

## **APPENDIX A – TEST DATA OF CONDUCTED EMISSION**

Offset 1.2dB = Temporary antenna connector loss 0.2dB+ Cable loss 1.0dB

### **1 Duty Cycle and Antenna Gain**

Modulation Type	Frequency (MHz)	Duty Cycle	Correction Factor(dB)	Antenna Gain(dBi)
GFSK(DH5)	2402	77.07%	1.13	-2.5
$\pi$ 4/DQPSK(2DH5)	2402	63.47%	1.97	-2.5
8DPSK(3DH5)	2402	77.07%	1.13	-2.5

Note: Correction Factor= $10 \cdot \log(1/\text{Duty Cycle})$

### **2 Conducted Power**

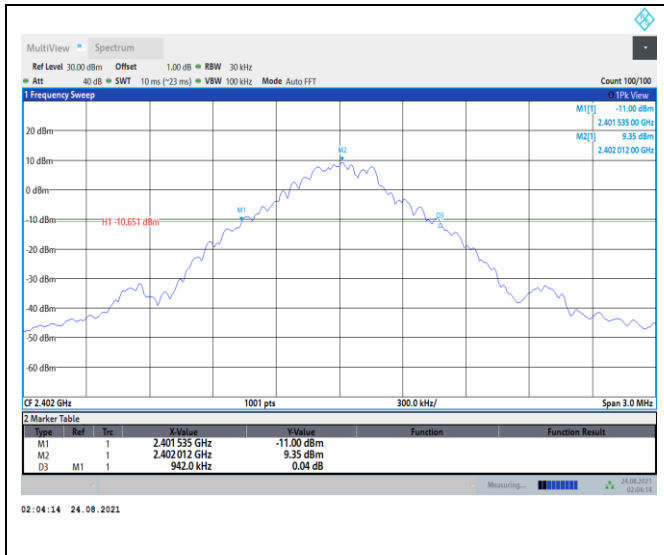
Modulation type	Conducted Peak Power(dBm)		
	2402MHz	2441MHz	2480MHz
GFSK	11.49	11.67	11.57
$\pi$ 4DQPSK	10.99	11.01	11.19
8DPSK	11.23	11.36	11.40

### **Test on the worst case:**

Modulation type	Conducted Peak Power(dBm)		
	2402MHz	2441MHz	2480MHz
GFSK	--	11.63	--

### 3 Occupied Bandwidth 20dB Bandwidth Modulation type: GFSK

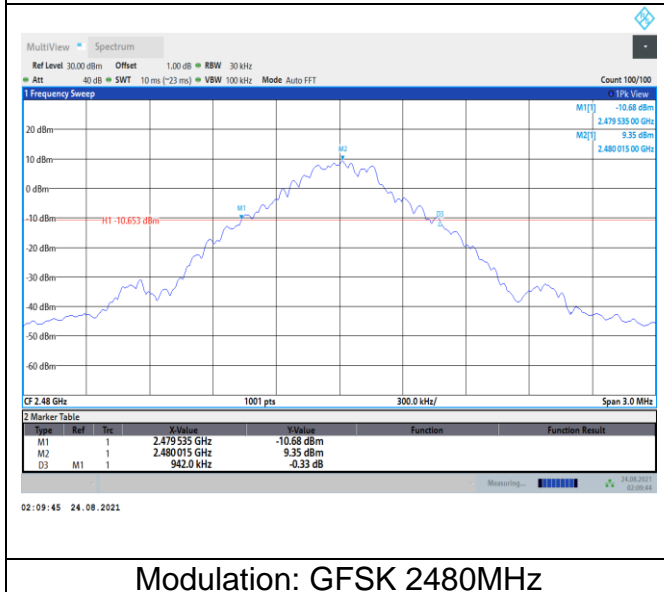
Carrier frequency (MHz)	20dB Bandwidth(kHz)
2402	0.942
2441	0.942
2480	0.942



Modulation: GFSK 2402MHz



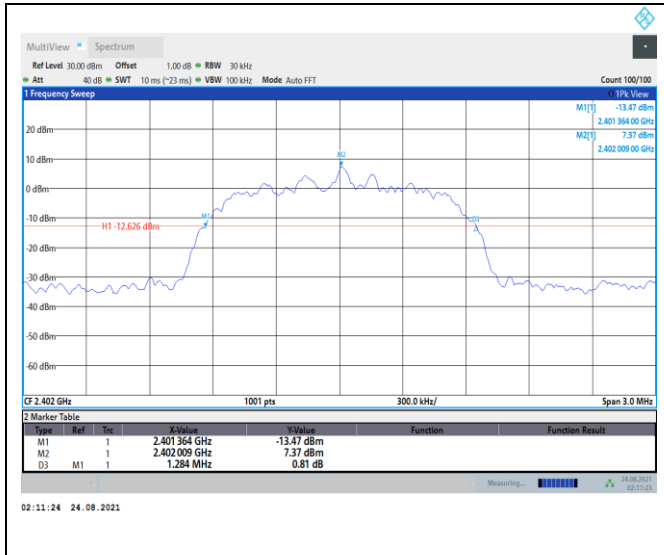
Modulation: GFSK 2441MHz



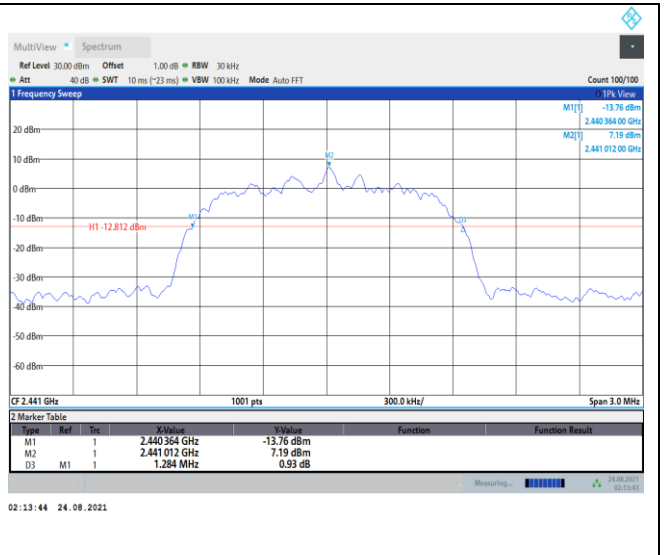
Modulation: GFSK 2480MHz

Modulation type:  $\pi/4$ DQPSK

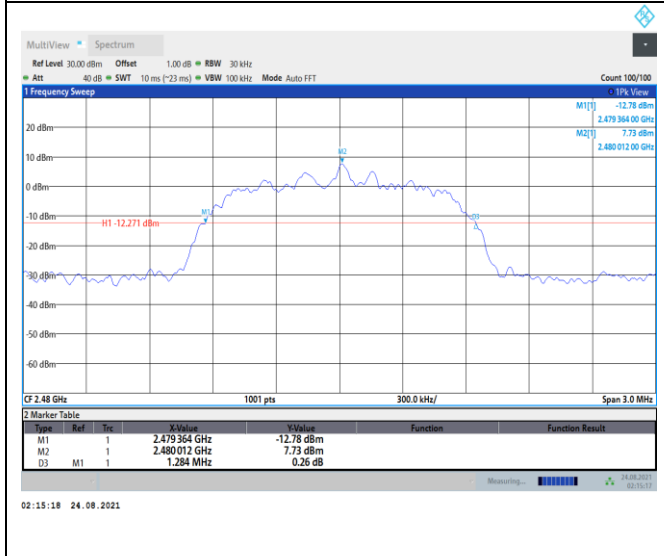
Carrier frequency (MHz)	20dB Bandwidth(kHz)
2402	1.284
2441	1.284
2480	1.284



Modulation:  $\pi/4$ DQPSK 2402MHz



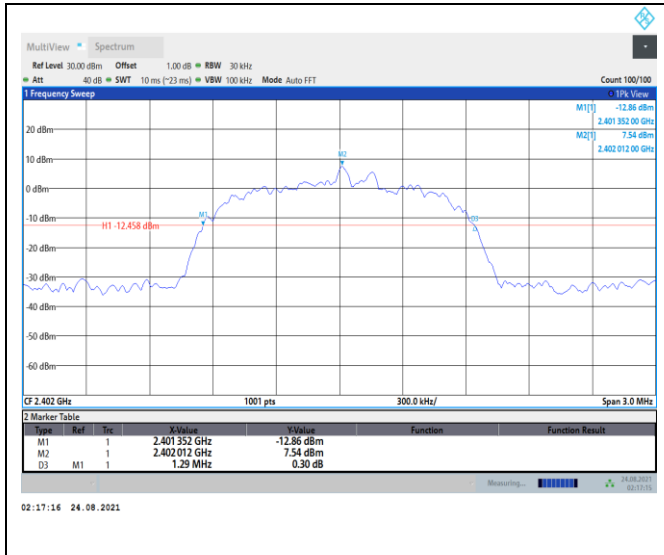
Modulation:  $\pi/4$ DQPSK 2441MHz



Modulation:  $\pi/4$ DQPSK 2480MHz

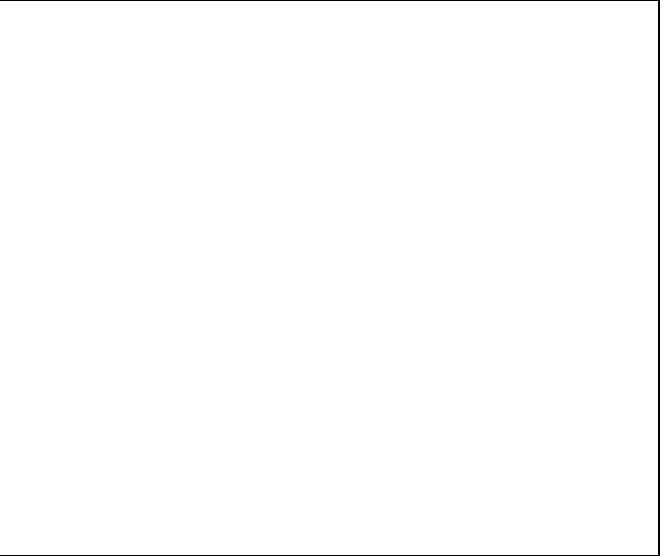
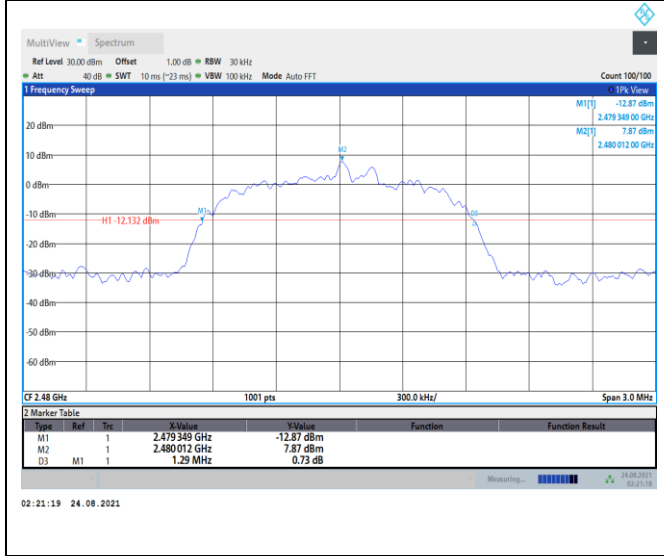
Modulation type: 8DPSK

Carrier frequency (MHz)	20dB Bandwidth(kHz)
2402	1.290
2441	1.290
2480	1.290



Modulation: 8DPSK 2402MHz

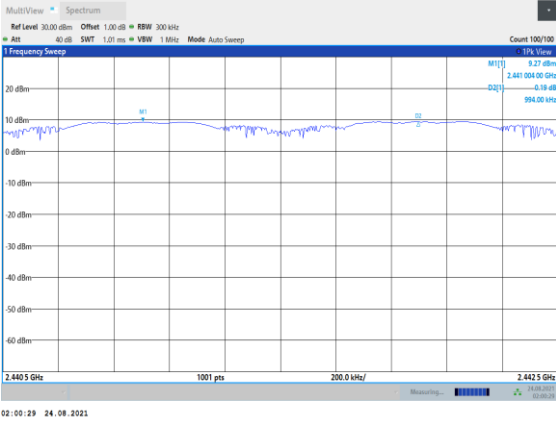
Modulation: 8DPSK 2441MHz



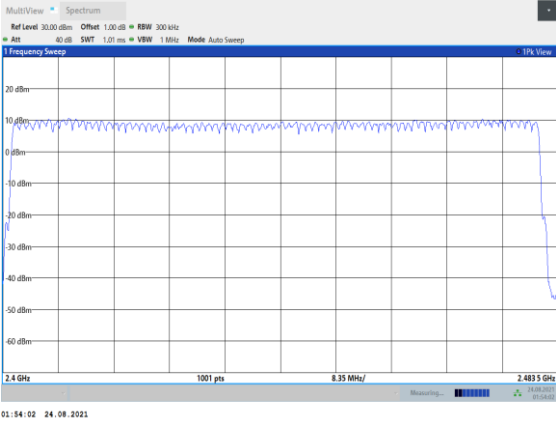
Modulation: 8DPSK 2480MHz

### 4 Hopping Frequency Separation

Modulation type: GFSK  
**Channel separation**

Op-mode	Channel separation (MHz)
Hopping mode	1
	

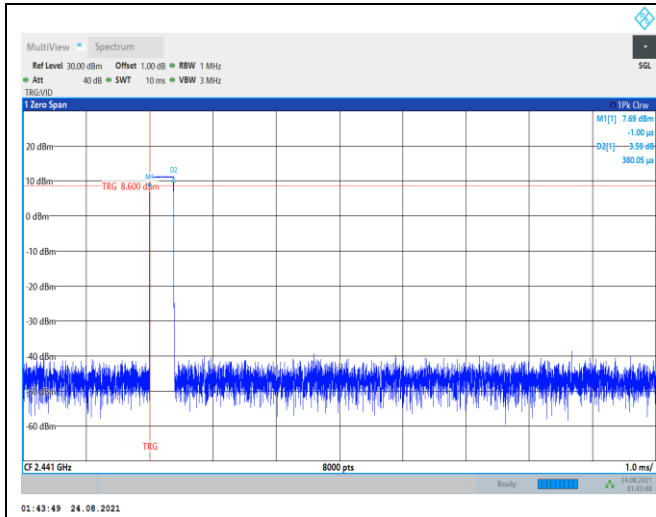
### Number of Hopping Frequencies

Op-mode	Result
Hopping mode	79
	

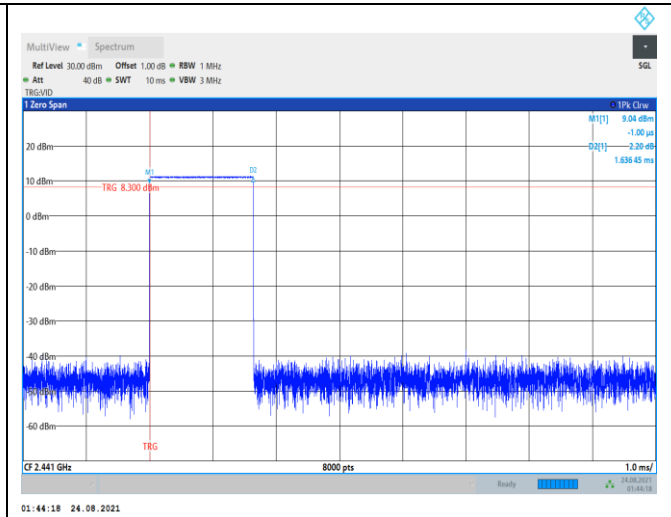
## 5 Dwell Time

Modulation type: GFSK

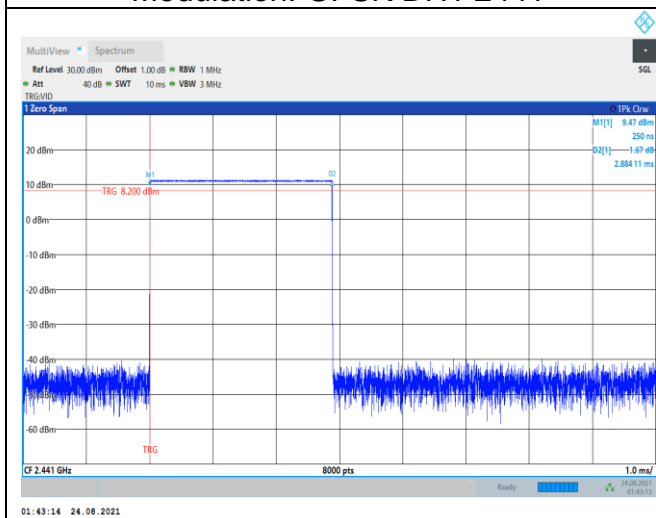
Packet type	BurstWidth( $\mu$ s)	TotalHops[Num]	Dwell time(ms)
DH1	380	330	125
DH3	1640	210	344
DH5	2880	100	288



Modulation: GFSK DH1 2441



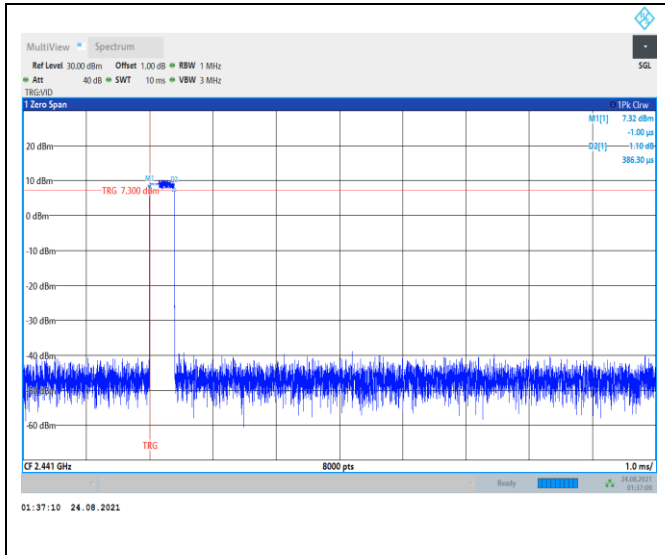
Modulation: GFSK DH3 2441



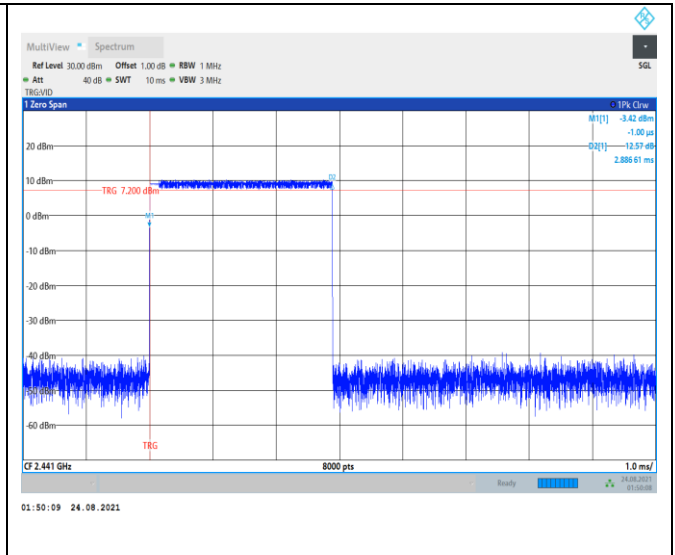
Modulation: GFSK DH5 2441

Modulation type:  $\pi/4$ DQPSK

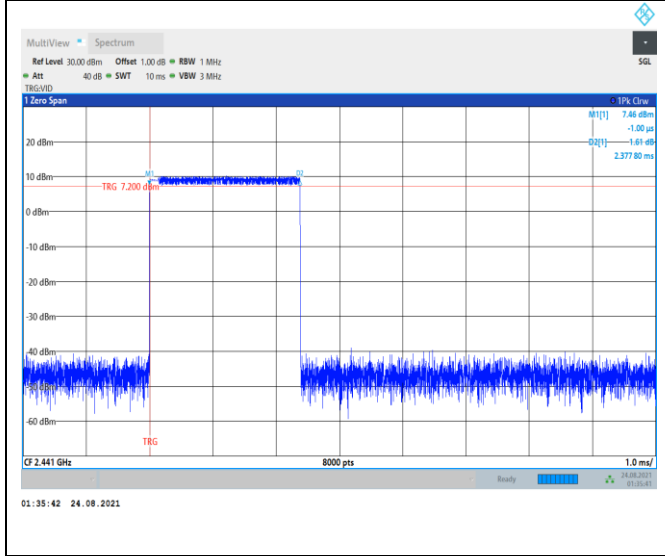
Packet type	Time slot length( $\mu$ s)	TotalHops[Num]	Dwell time(ms)
DH1	390	330	127
DH3	2890	110	318
DH5	2380	70	166



Modulation:  $\pi/4$ DQPSK DH1 2441



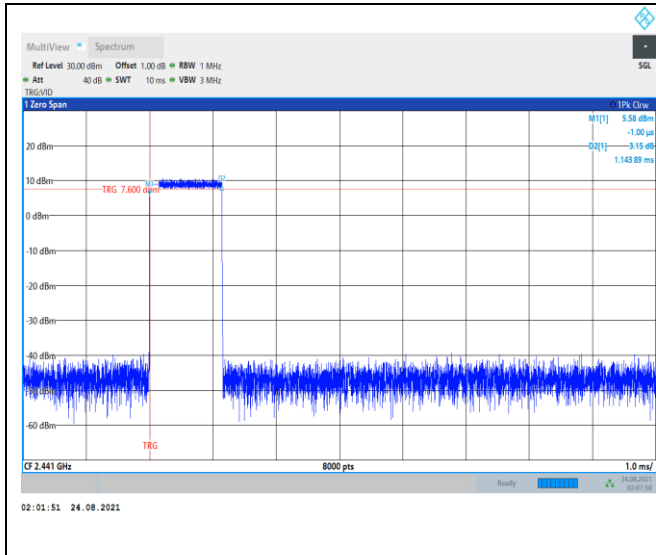
Modulation:  $\pi/4$ DQPSK DH3 2441



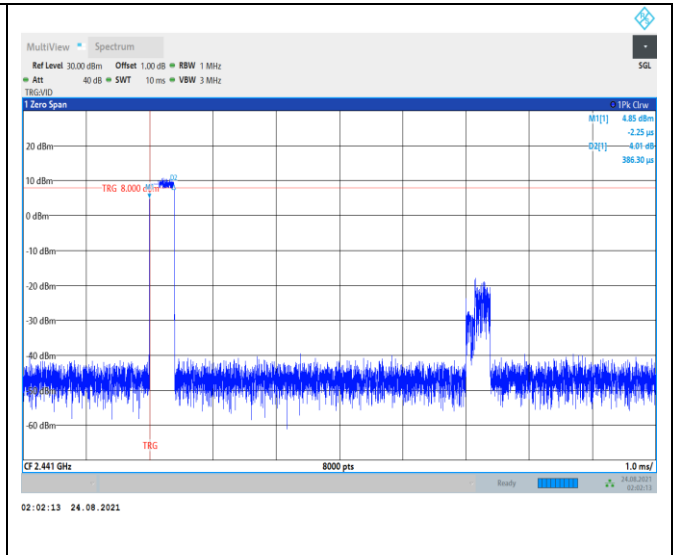
Modulation:  $\pi/4$ DQPSK DH5 2441

Modulation type: 8DPSK

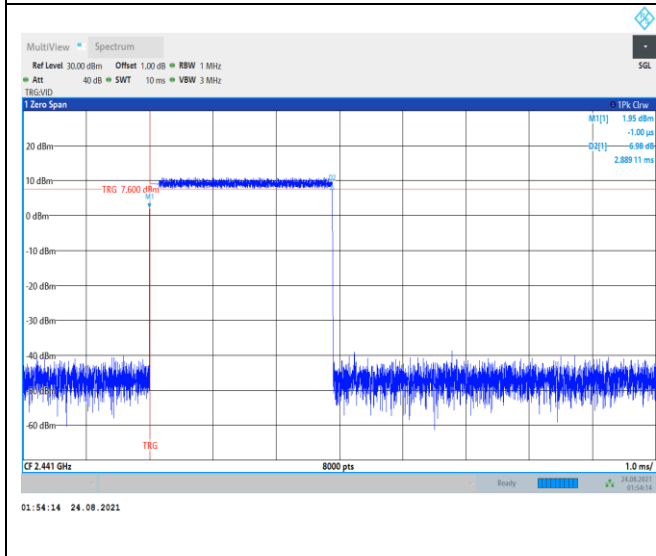
Packet type	Time slot length(μs)	TotalHops[Num]	Dwell time(ms)
DH1	1140	320	366
DH3	390	140	54
DH5	2890	80	231



Modulation: 8DPSK DH1 2441



Modulation: 8DPSK DH3 2441

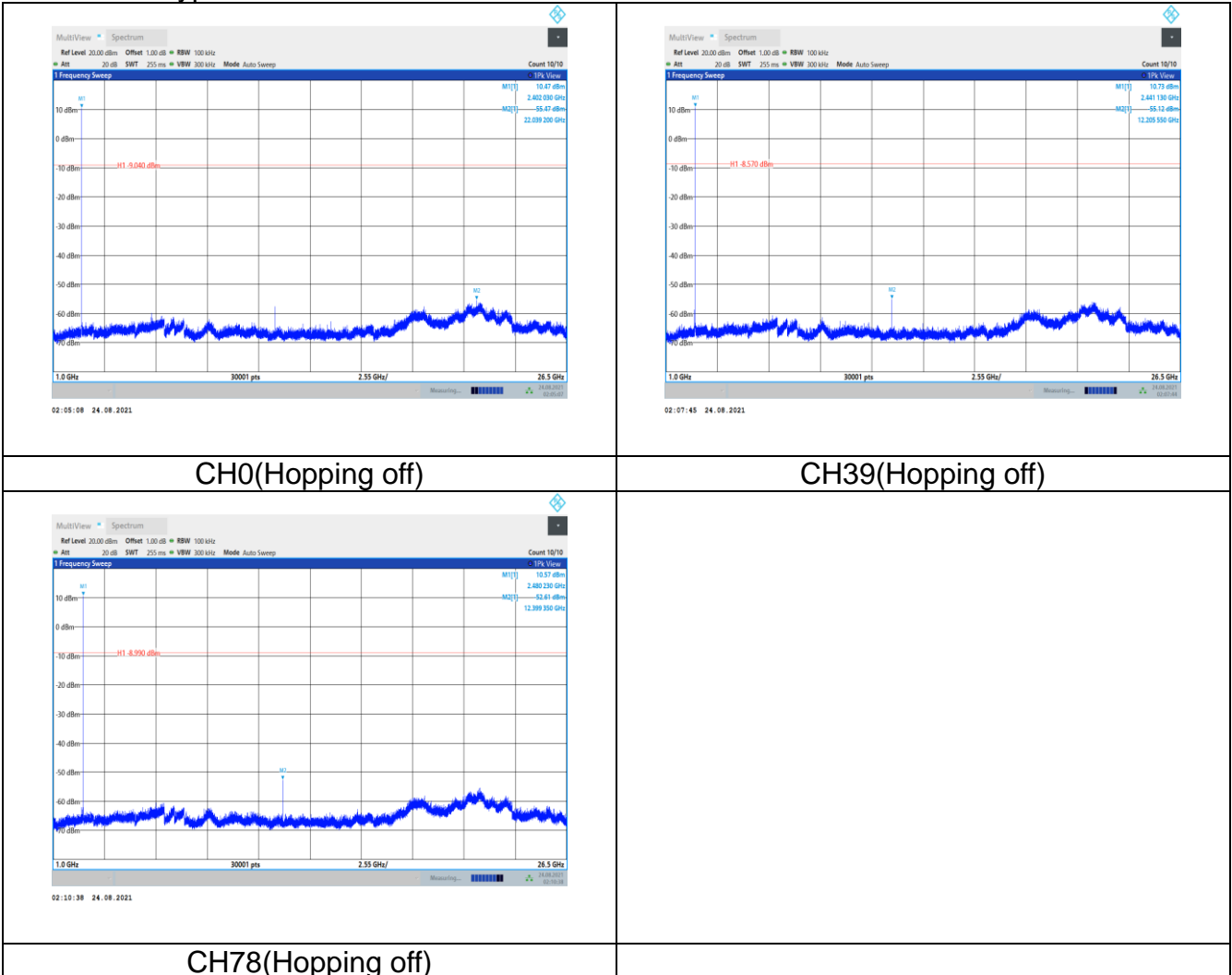


Modulation: 8DPSK DH5 2441

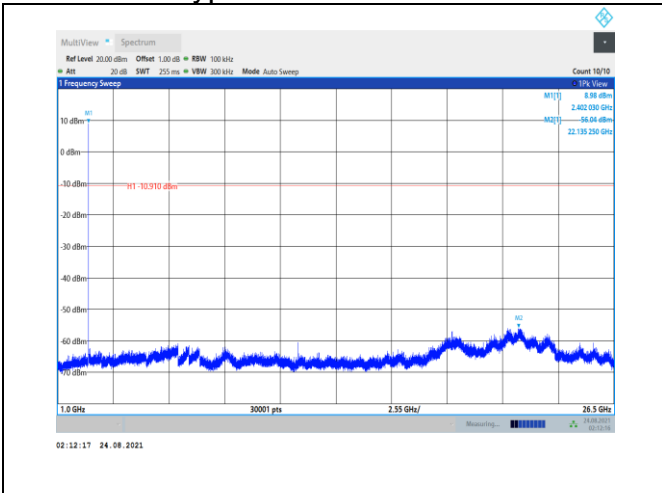


## 6 Conducted Out of band emission measurement

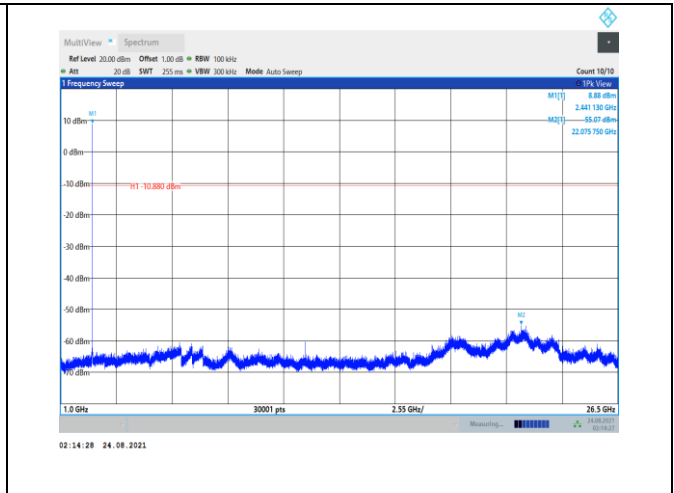
Modulation type: GFSK



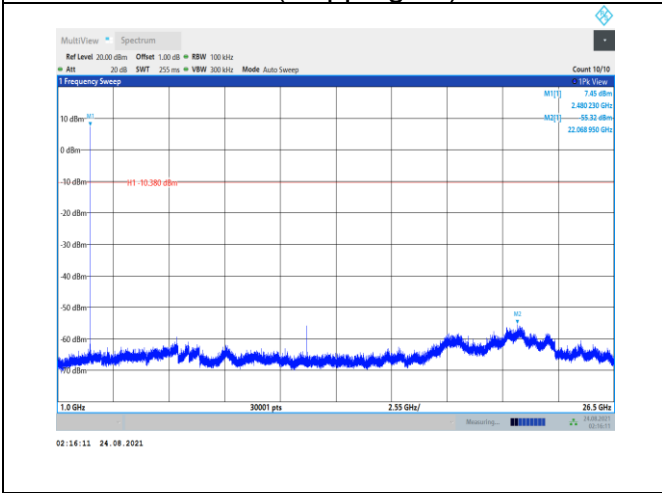
Modulation type:  $\pi/4$ DQPSK



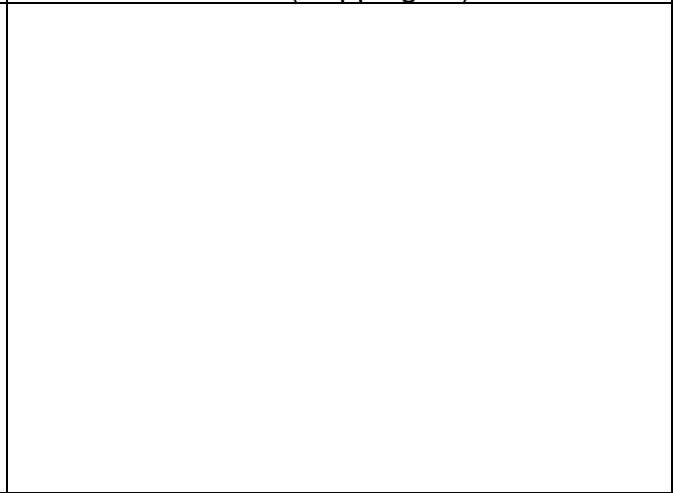
CH0(Hopping off)



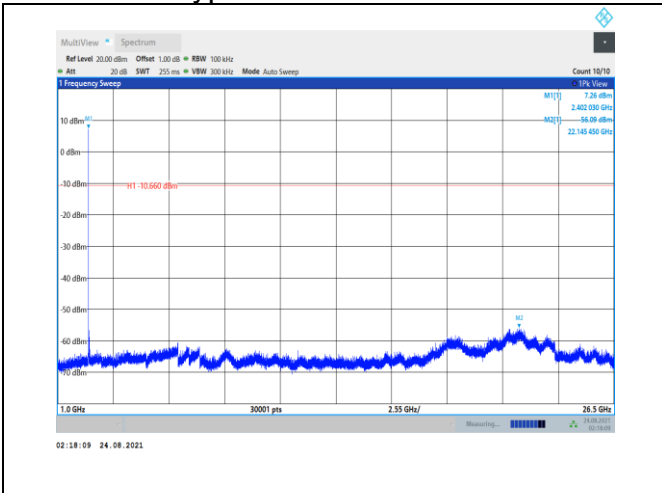
CH39(Hopping off)



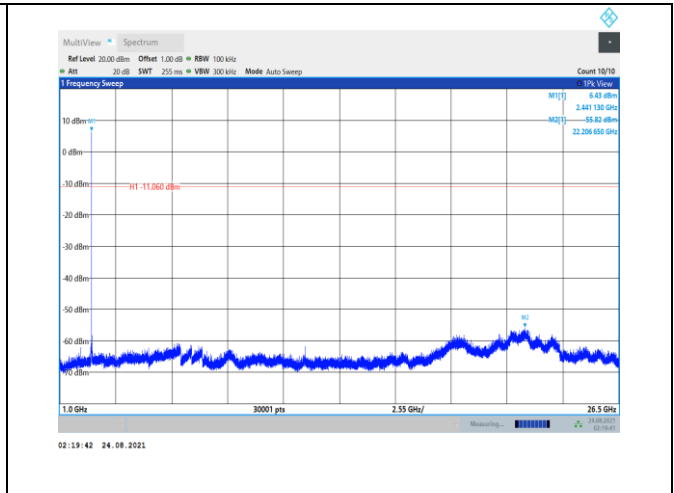
CH78(Hopping off)



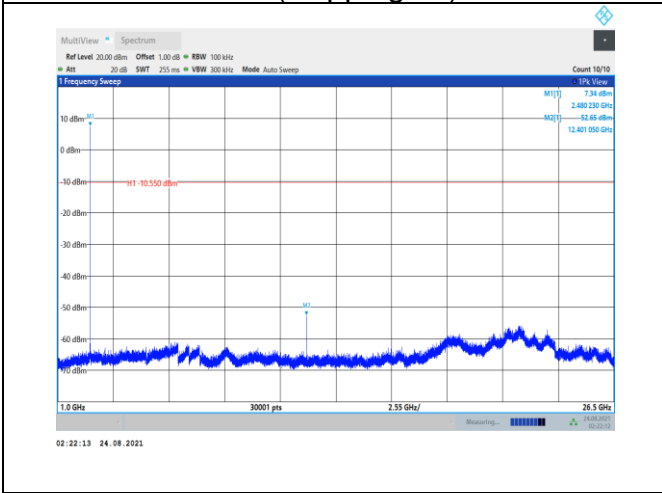
Modulation type: 8DPSK



CH0(Hopping off)



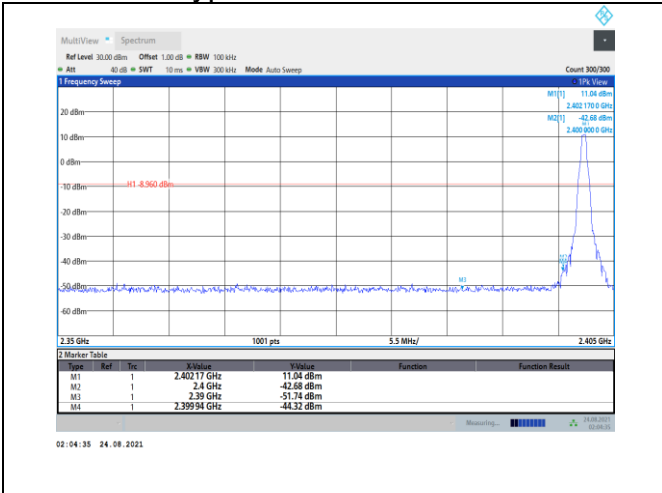
CH39(Hopping off)



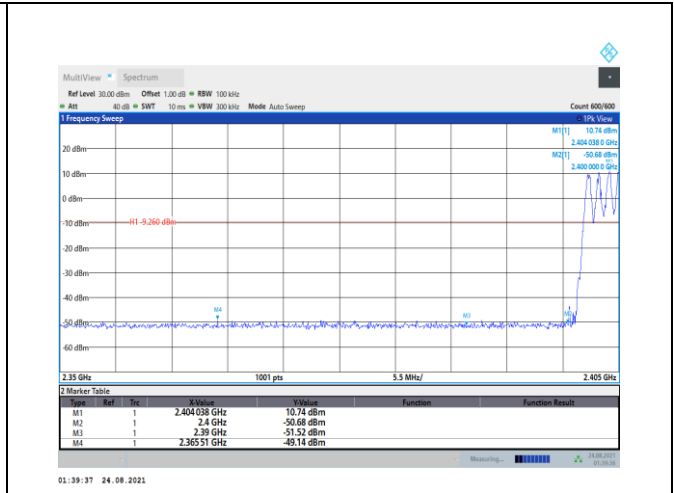
CH78(Hopping off)

# 7 Band Edge measurement

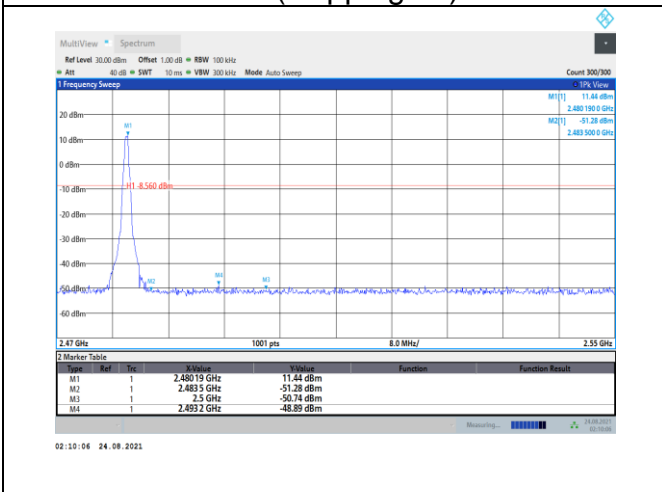
## Modulation type: GFSK



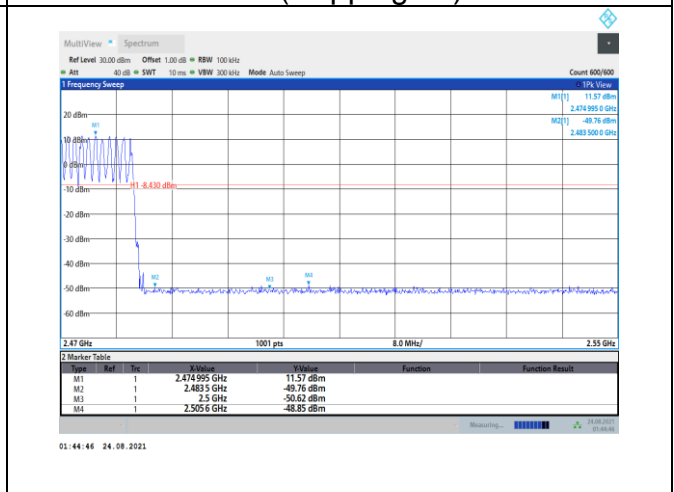
CH0(Hopping off)



CH0(Hopping on)

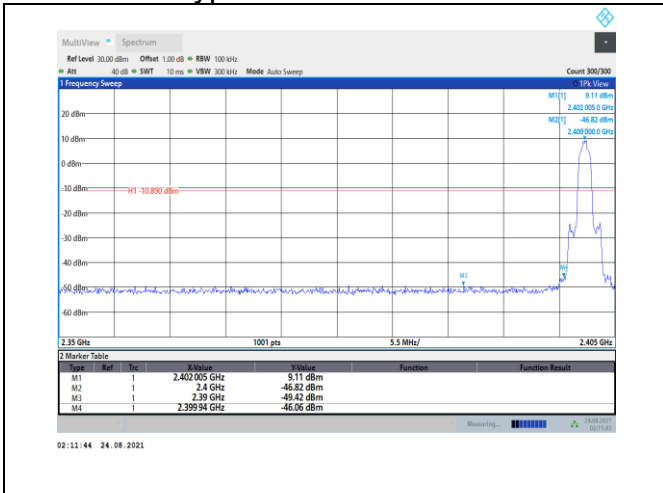


CH78(Hopping off)

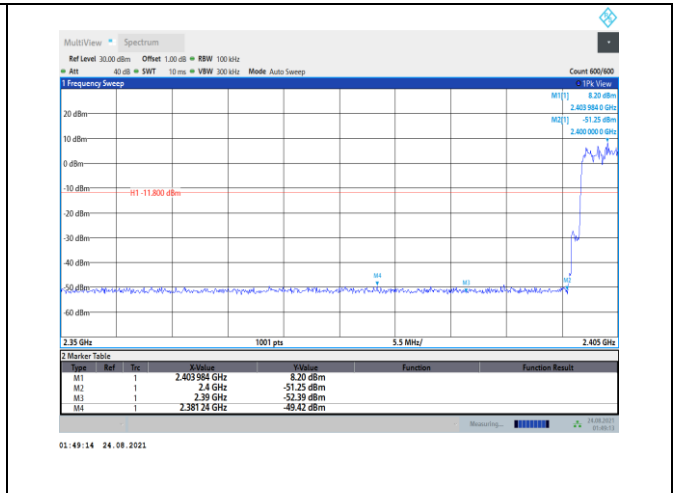


CH78(Hopping on)

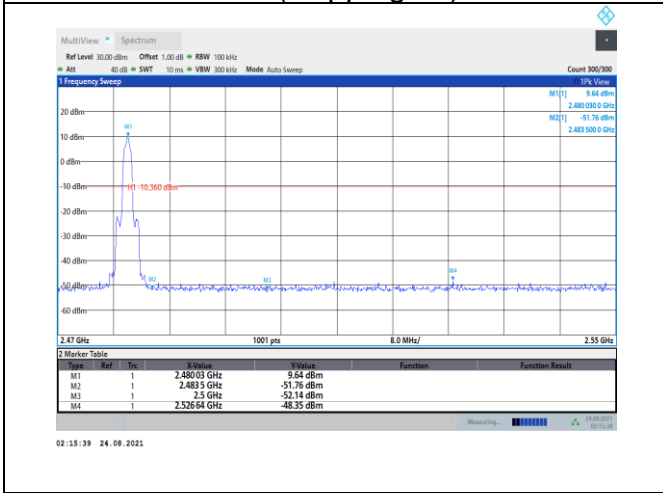
# Modulation type: $\pi/4$ DQPSK



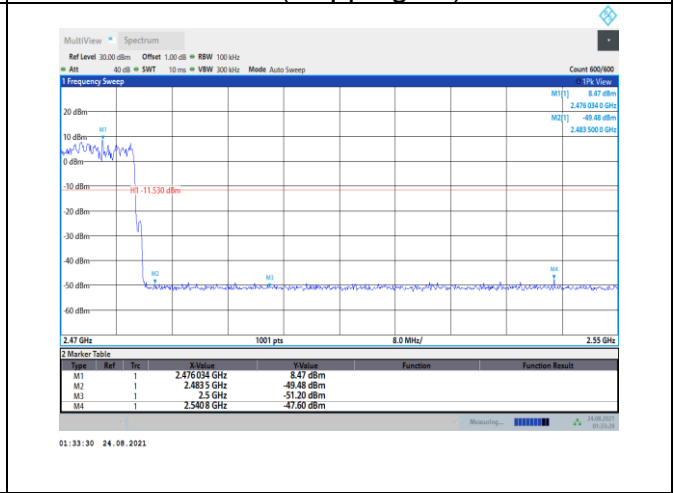
CH0(Hopping off)



CH0(Hopping on)

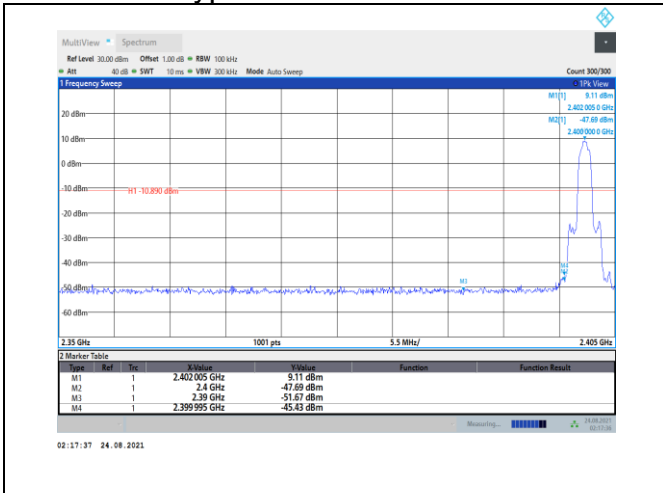


CH78(Hopping off)

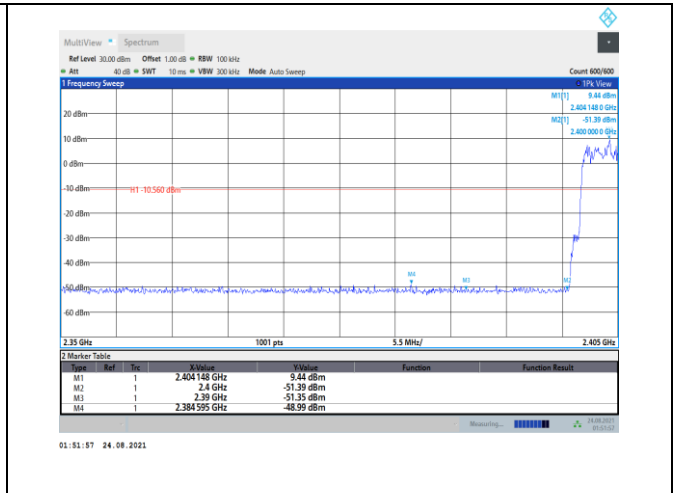


CH78(Hopping on)

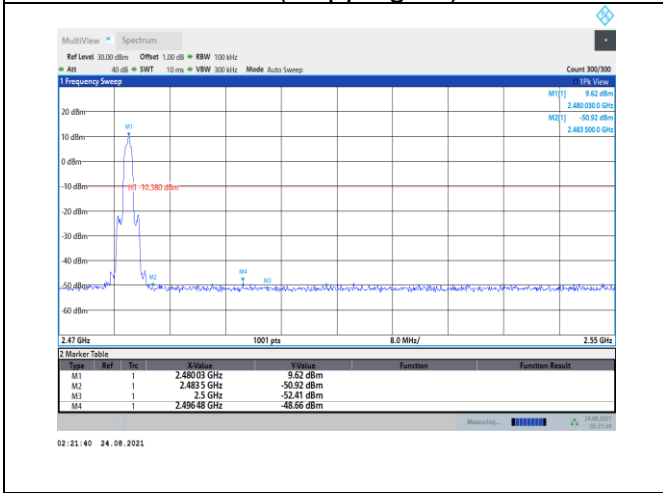
# Modulation type: 8DPSK



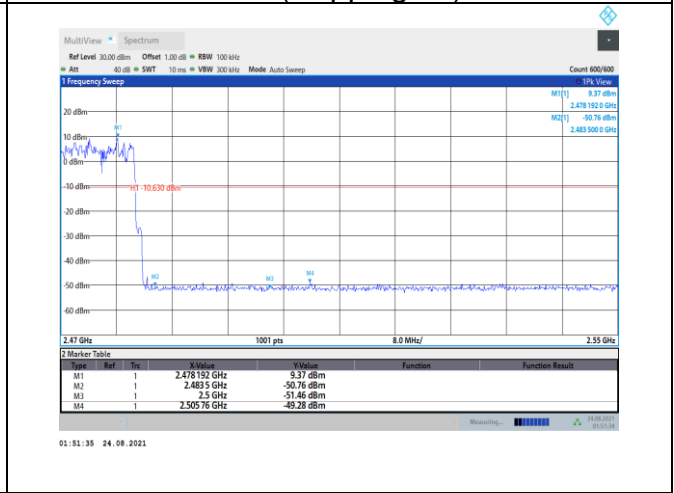
CH0(Hopping off)



CH0(Hopping on)



CH78(Hopping off)



CH78(Hopping on)