antenna | Channel | Time of single slot [ms] | number of single slot | BurstWidth [ms] | The number of hop channel appear | Result[ms] | Limit[ms] | Verdict |
| 2GFSK-96 kbps | Ant1 | Hop | 6.00 | 7 | 42.00 | 7 | 294.00 | <=400 | PASS |

Note:
2GFSK-96 kbps: The dwell time = Time of single slot * The number of hop channel appear within (0.4 * the number of hopping channels employed)s
BurstWidth =Time of single slot*number of single slot

## 14.4.2. Test Graphs




2GFSK-96 kbps_Ant1_Hop- The number of hop channel appear

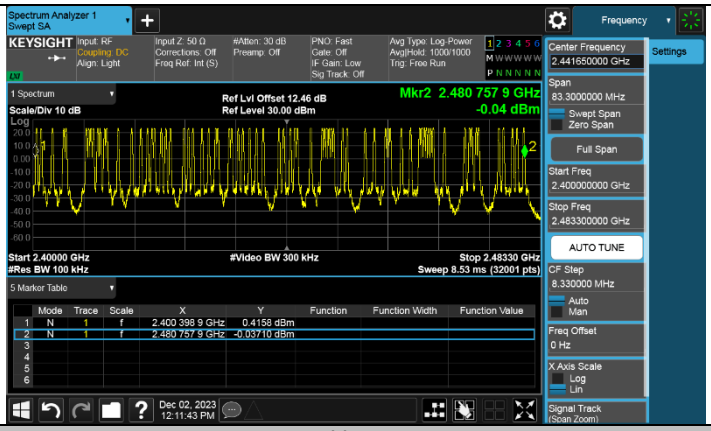

2GFSK-96 kbps_Ant1_Hop- BurstWidth

## 14.5. Appendix E4: Number of hopping channels

### 14.5.1. Test Result

| Test Mode | Antenna | Channel | Result[Num] | Limit[Num] | Verdict |
|---|---|---|---|---|---|
| 2GFSK-96 kbps | Ant1 | Hop | 75 | ≥15 | PASS |

## 14.5.2. Test Graphs



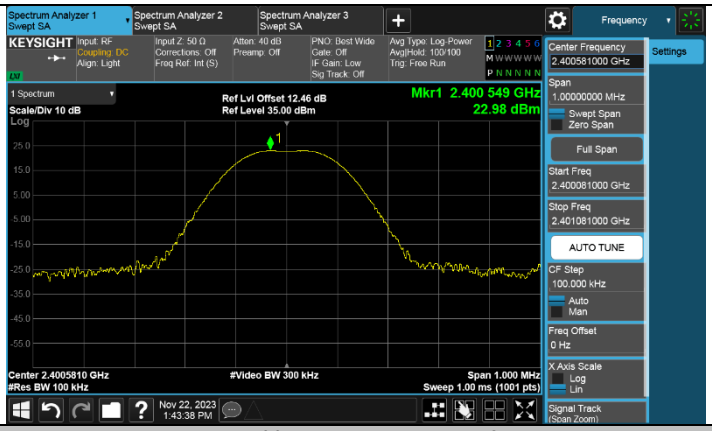

2GFSK-96 kbps_Ant1_Hop

## 14.6. Appendix F4: Band edge measurements& Conducted Spurious Emission

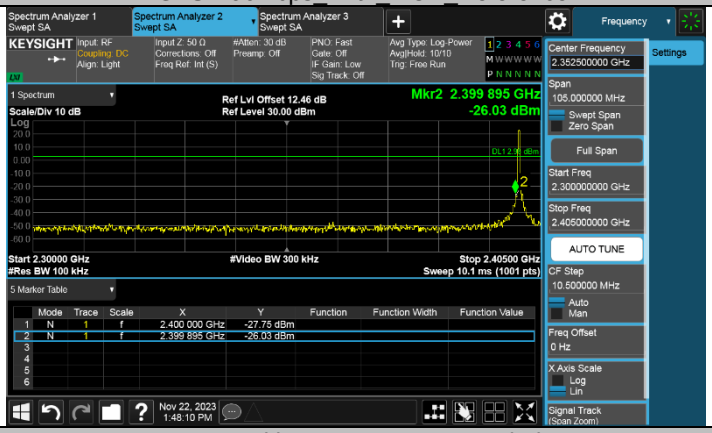
### 14.6.1. Test Result

| Test Mode | Antenna | ChName | Result [dBm] | Verdict |
|---|---|---|---|---|
| 2GFSK-96 kbps | Ant1 | LCH | See the below graphs | PASS |
| | | MCH | | PASS |
| | | HCH | | PASS |
| | | Hop_ LCH | | PASS |
| | | Hop_ HCH | | PASS |

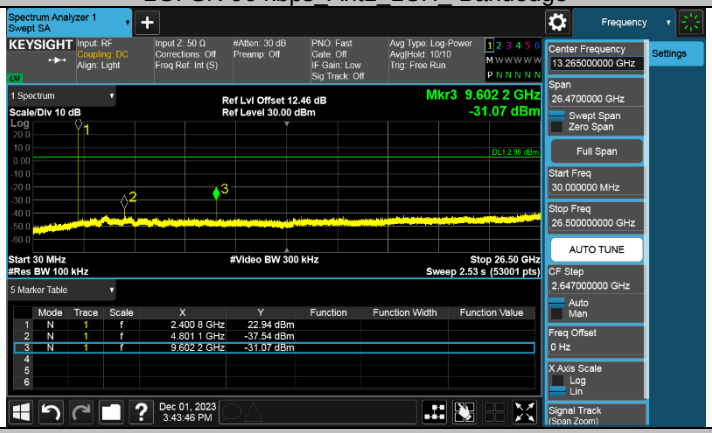
### 14.6.2. Test Graphs



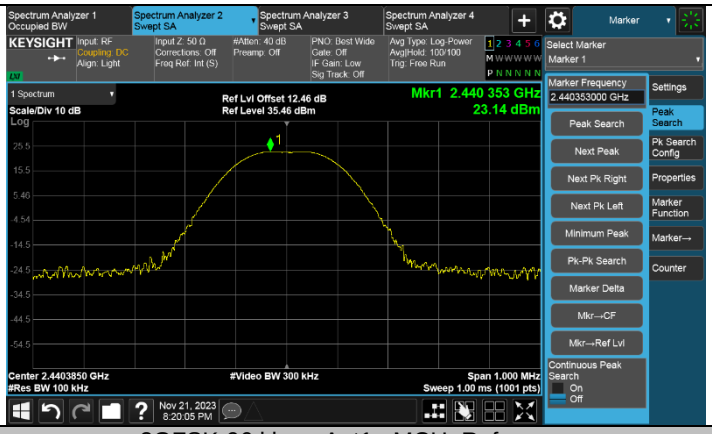

2GFSK-96 kbps_Ant1_ LCH_Reference




2GFSK-96 kbps_Ant1_ LCH_ Bandedge

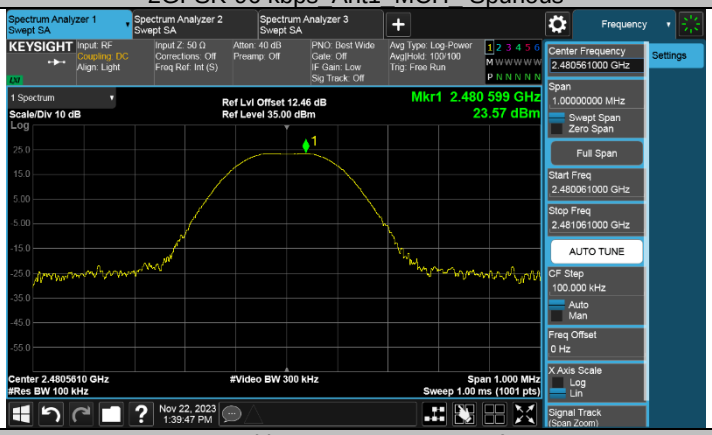



2GFSK-96 kbps_Ant1_LCH_ Spurious

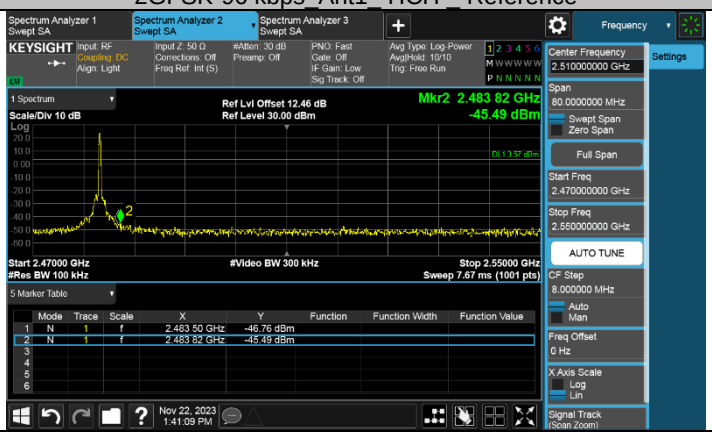


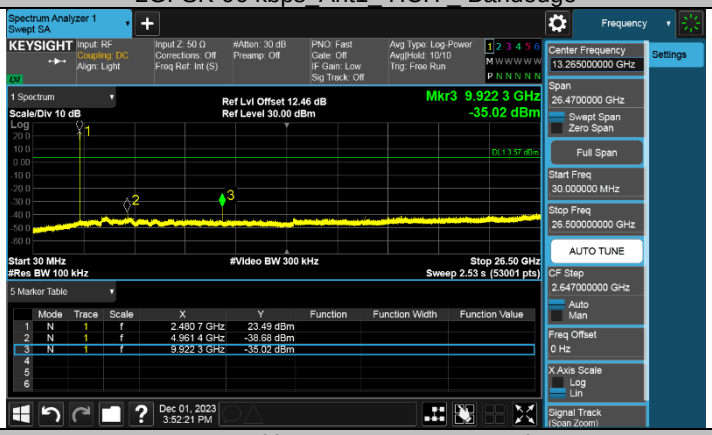

2GFSK-96 kbps_Ant1_MCH_Reference


2GFSK-96 kbps_Ant1_MCH_Spurious




2GFSK-96 kbps_Ant1_HCH_Reference



| 2GFSK-96 kbps_Ant1_ HCH _ Bandedge |
| --- |
|  |
| 2GFSK-96 kbps_Ant1_ HCH _ Spurious |