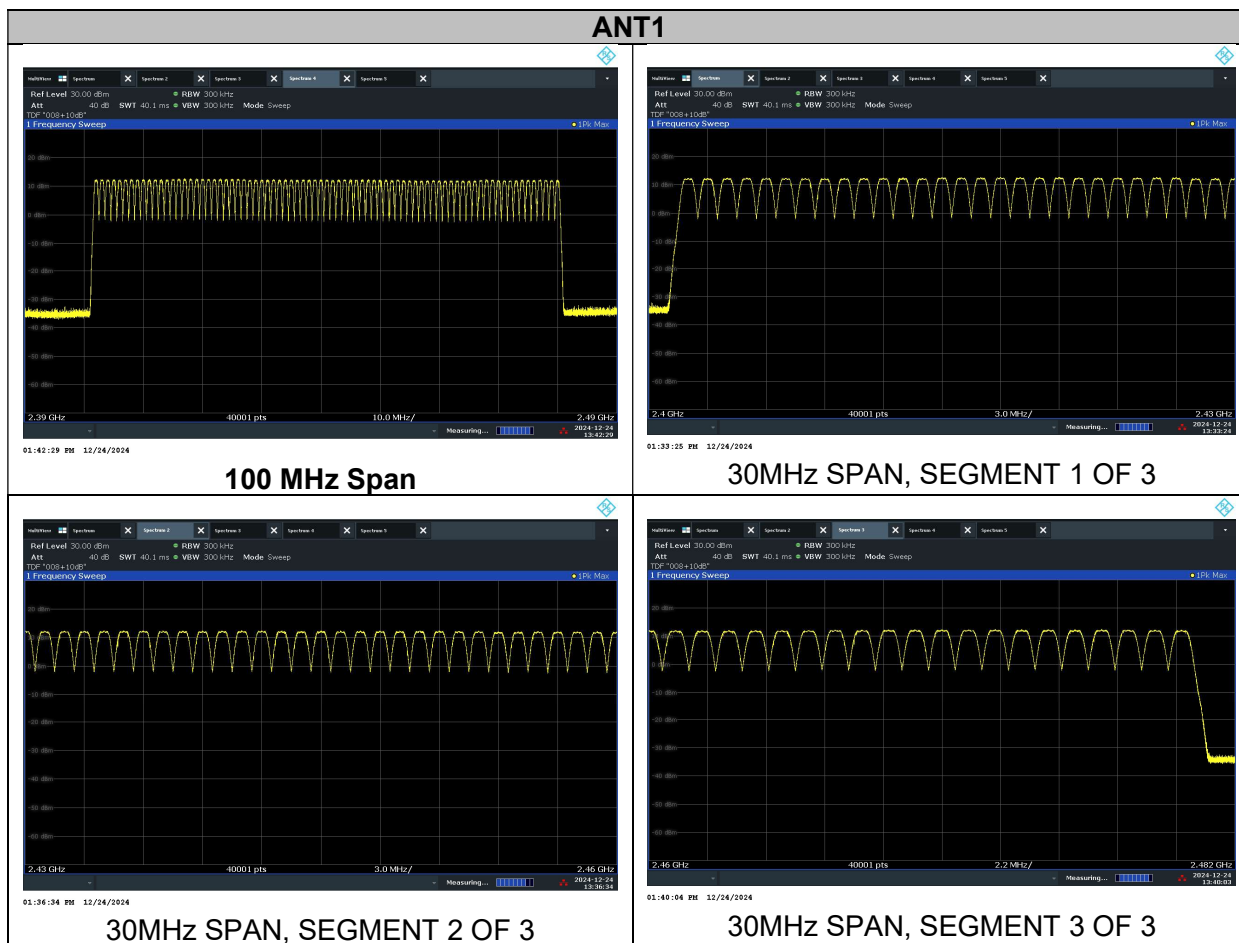
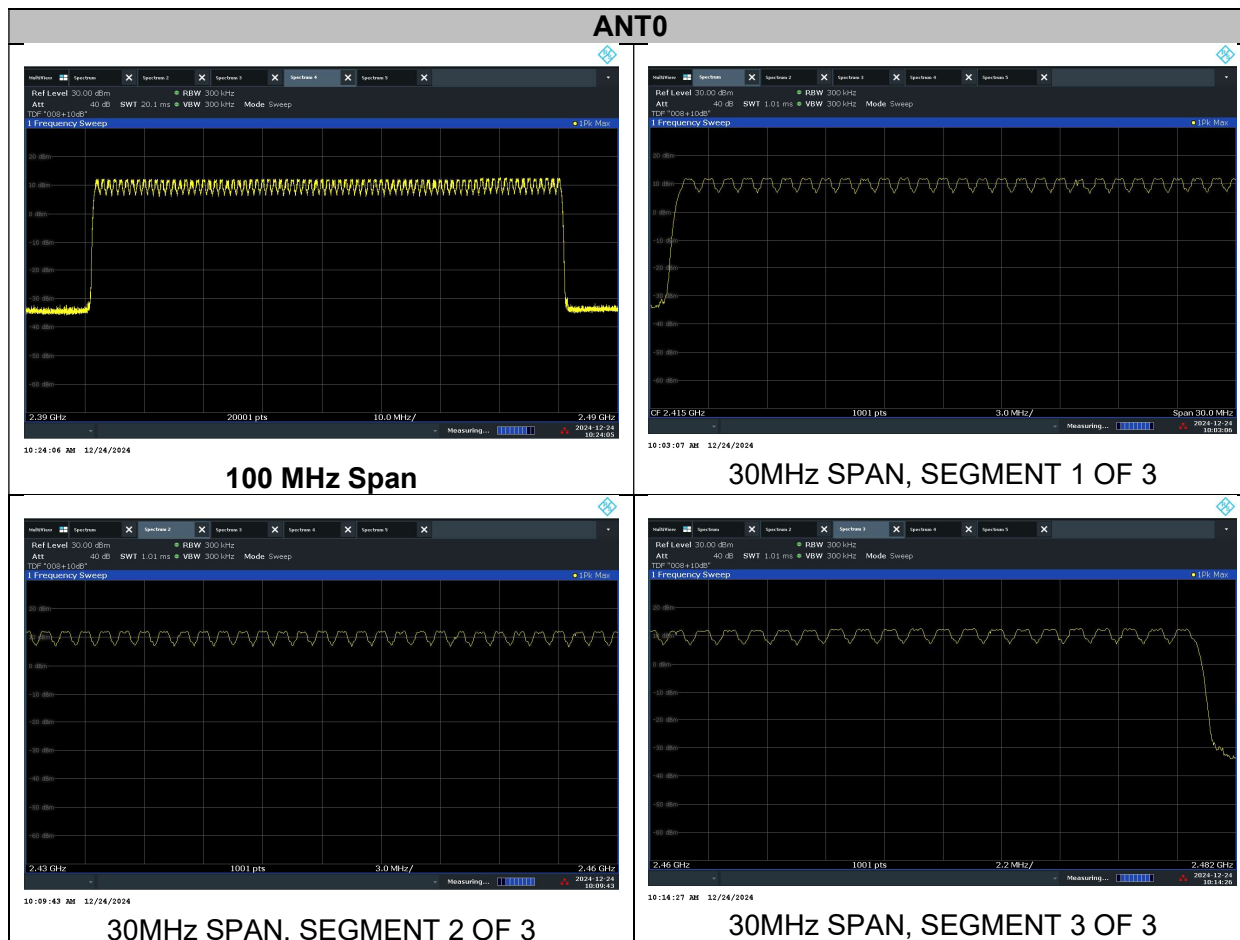
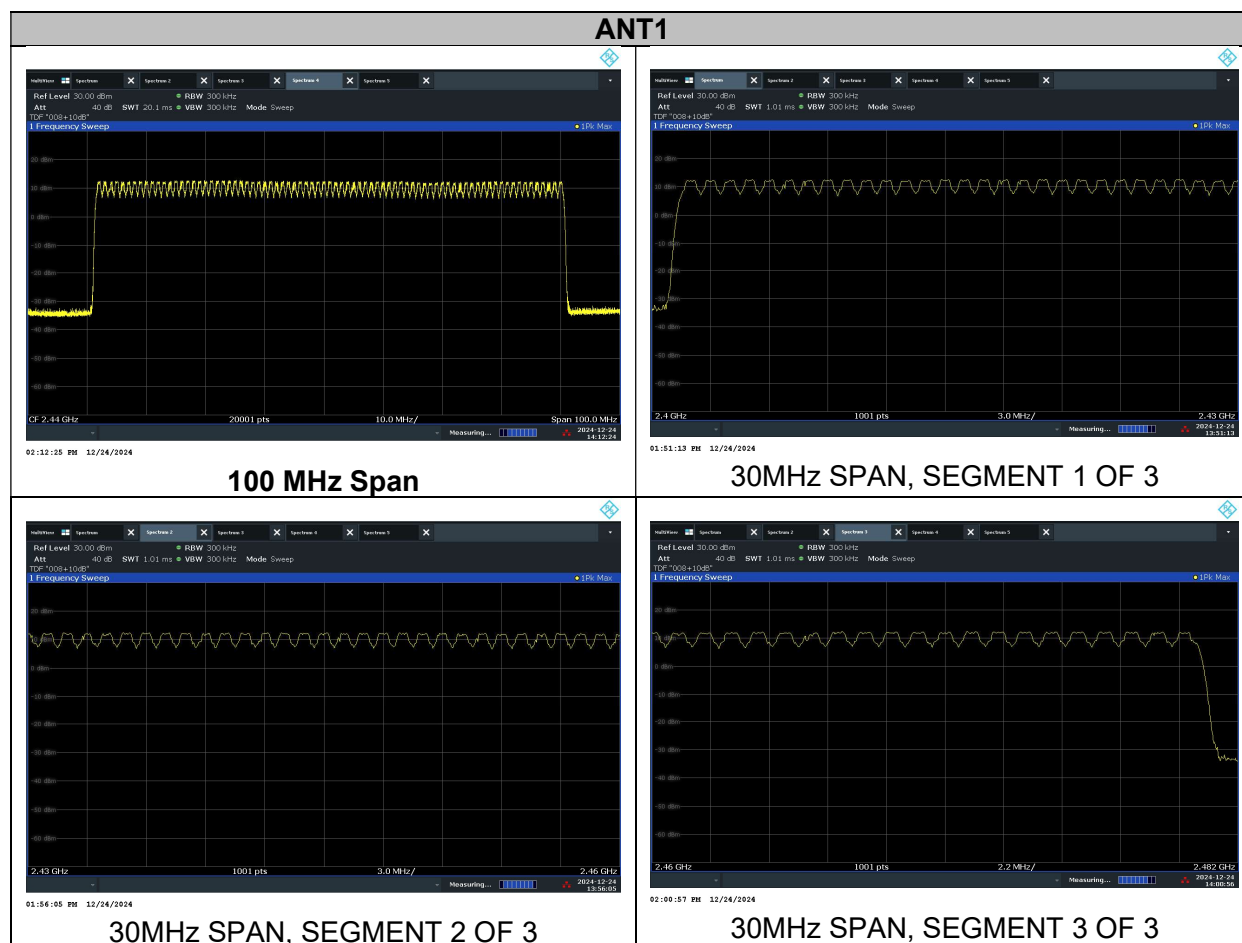




10.4.2. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION





10.5. AVERAGE TIME OF OCCUPANCY

LIMITS

FCC §15.247 (a) (1) (iii)
RSS-247 (5.1) (d)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{pulse width}$.

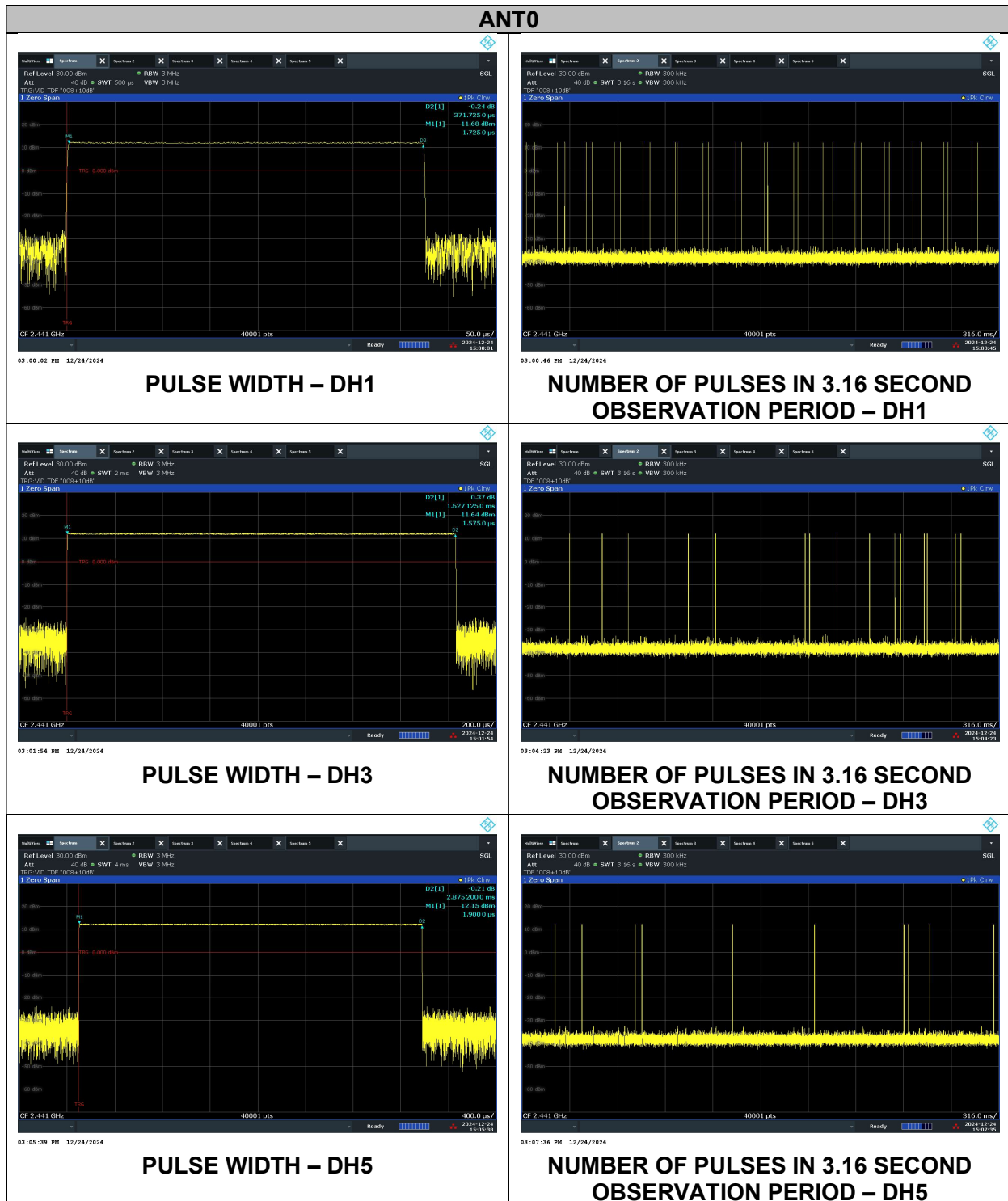
For AFH mode, the average time of occupancy in the specified 8 second period (20 channels * 0.4 seconds) is equal to $10 * (\# \text{ of pulses in } 0.8 \text{ s}) * \text{pulse width}$.

RESULTS

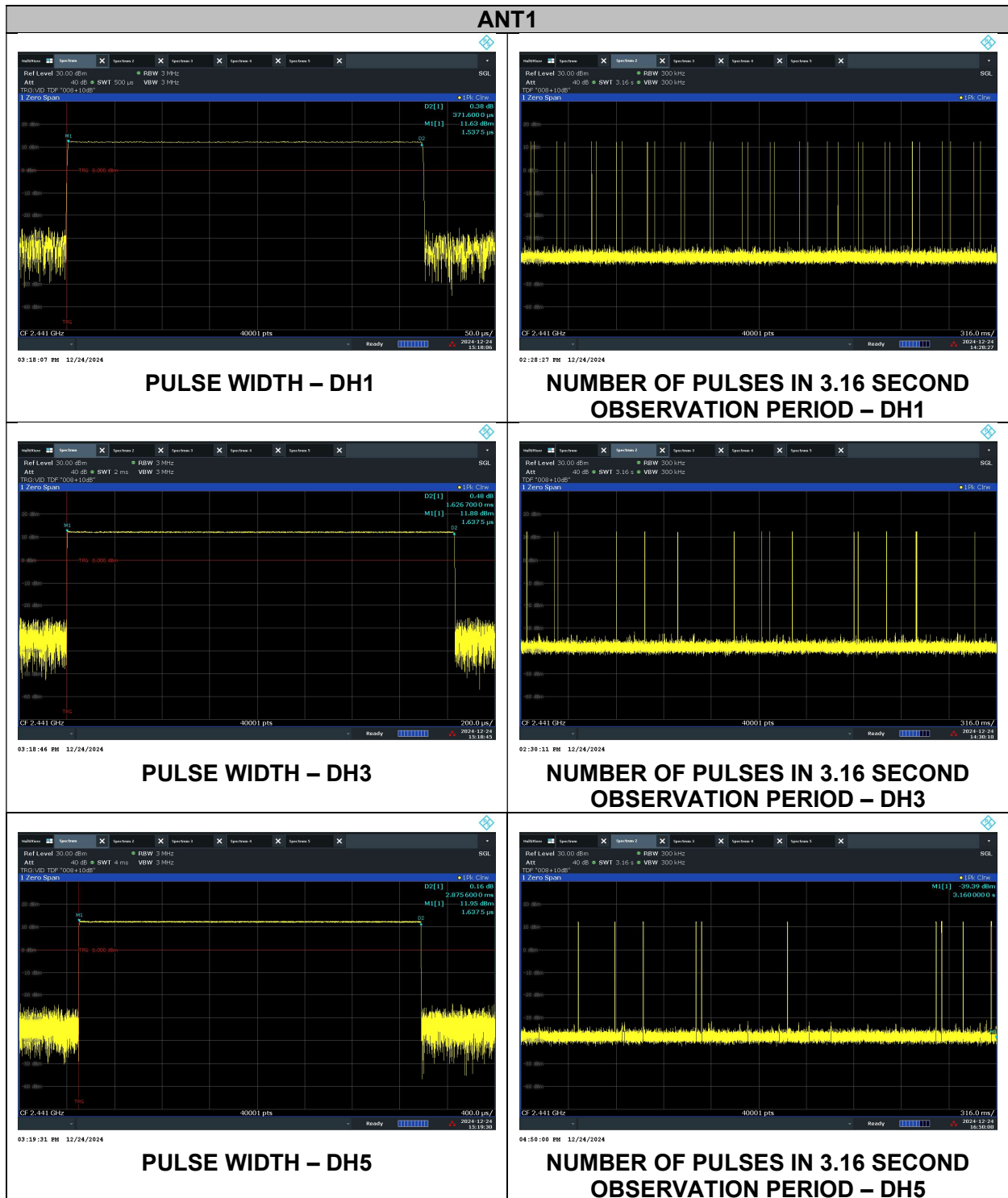
See the following pages.

10.5.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

ANT0					
DH Packet	Pulse Width [msec]	Number of Pulses in 3.16 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
GFSK Normal					
DH1	0.372	32	0.012	0.400	-0.388
DH3	1.627	16	0.026	0.400	-0.374
DH5	2.875	10	0.029	0.400	-0.371
DH Packet	Pulse Width [msec]	Number of Pulses in 0.8 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
GFSK AFH					
DH1	0.372	8	0.003	0.400	-0.397
DH3	1.627	4	0.007	0.400	-0.393
DH5	2.875	2.5	0.007	0.400	-0.393

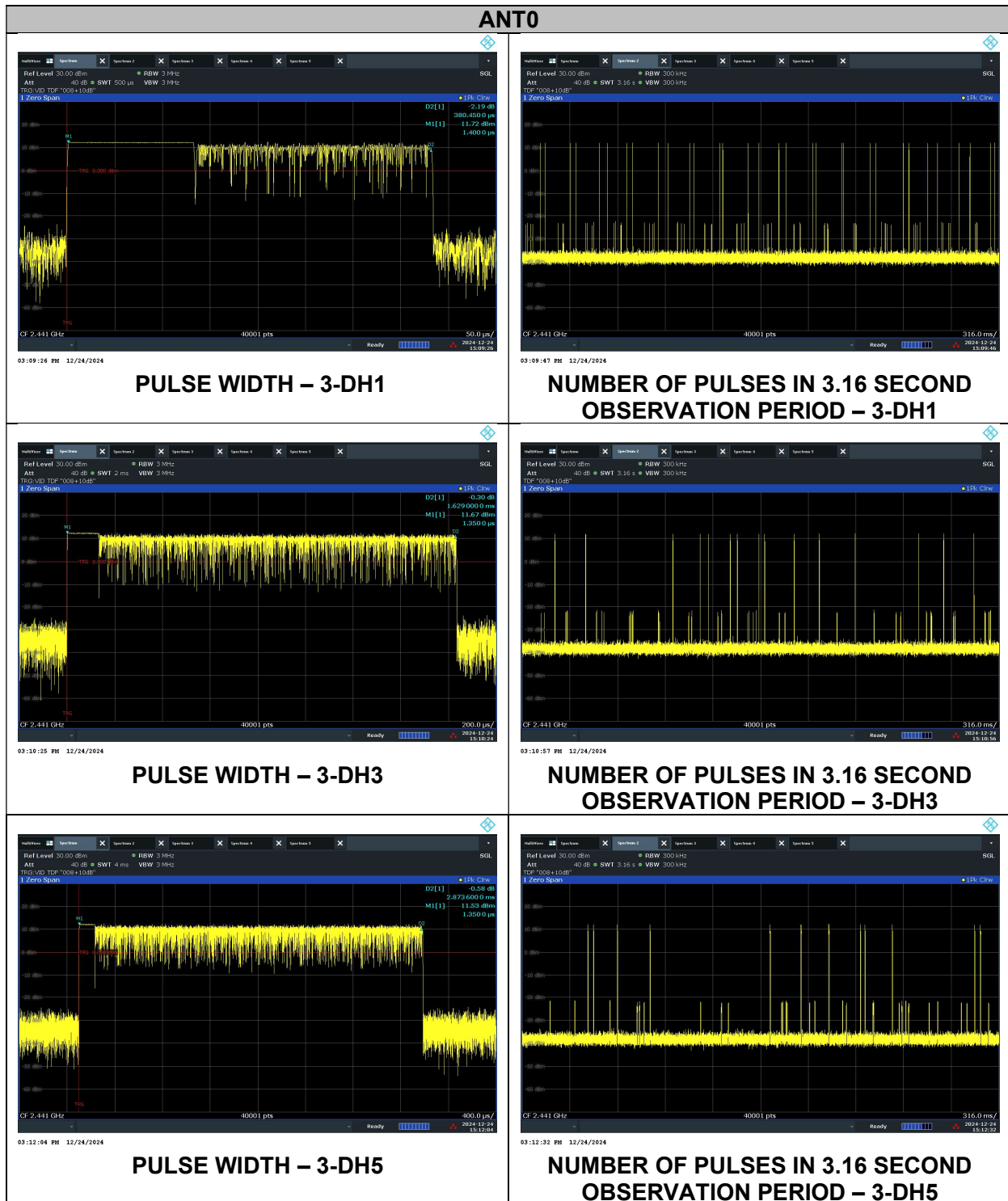


ANT1					
DH Packet	Pulse Width [msec]	Number of Pulses in 3.16 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
GFSK Normal					
DH1	0.372	32	0.012	0.400	-0.388
DH3	1.627	15	0.024	0.400	-0.376
DH5	2.876	10	0.029	0.400	-0.371
DH Packet	Pulse Width [msec]	Number of Pulses in 0.8 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
GFSK AFH					
DH1	0.372	8	0.003	0.400	-0.397
DH3	1.627	3.75	0.006	0.400	-0.394
DH5	2.876	2.5	0.007	0.400	-0.393

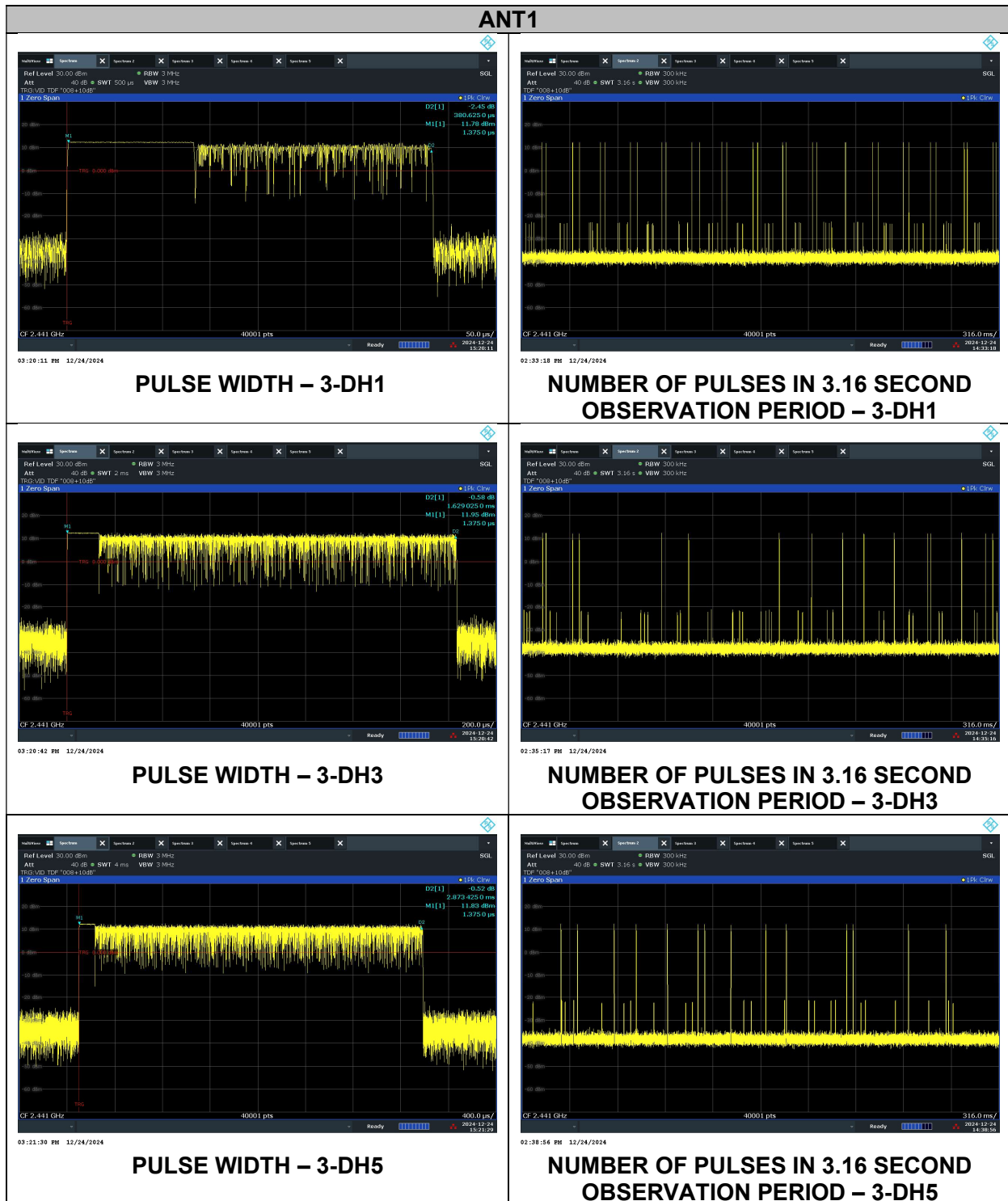


10.5.2. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

ANT0					
DH Packet	Pulse Width [msec]	Number of Pulses in 3.16 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
8PSK Normal					
3-DH1	0.380	32	0.012	0.400	-0.388
3-DH3	1.629	15	0.024	0.400	-0.376
3-DH5	2.874	12	0.034	0.400	-0.366
DH Packet	Pulse Width [msec]	Number of Pulses in 0.8 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
8PSK AFH					
3-DH1	0.380	8	0.003	0.400	-0.397
3-DH3	1.629	3.75	0.006	0.400	-0.394
3-DH5	2.874	3	0.009	0.400	-0.391



ANT1					
DH Packet	Pulse Width [msec]	Number of Pulses in 3.16 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
8PSK Normal					
3-DH1	0.381	32	0.012	0.400	-0.388
3-DH3	1.629	16	0.026	0.400	-0.374
3-DH5	2.873	14	0.040	0.400	-0.360
DH Packet	Pulse Width [msec]	Number of Pulses in 0.8 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
8PSK AFH					
3-DH1	0.381	8	0.003	0.400	-0.397
3-DH3	1.629	4	0.007	0.400	-0.393
3-DH5	2.873	3.5	0.010	0.400	-0.390



10.6. OUTPUT POWER

LIMITS

§15.247 (b) (1)

RSS-247 5.1 (b)

The correlated maximum antenna gain + Beamforming gain is less than 6 dBi, therefore the limit is 21 dBm.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

10.6.1. BASIC DATA RATE GFSK MODULATION

Antenna	Channel	Frequency [MHz]	Peak Output Power [dBm]	Limit [dBm]	Margin [dB]
ANT0	0	2 402	12.19	21.00	-8.81
	39	2 441	12.26		-8.74
	78	2 480	12.54		-8.46
ANT1	0	2 402	12.59		-8.41
	39	2 441	12.51		-8.49
	78	2 480	12.48		-8.52
Worst			12.59		-8.41

10.6.2. ENHANCED DATA RATE Pi/4-DPSK MODULATION

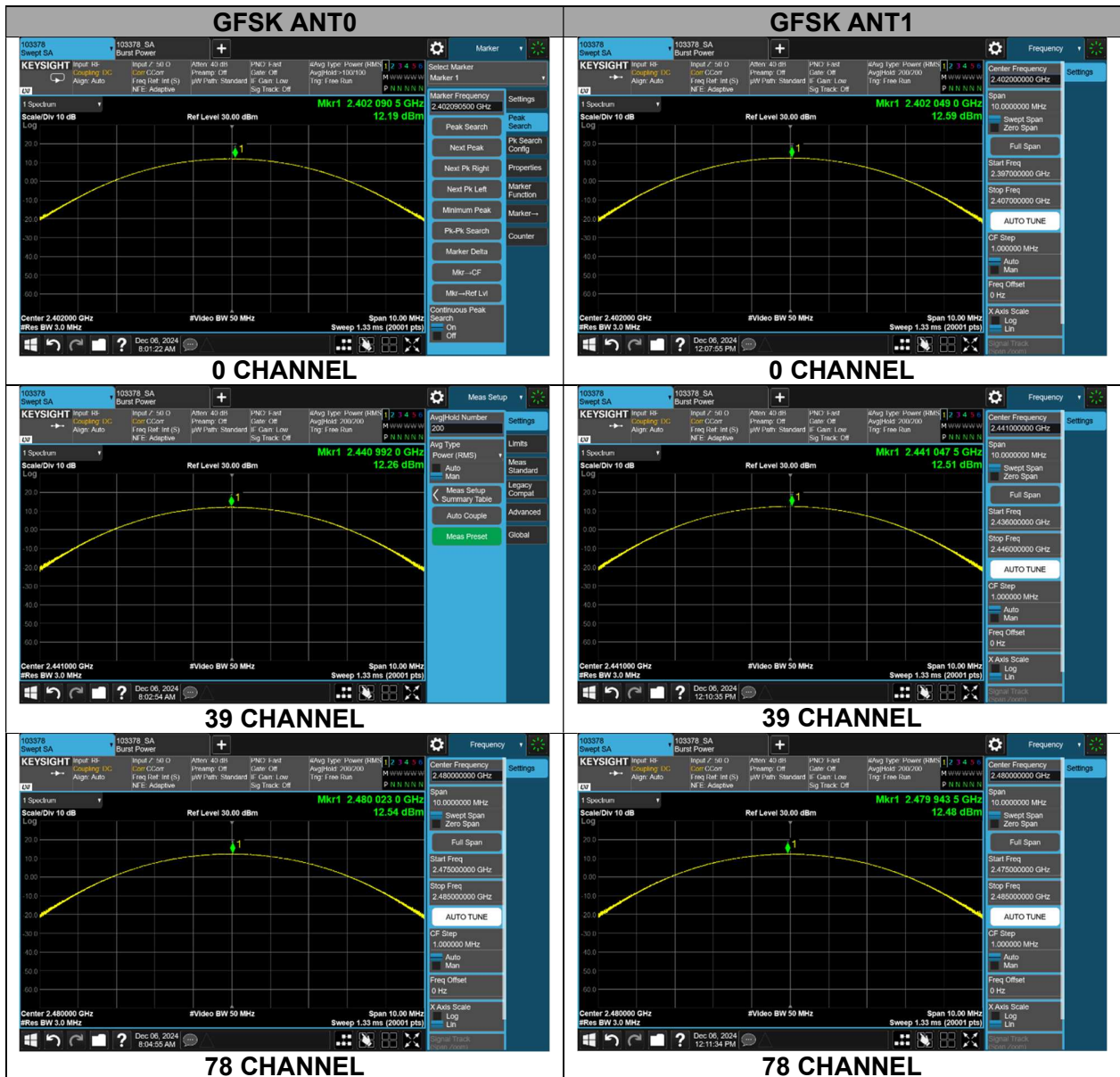
Antenna	Channel	Frequency [MHz]	Peak Output Power [dBm]	Limit [dBm]	Margin [dB]
ANT0	0	2 402	11.81	21.00	-9.19
	39	2 441	11.83		-9.17
	78	2 480	12.37		-8.63
ANT1	0	2 402	12.43		-8.57
	39	2 441	12.27		-8.73
	78	2 480	12.38		-8.62
Worst			12.43		-8.57

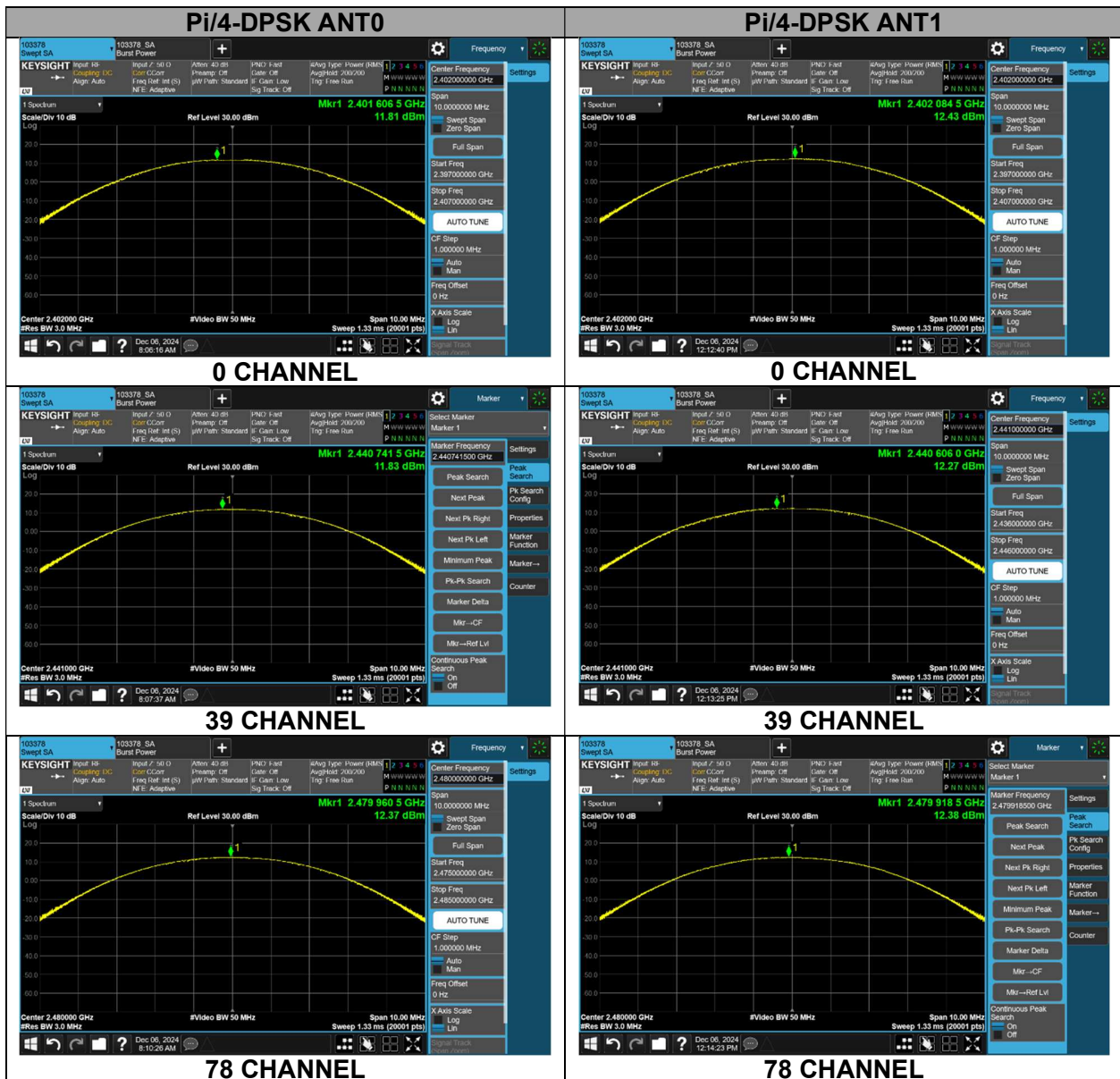
10.6.3. ENHANCED DATA RATE 8PSK MODULATION

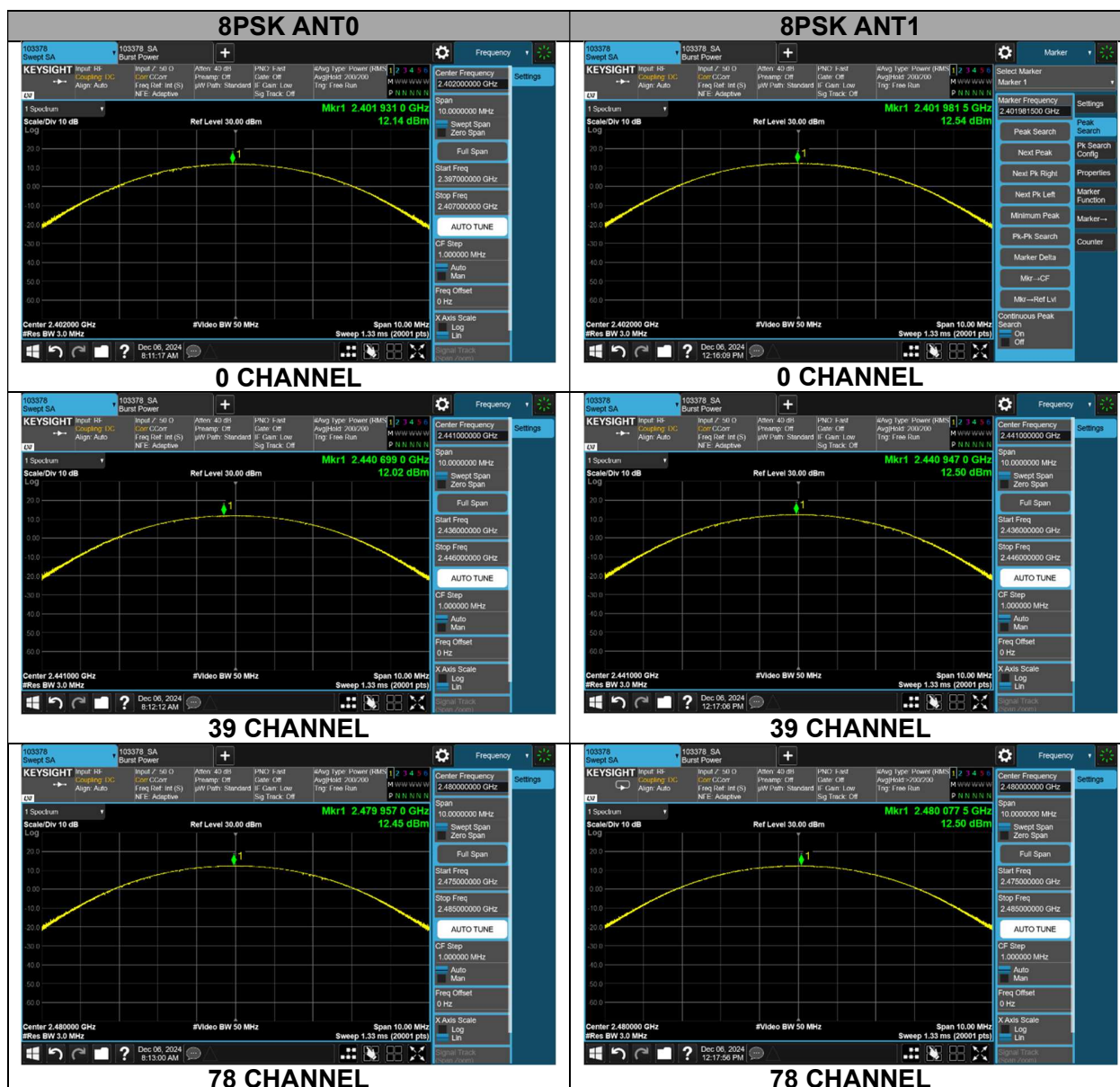
Antenna	Channel	Frequency [MHz]	Peak Output Power [dBm]	Limit [dBm]	Margin [dB]
ANT0	0	2 402	12.14	21.00	-8.86
	39	2 441	12.02		-8.98
	78	2 480	12.45		-8.55
ANT1	0	2 402	12.54		-8.46
	39	2 441	12.50		-8.50
	78	2 480	12.50		-8.50
Worst			12.54		-8.43

10.6.4. OUTPUT POWER PLOTS

PEAK OUTPUT POWER







10.7. AVERAGE POWER

LIMITS

None; for reporting purposes only

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter.
The cable assembly insertion loss was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

10.7.1. BASIC DATA RATE GFSK MODULATION

Antenna	Channel	Frequency [MHz]	Average Output Power [dBm]	Average Output Power [mW]
ANT0	0	2 402	11.51	14.15
	39	2 441	11.59	14.43
	78	2 480	12.02	15.91
ANT1	0	2 402	11.97	15.75
	39	2 441	11.94	15.63
	78	2 480	11.83	15.25

10.7.2. ENHANCED DATA RATE PI/4-DQPSK MODULATION

Antenna	Channel	Frequency [MHz]	Average Output Power [dBm]	Average Output Power [mW]
ANT0	0	2 402	8.74	7.49
	39	2 441	8.85	7.68
	78	2 480	9.34	8.59
ANT1	0	2 402	9.22	8.36
	39	2 441	9.21	8.34
	78	2 480	9.12	8.17

10.7.3. ENHANCED DATA RATE 8PSK MODULATION

Antenna	Channel	Frequency [MHz]	Average Output Power [dBm]	Average Output Power [mW]
ANT0	0	2 402	8.80	7.58
	39	2 441	8.89	7.74
	78	2 480	9.33	8.57
ANT1	0	2 402	9.26	8.44
	39	2 441	9.24	8.39
	78	2 480	9.15	8.22