

# Appendix Report

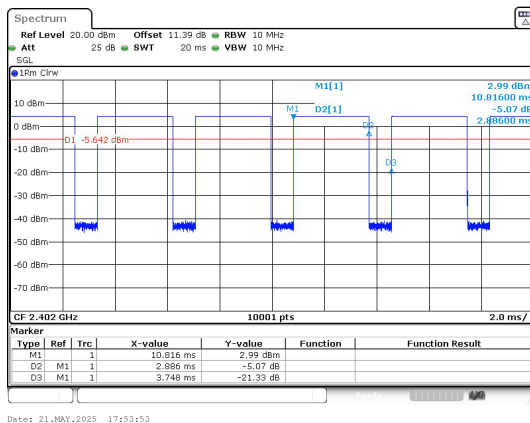
|                |               |
|----------------|---------------|
| Project No.:   | CISR250520108 |
| Test Engineer: | James Wang    |
| Supervised by: | Rory Huang    |

# 1) Duty Cycle

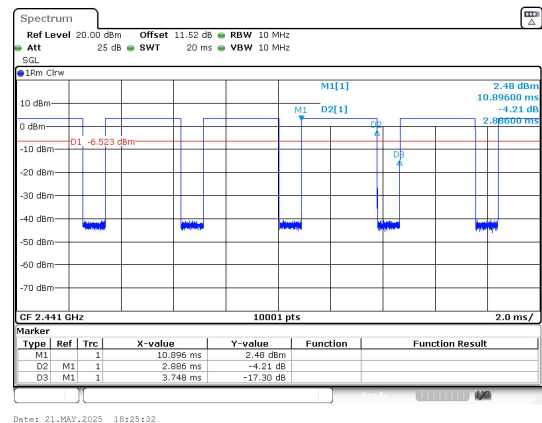
## Test Result

| Modulation | Packets | Channel | On Time (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle (linear) | Duty Cycle Factor (dB) | 1/T    |
|------------|---------|---------|--------------|-------------|----------------|---------------------|------------------------|--------|
| GFSK       | DH5     | 0       | 2.886        | 3.748       | 77.00          | 0.7700              | 1.1351                 | 0.3465 |
|            |         | 39      | 2.886        | 3.748       | 77.00          | 0.7700              | 1.1351                 | 0.3465 |
|            |         | 78      | 2.886        | 3.748       | 77.00          | 0.7700              | 1.1351                 | 0.3465 |

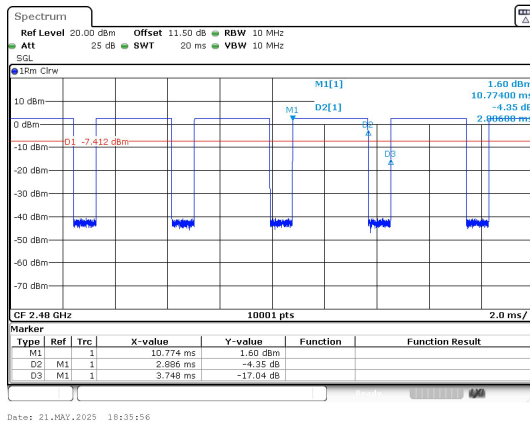
## Test Graphs



GFSK(DH5)\_Channel 0



GFSK(DH5)\_Channel 39



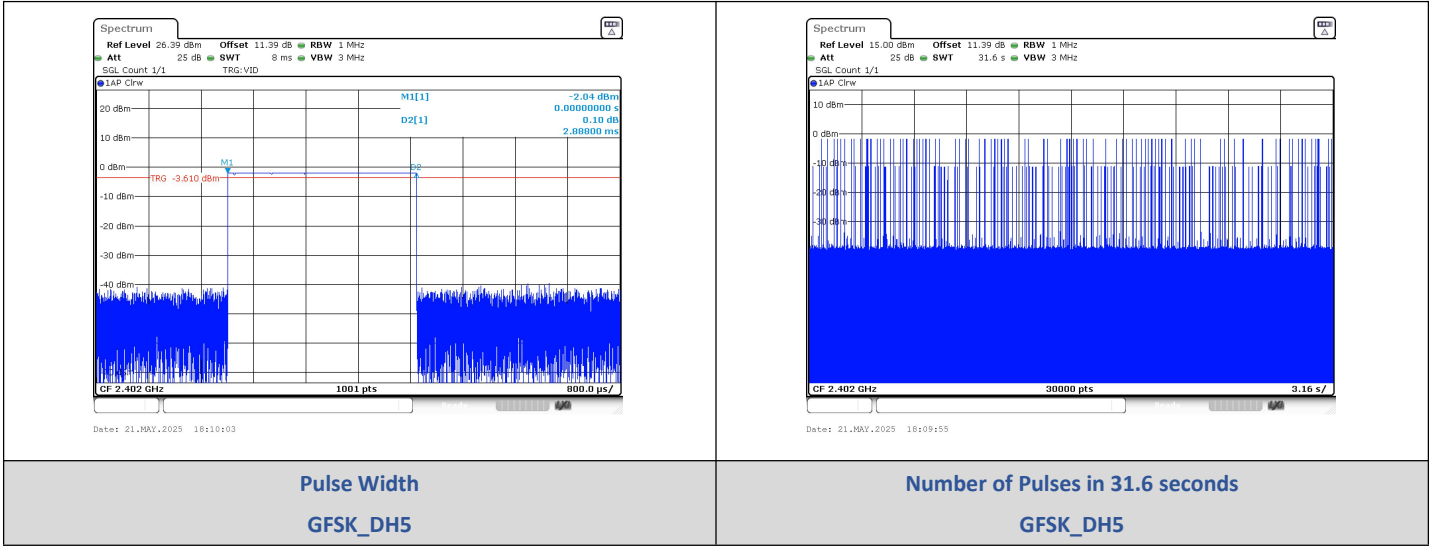
GFSK(DH5)\_Channel 78

2) Dwell Time

Test Result

| Modulation | Packet | Channel       | Pulse Width (ms) | Number of Pulses in 31.6 seconds | Dwell Time (ms) | Limit (ms) | Result |
|------------|--------|---------------|------------------|----------------------------------|-----------------|------------|--------|
| GFSK       | DH5    | CH0 (2402MHz) | 2.888            | 104                              | 300.35          | < 400      | PASS   |

Test Graphs

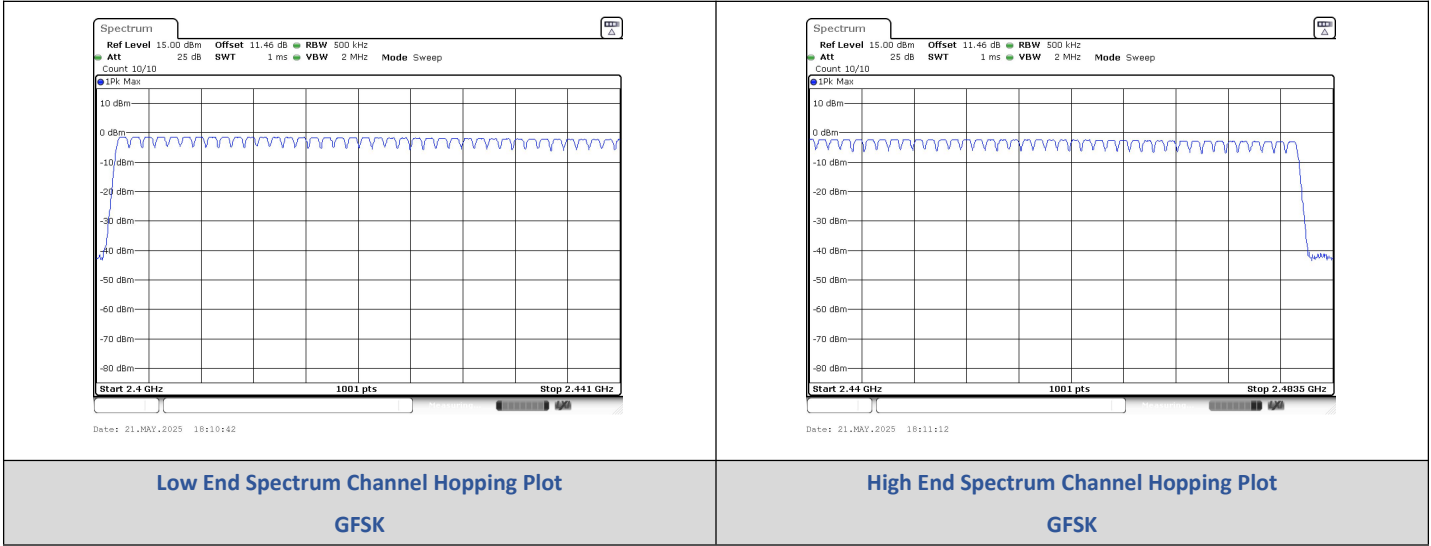


### 3) Number Of Hopping Channel

Test Result

| Modulation | Packet | Number of Hopping Channel | Limit | Result |
|------------|--------|---------------------------|-------|--------|
| GFSK       | DH5    | 79                        | 15    | PASS   |

Test Graphs

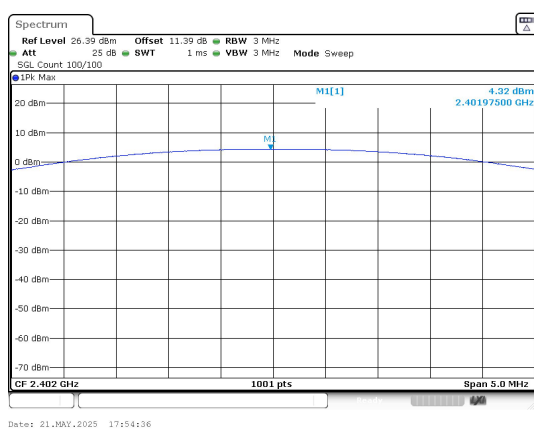


## 4) Conducted Output Power

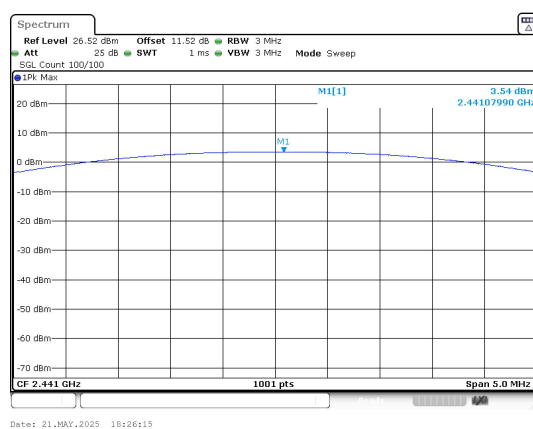
### Test Result

| Modulation | Packet Type | Channel | Peak Output Power (dBm) | Peak Output Power (mW) | Limit (dBm) | Result |
|------------|-------------|---------|-------------------------|------------------------|-------------|--------|
| GFSK       | DH5         | 0       | 4.32                    | 2.70                   | ≤30         | PASS   |
|            |             | 39      | 3.54                    | 2.26                   |             | PASS   |
|            |             | 78      | 2.68                    | 1.85                   |             | PASS   |

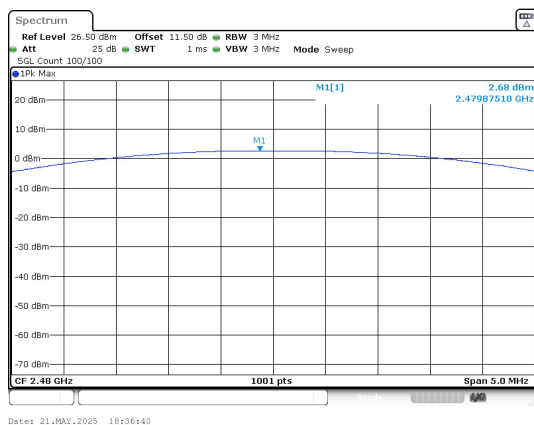
### Test Graphs



Peak Output Power  
GFSK\_Channel 0



Peak Output Power  
GFSK\_Channel 39



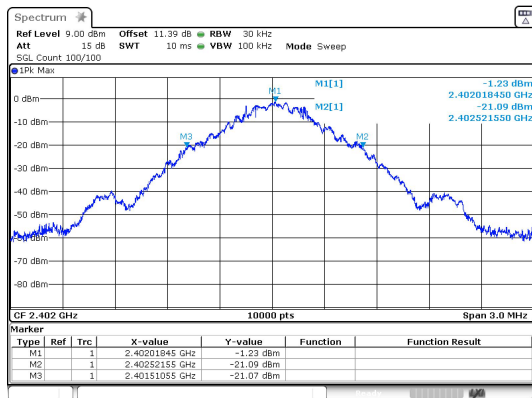
Peak Output Power  
GFSK\_Channel 78

## 5) 20dB Bandwidth

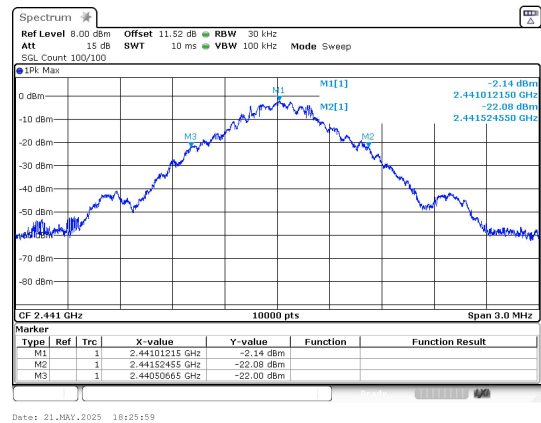
### Test Result

| Modulation | Channel | Center Frequency (MHz) | 20 dB Bandwidth (MHz) |
|------------|---------|------------------------|-----------------------|
| GFSK       | 0       | 2402 MHz               | 1.01                  |
|            | 39      | 2441 MHz               | 1.01                  |
|            | 78      | 2480 MHz               | 1.01                  |

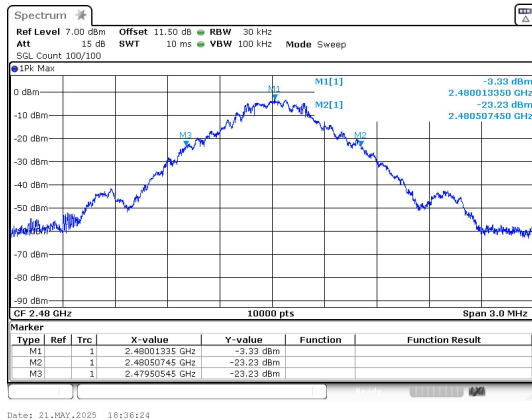
### Test Graphs



GFSK\_DH5\_Channel 0



GFSK\_DH5\_Channel 39



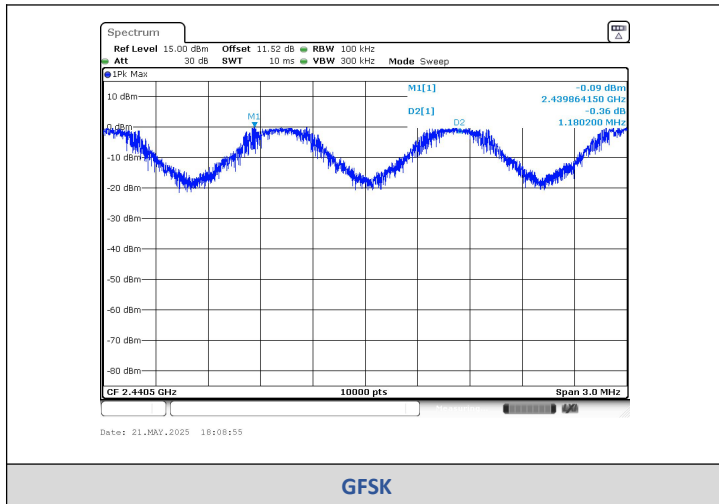
GFSK\_DH5\_Channel 78

## 6) Carrier Frequencies Separation

### Test Result

| Modulation | Packet | Left Center frequency (MHz) | Right Center frequency (MHz) | Hopping Frequency Separation (MHz) | Limit (MHz) | Result |
|------------|--------|-----------------------------|------------------------------|------------------------------------|-------------|--------|
| GFSK       | DH5    | 2439.8641                   | 2441.0444                    | 1.1802                             | 1.01        | PASS   |

### Test Graphs



## 7) Conducted Out Of Band Emission

### Test Result

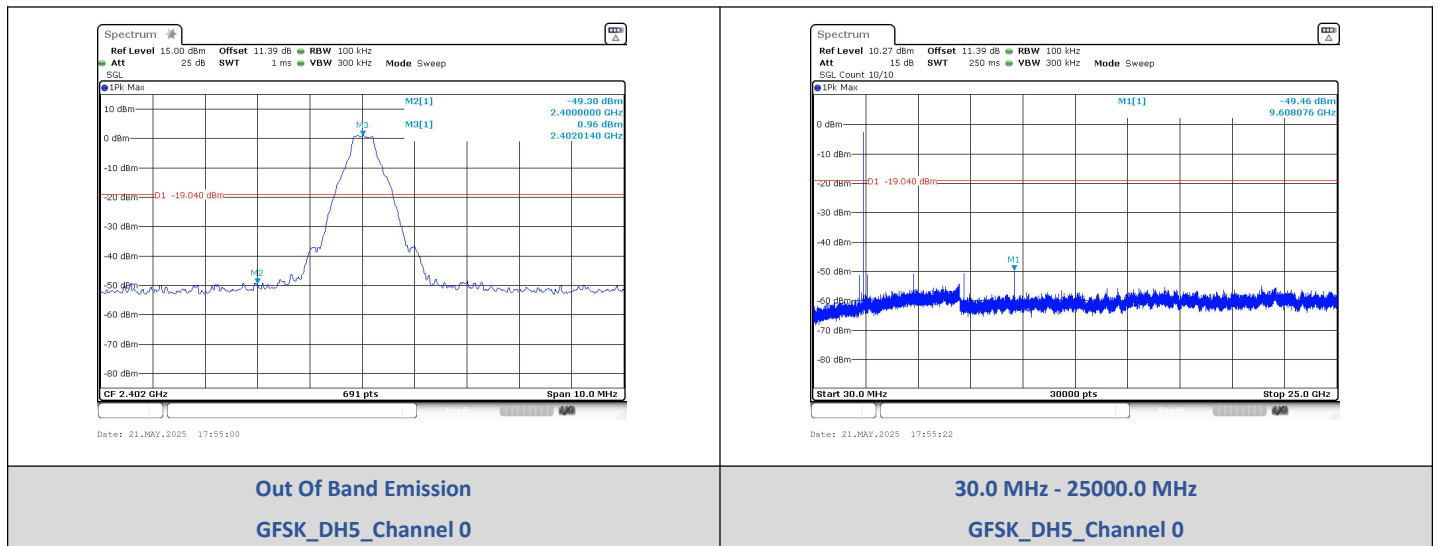
#### Non-Hopping

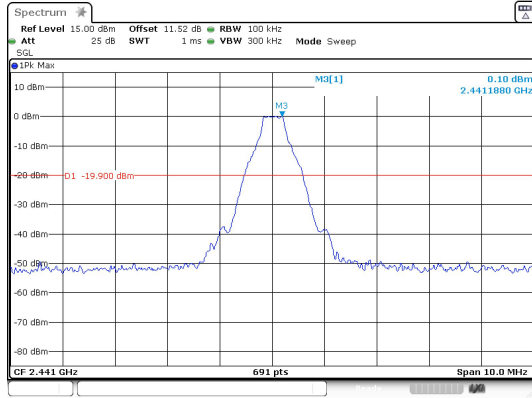
| Modulation | Packet | Channel | OOB Emission Frequency (MHz) | OOB Emission Level (dBm) | Limit (dBm) | Over Limit (dB) | Result |
|------------|--------|---------|------------------------------|--------------------------|-------------|-----------------|--------|
| GFSK       | DH5    | 0       | 2400.00                      | -49.300                  | -19.04      | -30.260         | PASS   |
|            |        |         | 9608.08                      | -49.459                  | -19.04      | -30.419         | PASS   |
|            |        | 39      | 9763.72                      | -46.788                  | -19.9       | -26.888         | PASS   |
|            |        | 78      | 2483.50                      | -50.940                  | -20.78      | -30.160         | PASS   |
|            |        |         | 9920.20                      | -44.369                  | -20.78      | -23.589         | PASS   |

#### Hopping

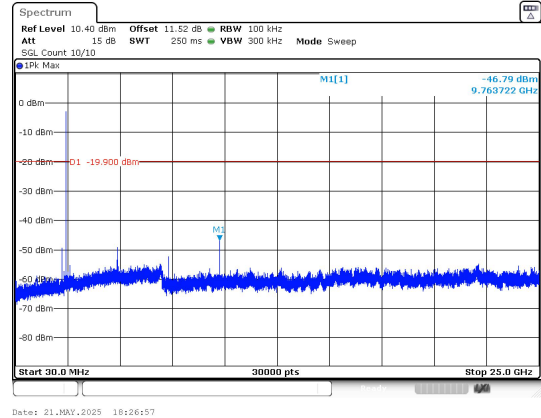
| Modulation | Packet | Channel | OOB Emission Frequency (MHz) | OOB Emission Level (dBm) | Limit (dBm) | Over Limit (dB) | Result |
|------------|--------|---------|------------------------------|--------------------------|-------------|-----------------|--------|
| GFSK       | DH5    | Hopping | 2396.82                      | -48.575                  | -19.0       | -29.575         | PASS   |
|            |        |         | 2400.00                      | -48.860                  | -19.0       | -29.860         | PASS   |
|            |        |         | 2483.50                      | -48.580                  | -20.67      | -27.910         | PASS   |

### Test Graphs

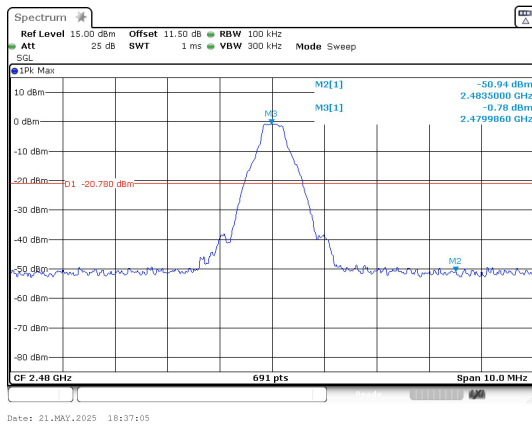




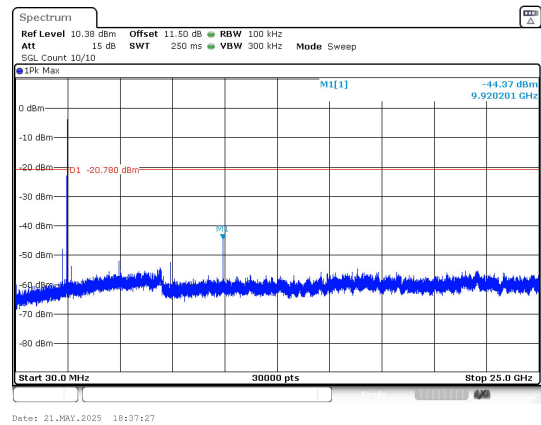
**Out Of Band Emission**  
**GFSK\_DH5\_Channel 39**



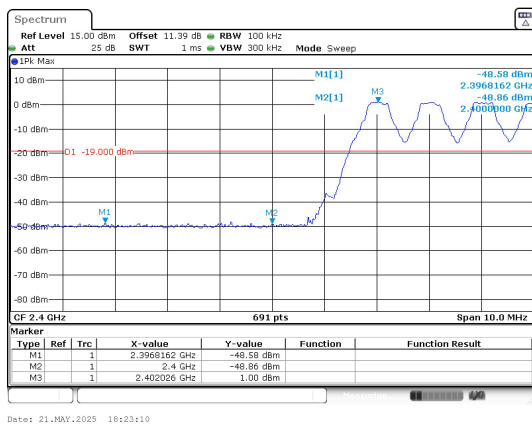
**30.0 MHz - 25000.0 MHz**  
**GFSK\_DH5\_Channel 39**



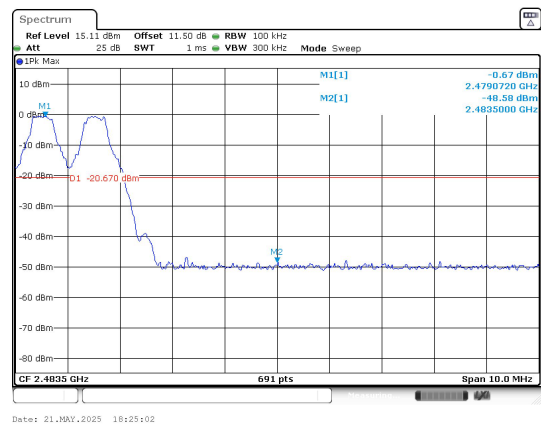
**Out Of Band Emission**  
**GFSK\_DH5\_Channel 78**



**30.0 MHz - 25000.0 MHz**  
**GFSK\_DH5\_Channel 78**



**Out Of Band Emission(Left)**  
**GFSK\_DH5\_Channel Hopping**



**Out Of Band Emission(Right)**  
**GFSK\_DH5\_Channel Hopping**

-----End of the report-----