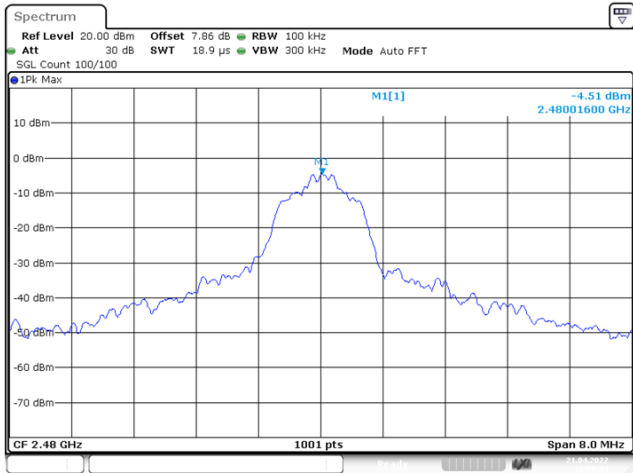
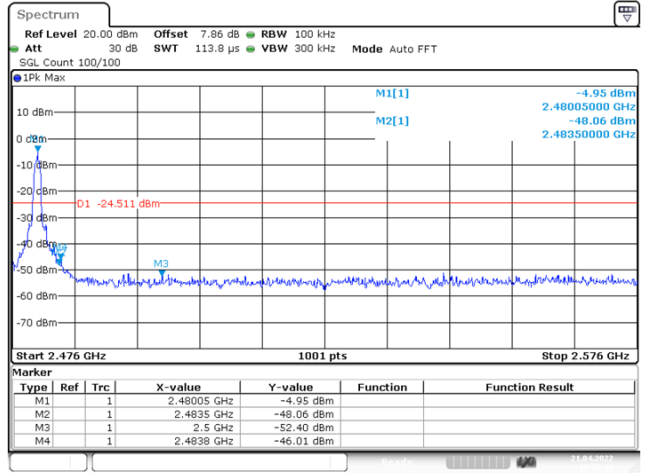


$\pi/4$ -DQPSK
Highest Channel



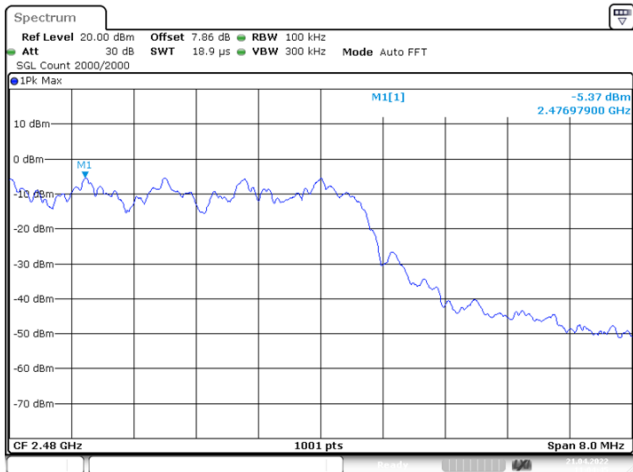
Date: 21.APR.2022 10:58:34



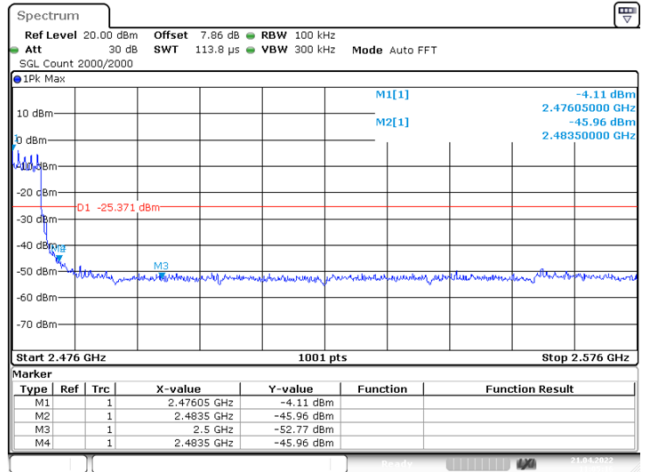
Date: 21.APR.2022 10:58:40

No-hopping mode

Highest Channel



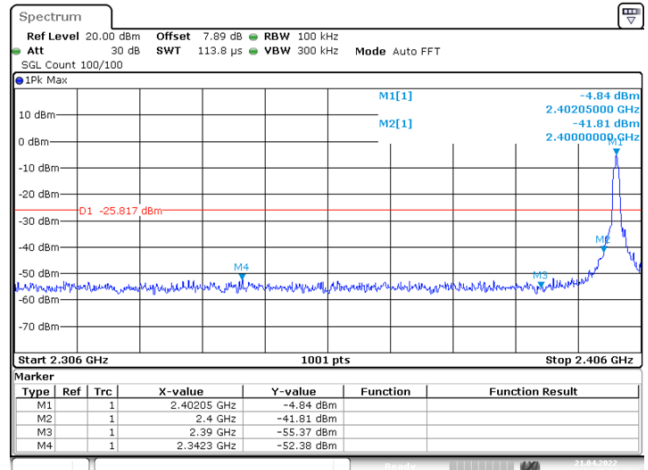
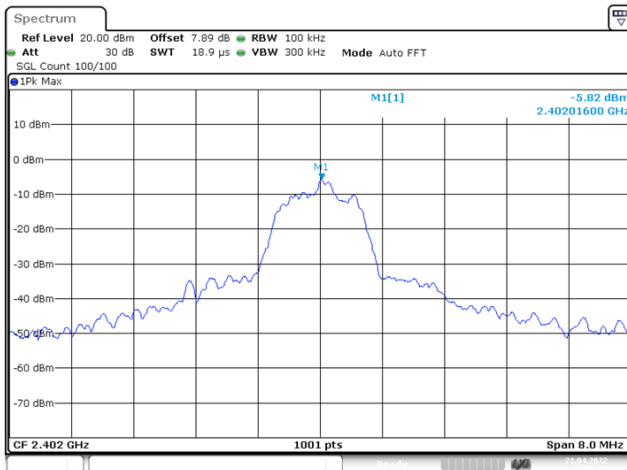
Date: 21.APR.2022 11:04:44



Date: 21.APR.2022 11:05:16

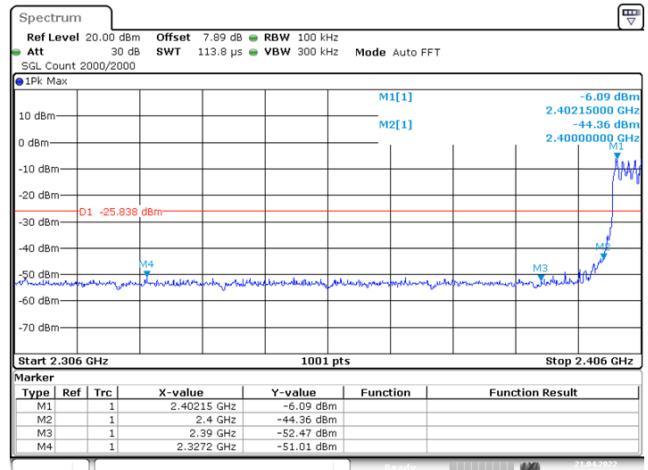
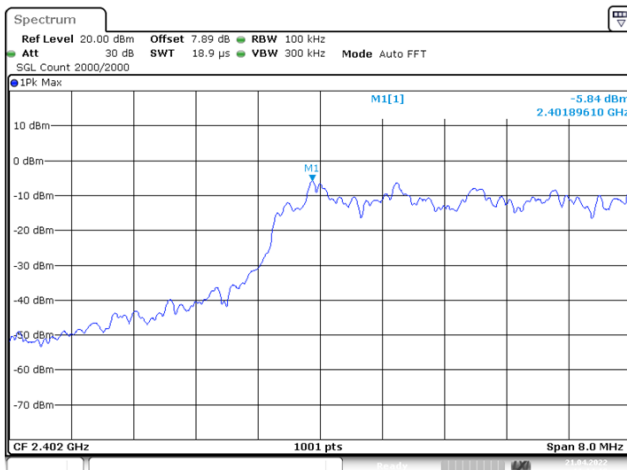
Hopping mode

8DPSK Lowest Channel



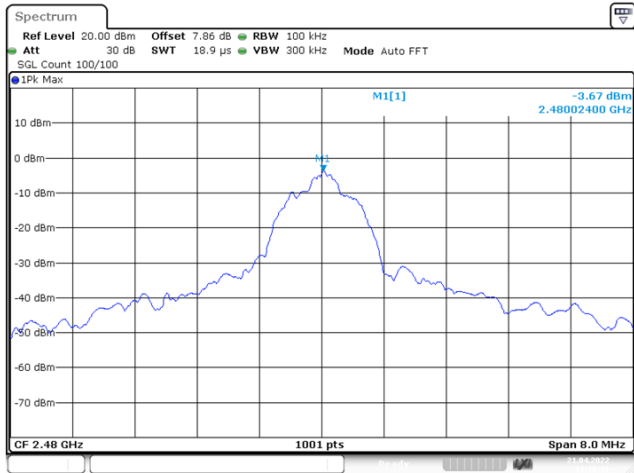
No-hopping mode

Lowest Channel

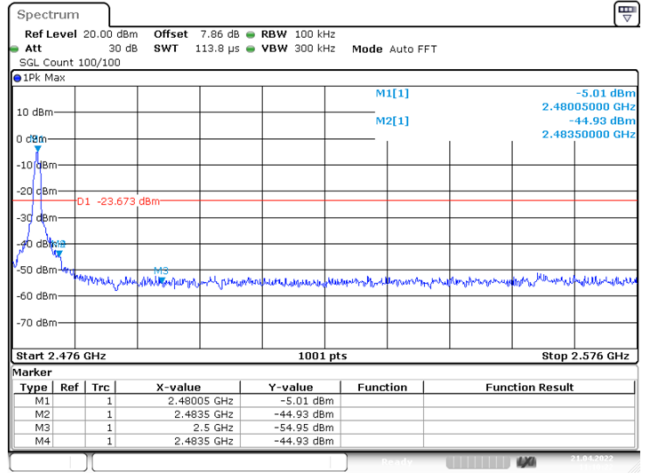


Hopping mode

8DPSK Highest Channel



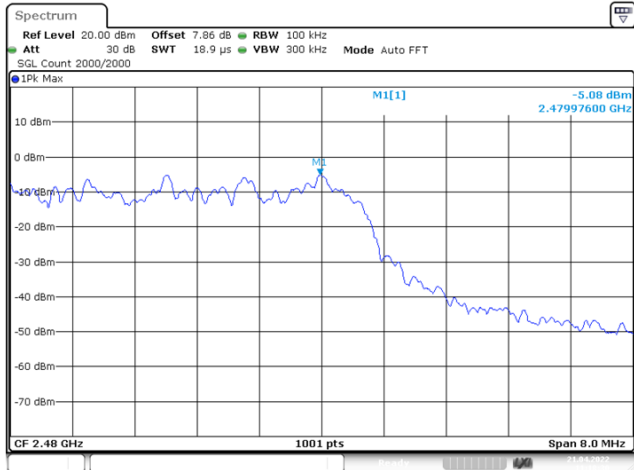
Date: 21.APR.2022 11:10:16



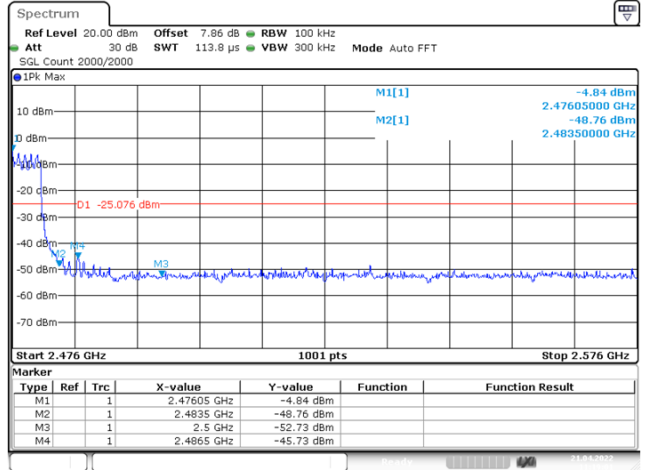
Date: 21.APR.2022 11:10:21

No-hopping mode

Highest Channel



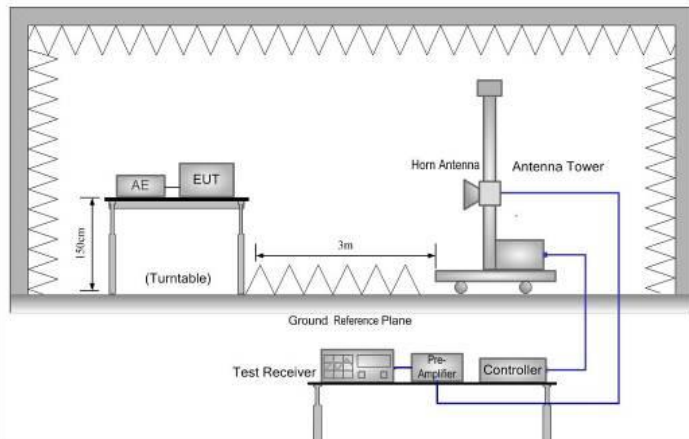
Date: 21.APR.2022 11:18:30



Date: 21.APR.2022 11:19:01

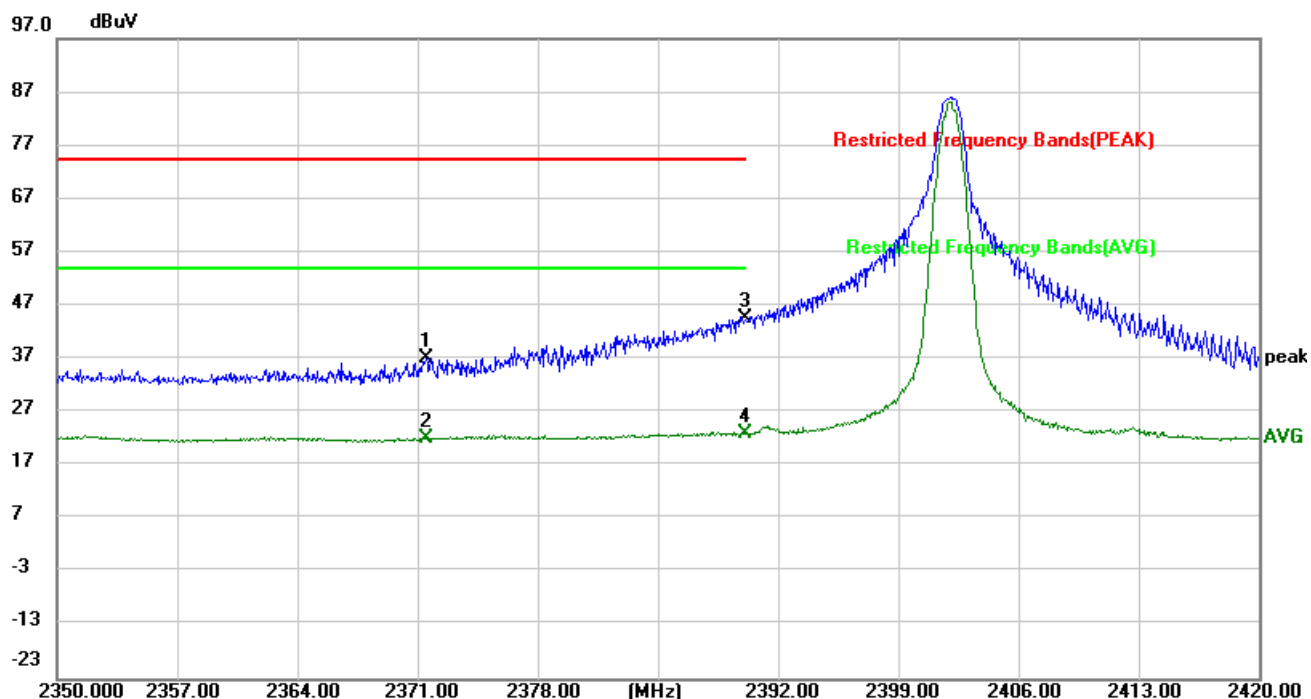
Hopping mode

5.9.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Frequency Range:	2380 MHz to 2410 MHz and 2465 MHz to 2520 MHz				
TestDistance:	3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	Above 1GHz		54.00		Average Value
			74.00		Peak Value
Test setup:					
Test Procedure:	<div>1. The EUT was placed on the top of a rotating table 1.5meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</div> <div>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</div> <div>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</div> <div>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotating table was turned from 0 degrees to 360 degrees to find the maximum reading.</div> <div>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</div> <div>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</div>				
Test Instruments:	Refer to section 4.9 for details				
Test mode:	Non-hopping mode				
Test results:	Passed				

GFSK Mode:

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	DH5 Tx mode
Test Channel:	Lowest channel	Polarization:	Vertical
Test Voltage:	DC7.4V	Environment:	Temp:23.8℃ Humi: 52%

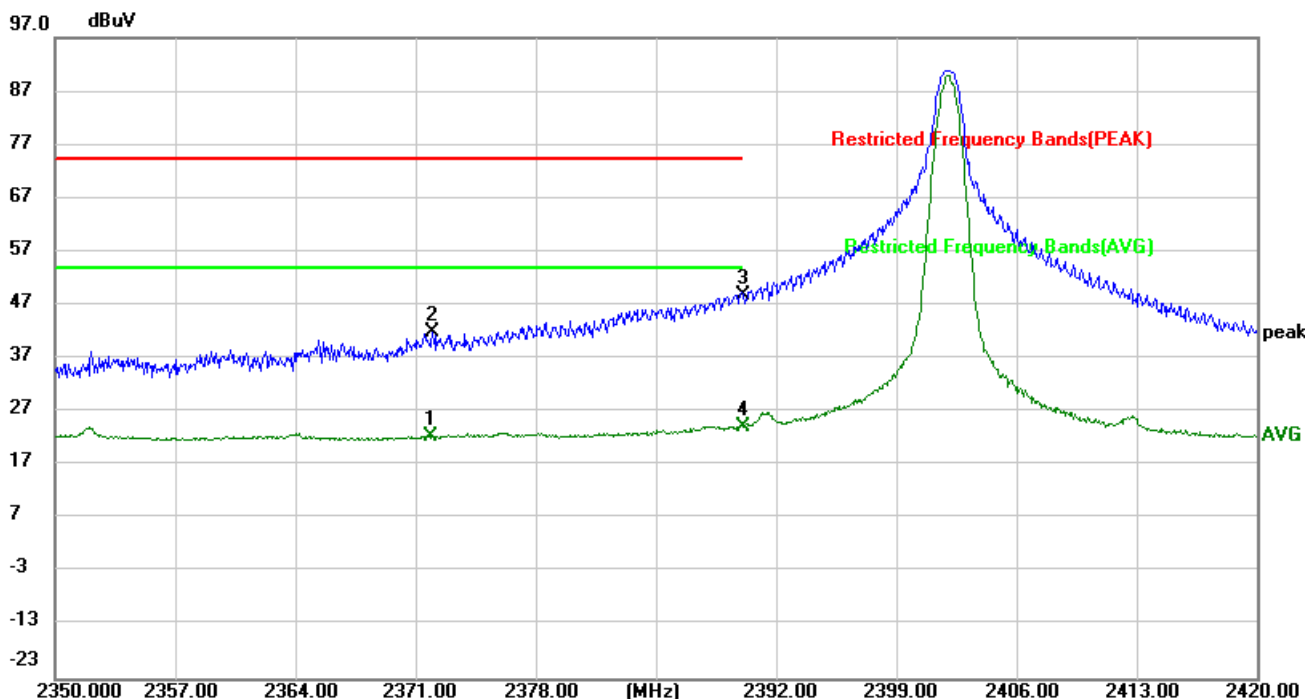


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		2371.490	38.44	-1.19	37.25	74.00	36.75	peak
2		2371.490	23.22	-1.19	22.03	54.00	31.97	AVG
3	*	2390.000	45.81	-1.17	44.64	74.00	29.36	peak
4		2390.000	24.23	-1.17	23.06	54.00	30.94	AVG

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	DH5Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	DC7.4V	Environment:	Temp:23.8℃ Humi: 52%

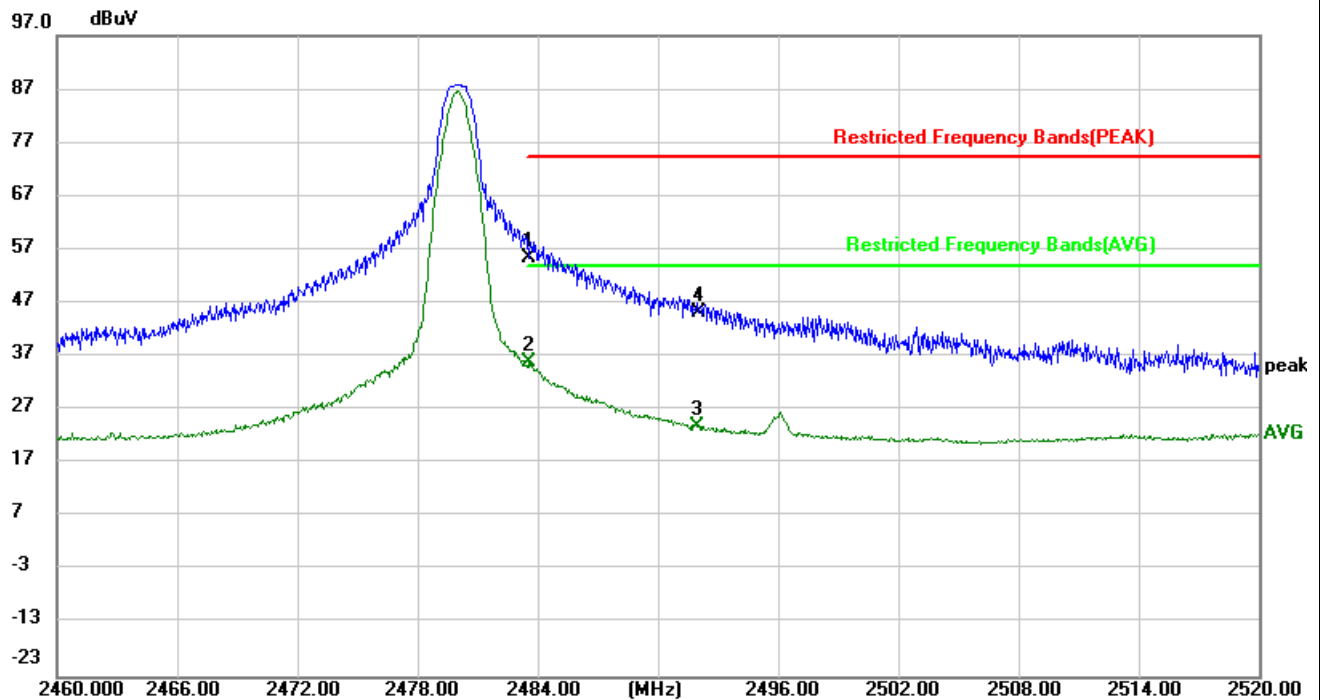


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dBuV	dB	dBuV	dBuV	dB Detector
1		2371.910	23.61	-1.19	22.42	54.00	31.58 AVG
2		2371.980	43.20	-1.19	42.01	74.00	31.99 peak
3	*	2390.000	50.03	-1.17	48.86	74.00	25.14 peak
4		2390.000	25.45	-1.17	24.28	54.00	29.72 AVG

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	DH5 Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	DC7.4V	Environment:	Temp:23.8℃ Humi: 52%

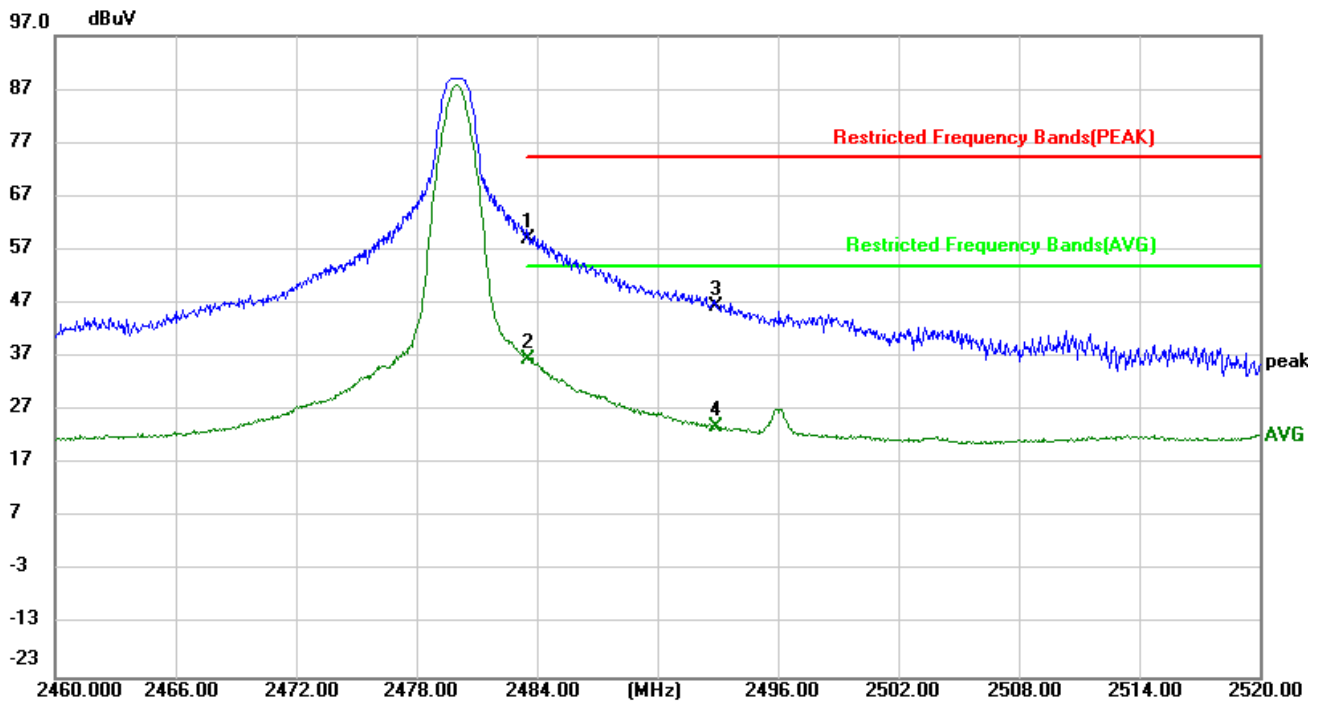


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		2483.500	56.50	-1.00	55.50	74.00	18.50	peak
2	*	2483.500	36.94	-1.00	35.94	54.00	18.06	AVG
3		2491.920	25.03	-0.99	24.04	54.00	29.96	AVG
4		2492.040	46.17	-0.99	45.18	74.00	28.82	peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	DH5 Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	DC7.4V	Environment:	Temp:23.8℃ Humi: 52%



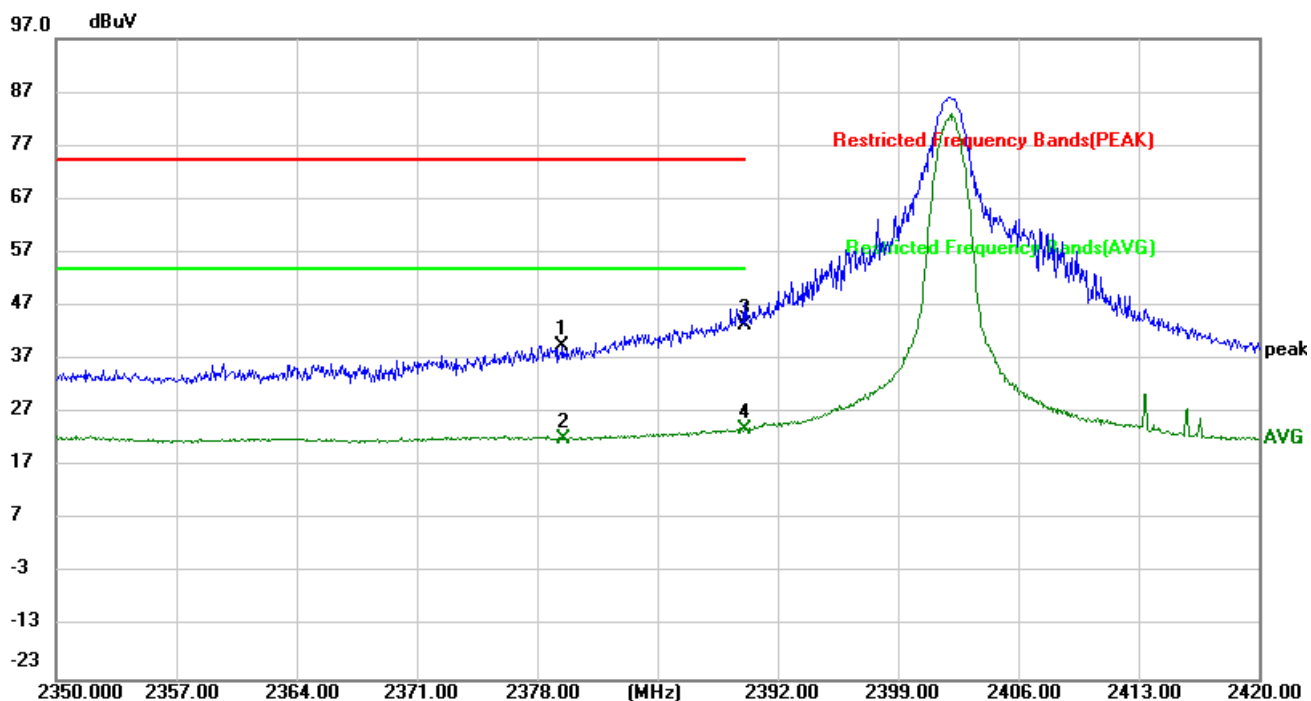
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	*	2483.500	60.00	-1.00	59.00	74.00	15.00	peak
2		2483.500	37.45	-1.00	36.45	54.00	17.55	AVG
3		2492.880	47.52	-0.99	46.53	74.00	27.47	peak
4		2492.880	24.98	-0.99	23.99	54.00	30.01	AVG

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

$\pi/4$ -DQPSK mode

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	2DH5 Tx mode
Test Channel:	Lowest channel	Polarization:	Vertical
Test Voltage:	DC7.4V	Environment:	Temp:23.8℃ Humi: 52%

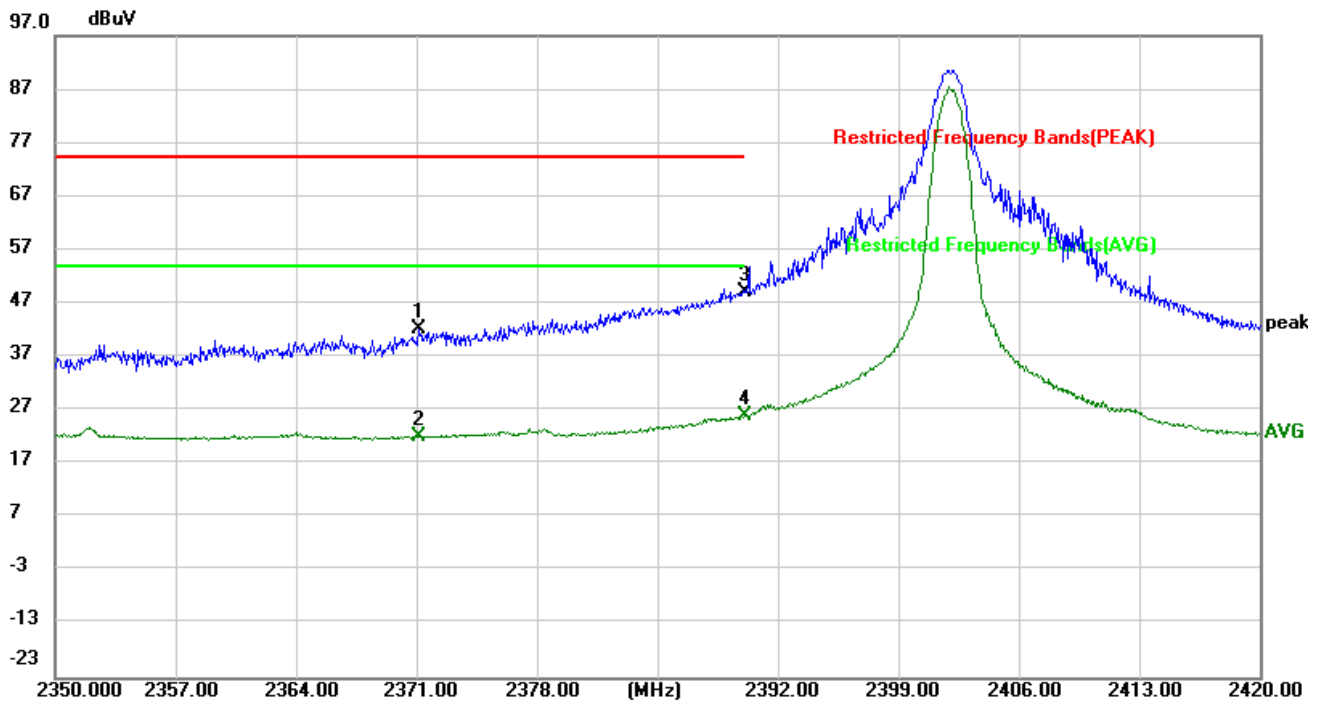


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		2379.470	40.74	-1.19	39.55	74.00	34.45	peak
2		2379.540	23.45	-1.19	22.26	54.00	31.74	AVG
3		2390.000	44.48	-1.17	43.31	74.00	30.69	peak
4	*	2390.000	25.03	-1.17	23.86	54.00	30.14	AVG

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	2DH5 Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	DC7.4V	Environment:	Temp:23.8℃ Humi: 52%

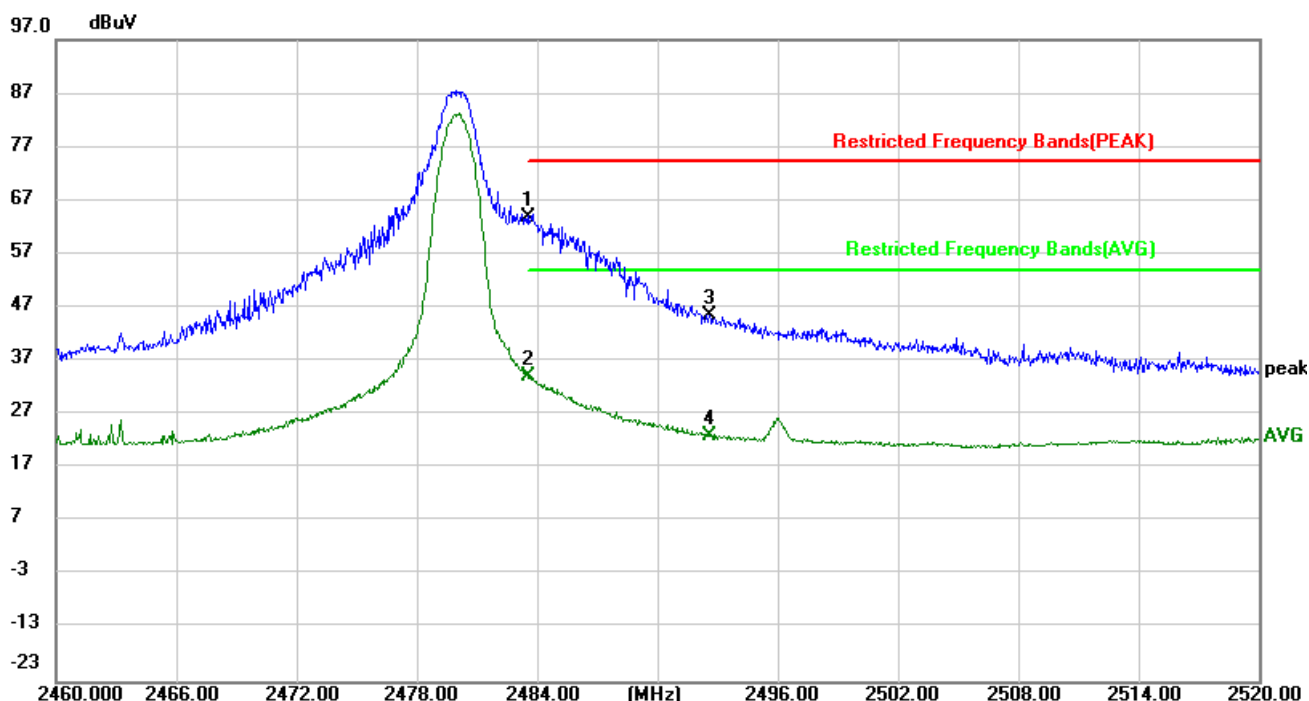


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		2371.140	43.33	-1.19	42.14	74.00	31.86	peak
2		2371.140	23.32	-1.19	22.13	54.00	31.87	AVG
3	*	2390.000	50.23	-1.17	49.06	74.00	24.94	peak
4		2390.000	27.11	-1.17	25.94	54.00	28.06	AVG

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	2DH5 Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	DC7.4V	Environment:	Temp:23.8℃ Humi: 52%

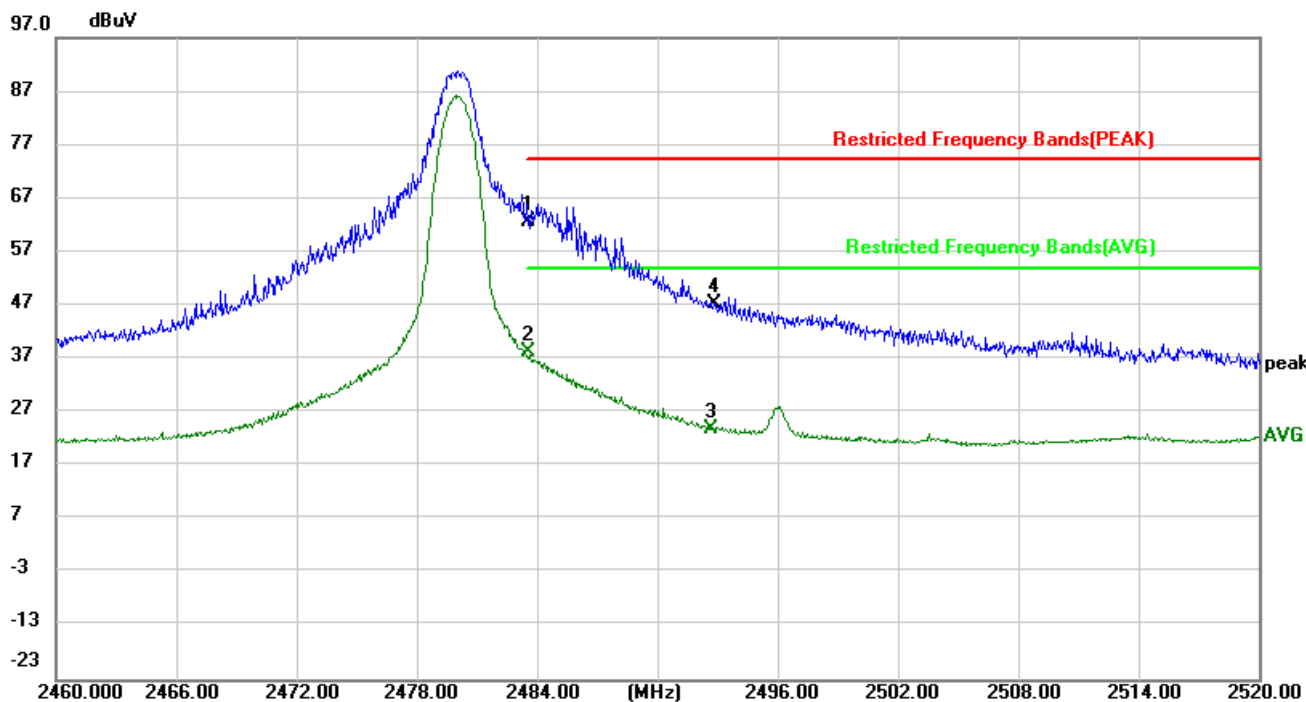


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	2483.500	65.00	-1.00	64.00	74.00	10.00	peak
2		2483.500	35.15	-1.00	34.15	54.00	19.85	AVG
3		2492.580	46.54	-0.99	45.55	74.00	28.45	peak
4		2492.580	24.13	-0.99	23.14	54.00	30.86	AVG

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	2DH5 Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	DC7.4V	Environment:	Temp:23.8℃ Humi: 52%



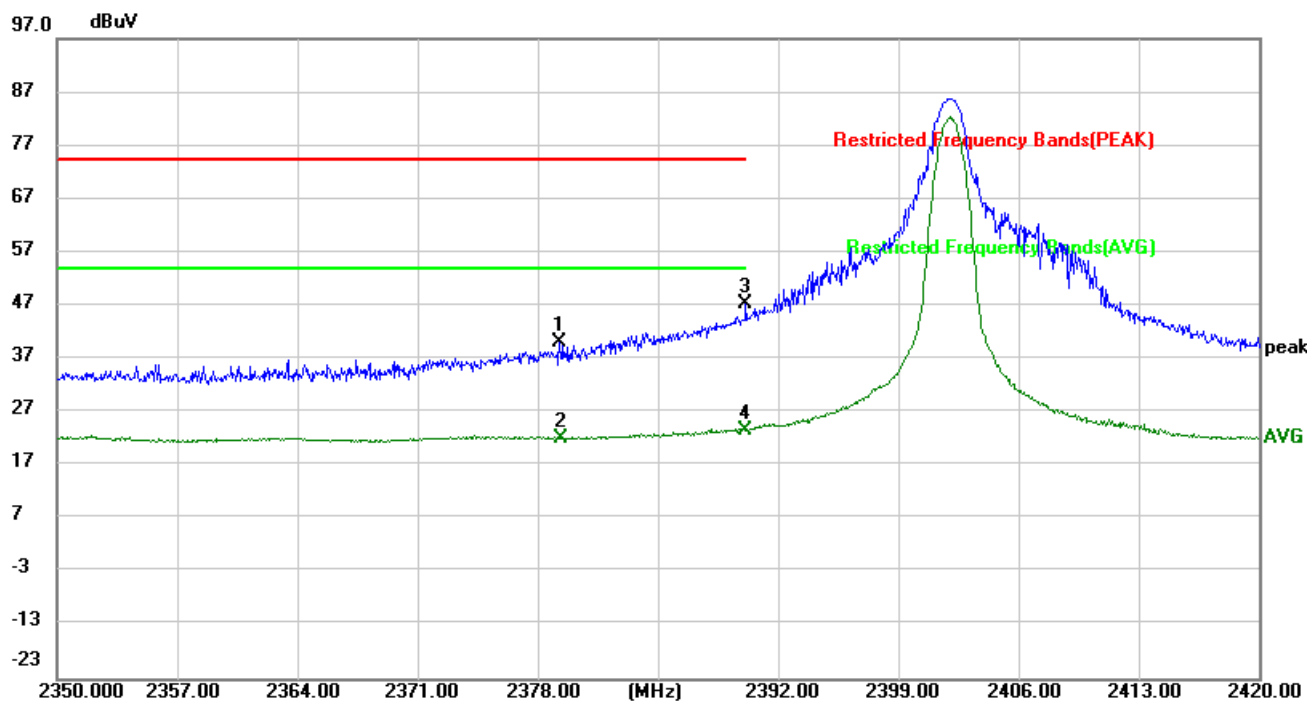
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	*	2483.500	63.66	-1.00	62.66	74.00	11.34	peak
2		2483.500	39.47	-1.00	38.47	54.00	15.53	AVG
3		2492.700	24.94	-0.99	23.95	54.00	30.05	AVG
4		2492.820	48.35	-0.99	47.36	74.00	26.64	peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

8DPSK mode

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	3DH5 Tx mode
Test Channel:	Lowest channel	Polarization:	Vertical
Test Voltage:	DC7.4V	Environment:	Temp:23.8℃ Humi: 52%

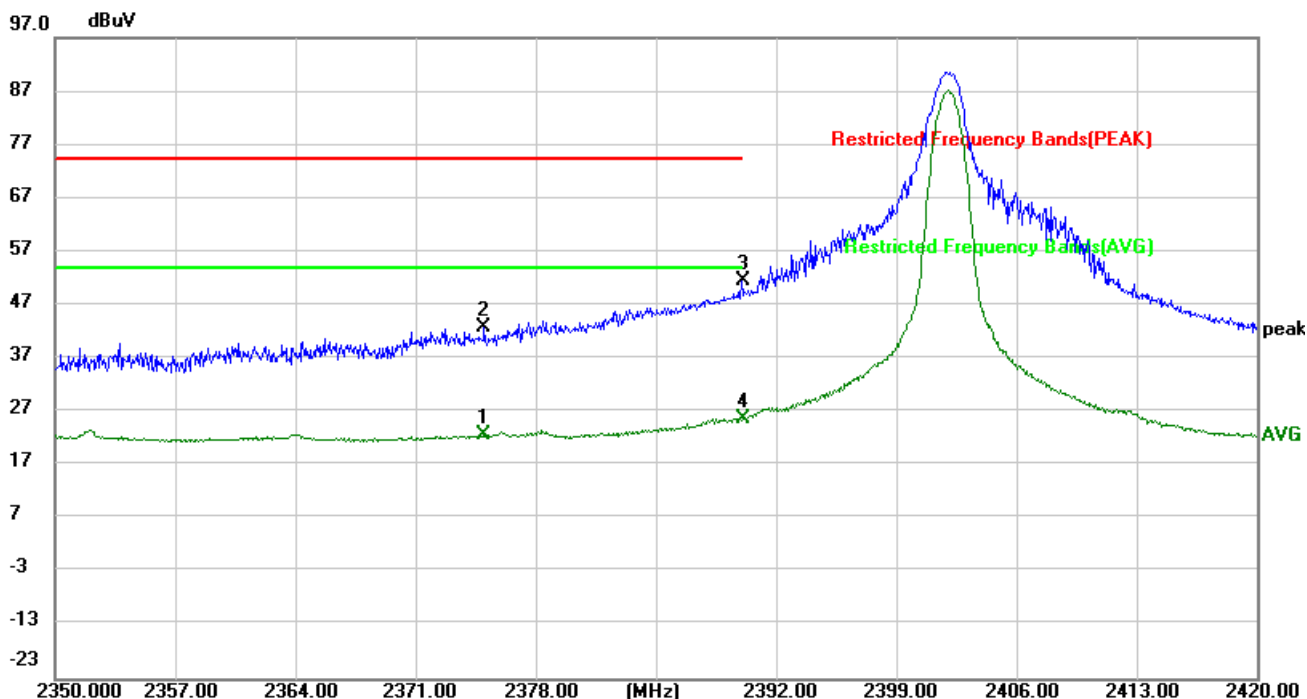


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		2379.260	41.35	-1.19	40.16	74.00	33.84	peak
2		2379.330	23.28	-1.19	22.09	54.00	31.91	AVG
3	*	2390.000	48.46	-1.17	47.29	74.00	26.71	peak
4		2390.000	24.82	-1.17	23.65	54.00	30.35	AVG

Remark:

- Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	3DH5 Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	DC7.4V	Environment:	Temp:23.8℃ Humi: 52%

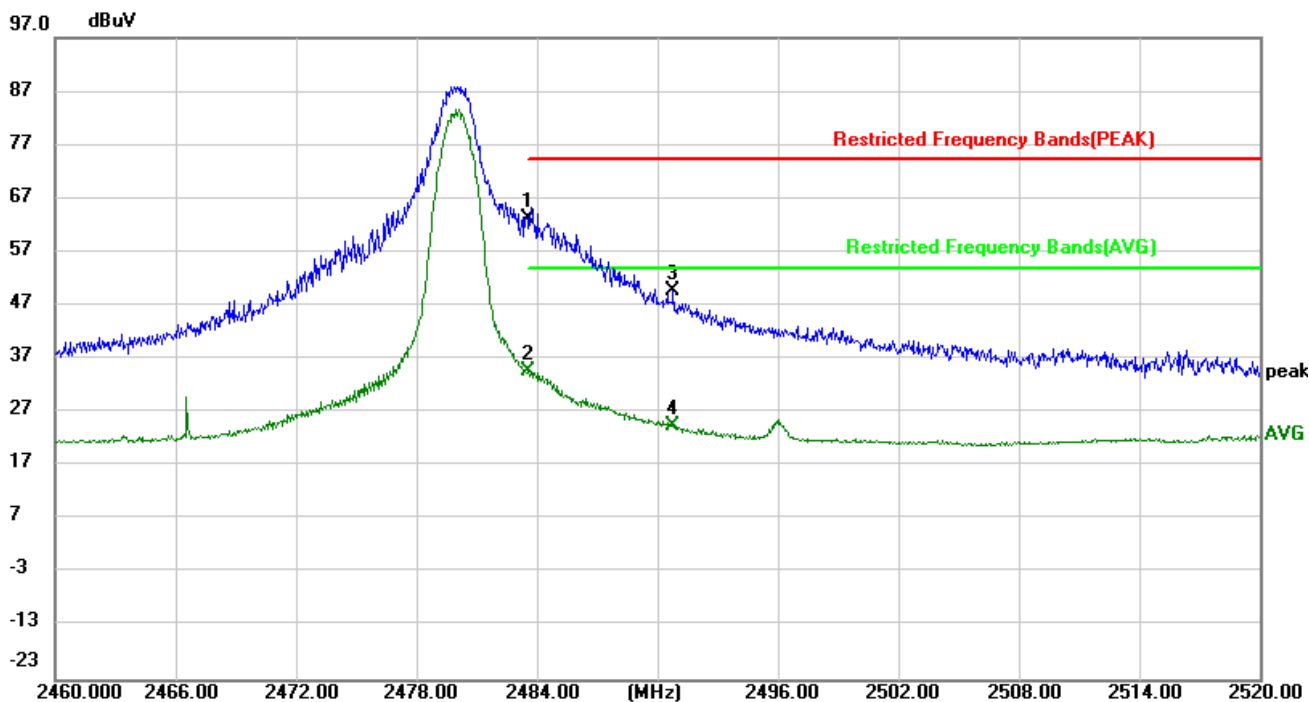


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		2374.920	23.85	-1.19	22.66	54.00	31.34	AVG
2		2374.990	43.91	-1.19	42.72	74.00	31.28	peak
3	*	2390.000	52.81	-1.17	51.64	74.00	22.36	peak
4		2390.000	26.80	-1.17	25.63	54.00	28.37	AVG

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	3DH5 Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	DC7.4V	Environment:	Temp:23.8℃ Humi: 52%

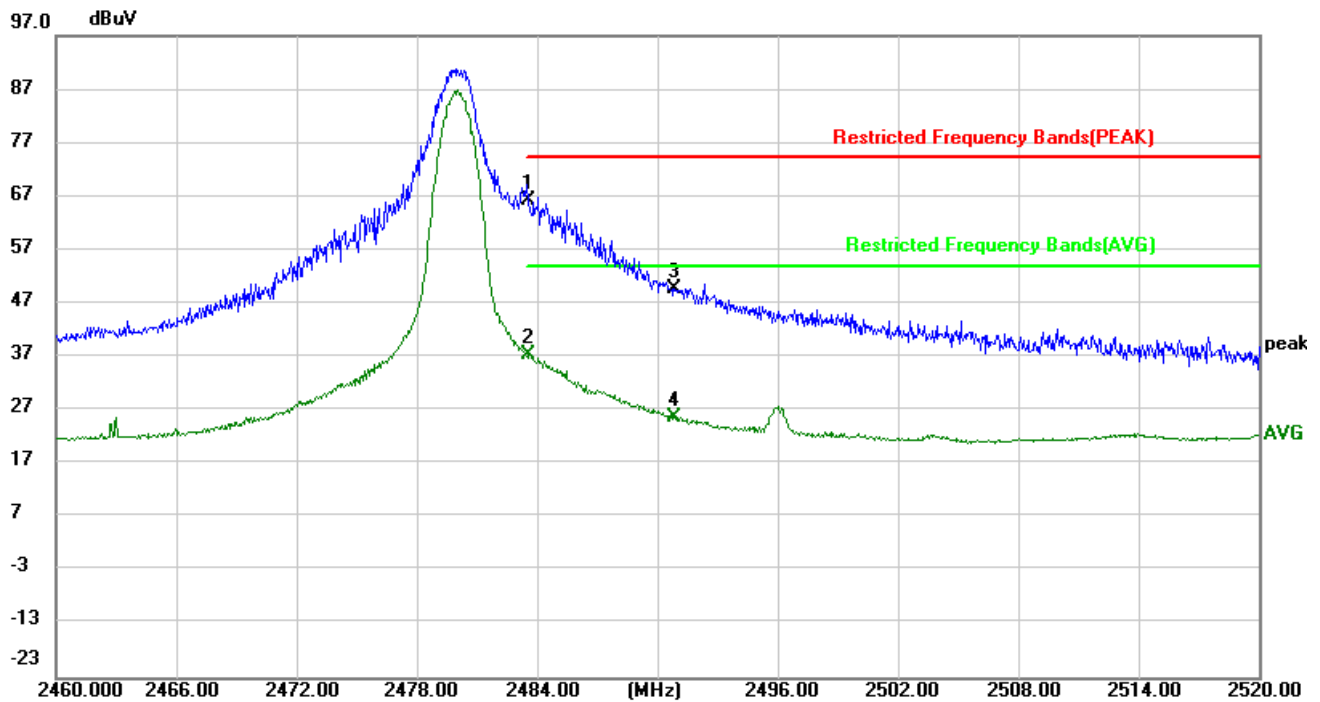


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	2483.500	64.26	-1.00	63.26	74.00	10.74	peak
2		2483.500	35.86	-1.00	34.86	54.00	19.14	AVG
3		2490.780	50.88	-0.99	49.89	74.00	24.11	peak
4		2490.780	25.48	-0.99	24.49	54.00	29.51	AVG

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	3DH5 Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	DC7.4V	Environment:	Temp:23.8℃ Humi: 52%



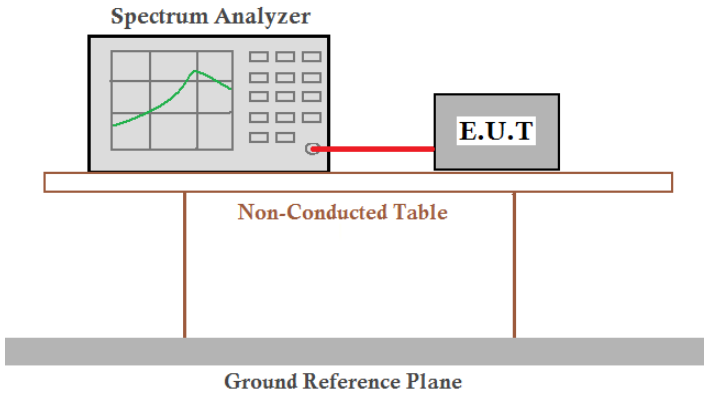
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1	*	2483.500	67.15	-1.00	66.15	74.00	7.85	peak
2		2483.500	38.40	-1.00	37.40	54.00	16.60	AVG
3		2490.840	50.60	-0.99	49.61	74.00	24.39	peak
4		2490.840	26.71	-0.99	25.72	54.00	28.28	AVG

Remark:

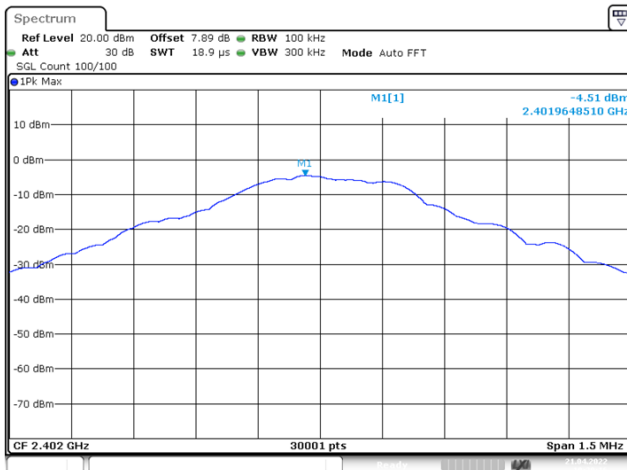
1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

5.10 Spurious Emission

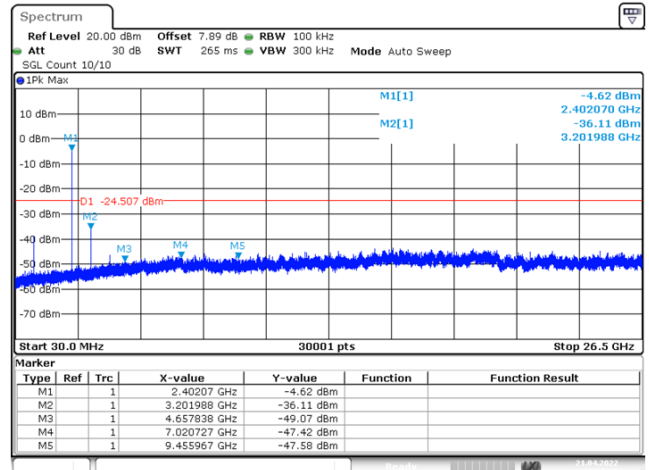
5.10.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p>The diagram illustrates the test setup for conducted emission measurement. A Spectrum Analyzer is connected via a red cable to an E.U.T (Equipment Under Test). Both are placed on a Non-Conducted Table, which is supported by two vertical legs. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 4.9 for details
Test mode:	Non-hopping mode
Test results:	Pass

Test plot as follows:

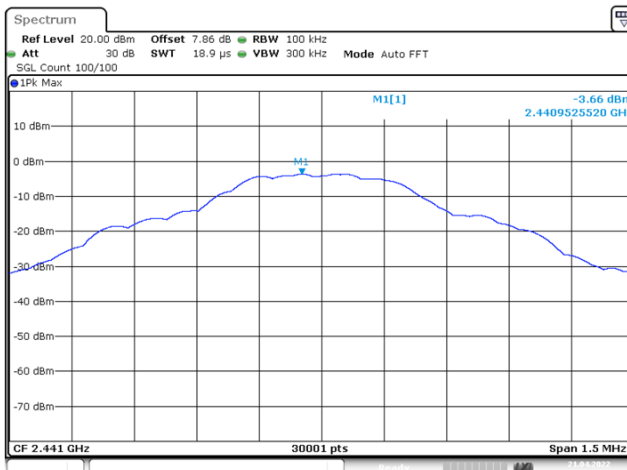
GFSK
Lowest Channel

Date: 21.APR.2022 10:29:15

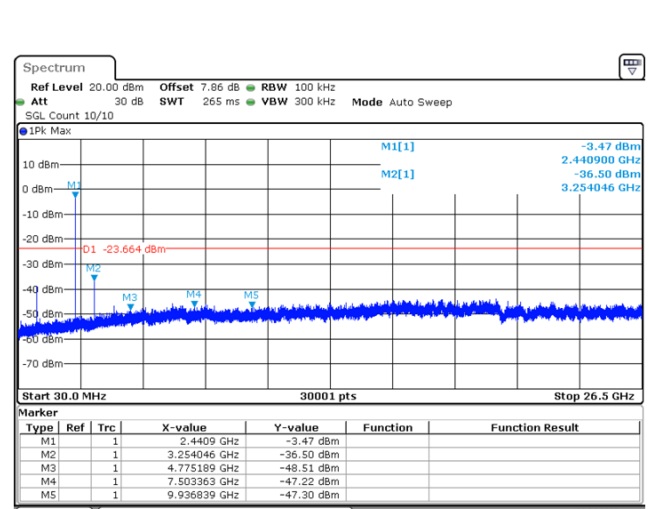


Date: 21.APR.2022 10:29:29

Middle channel

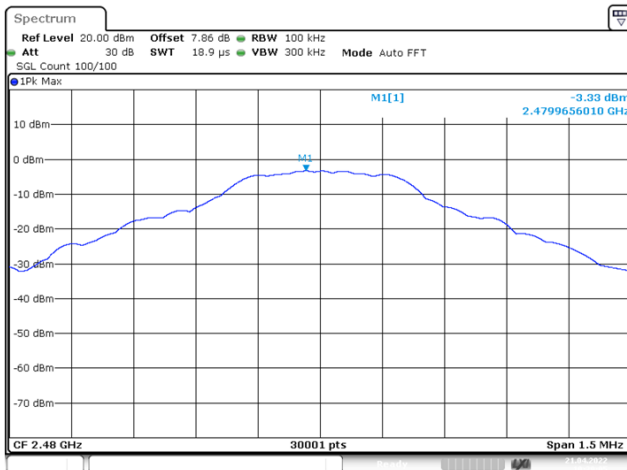


Date: 21.APR.2022 10:33:20

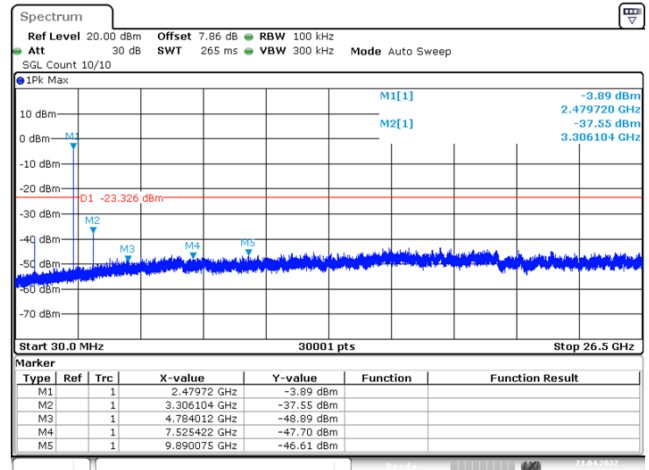


Date: 21.APR.2022 10:33:33

Highest Channel

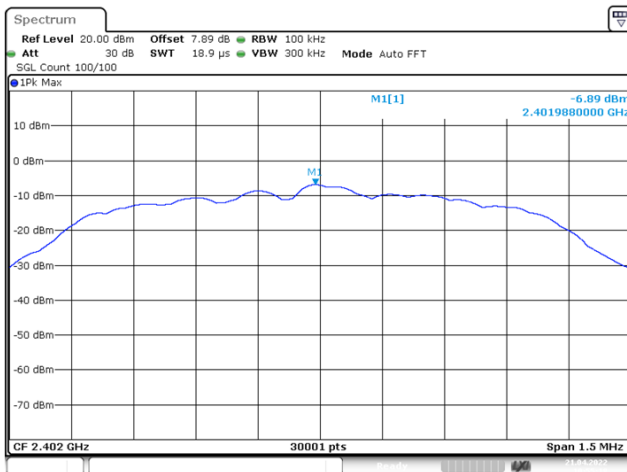


Date: 21.APR.2022 10:39:06

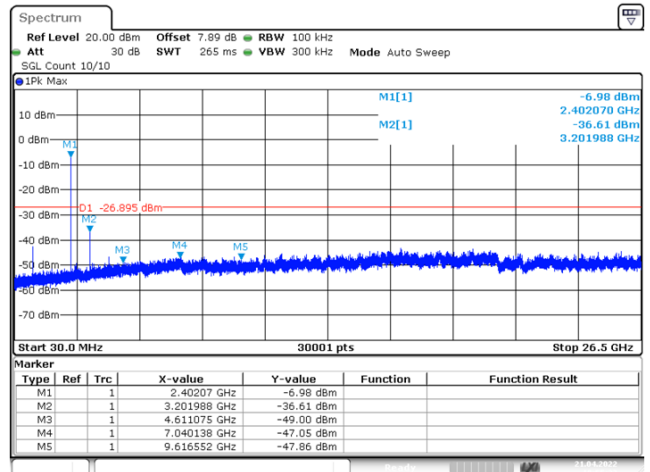


Date: 21.APR.2022 10:39:19

$\pi/4$ -DQPSK Lowest Channel

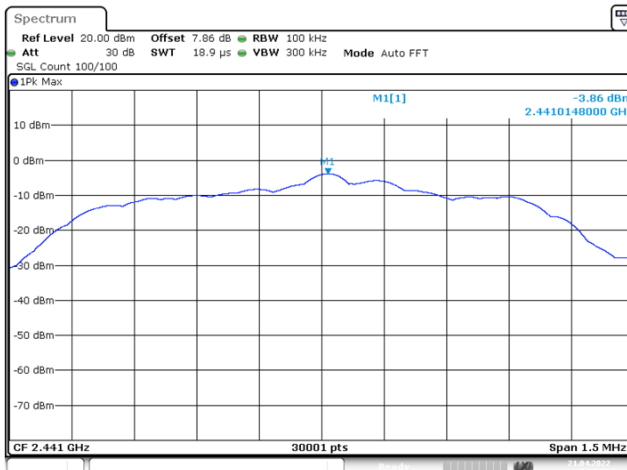


Date: 21.APR.2022 10:55:18

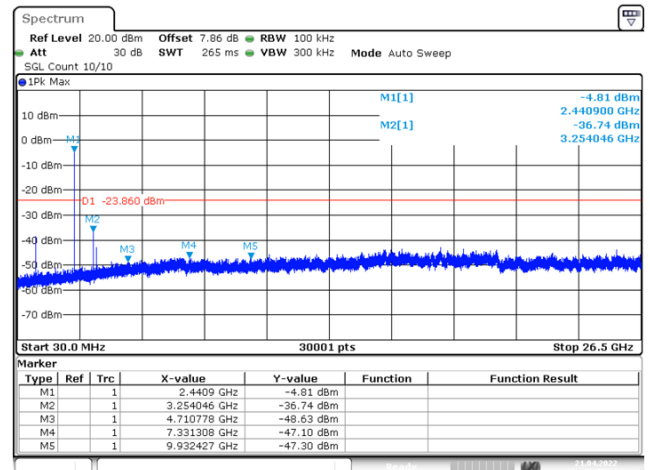


Date: 21.APR.2022 10:55:32

Middle channel

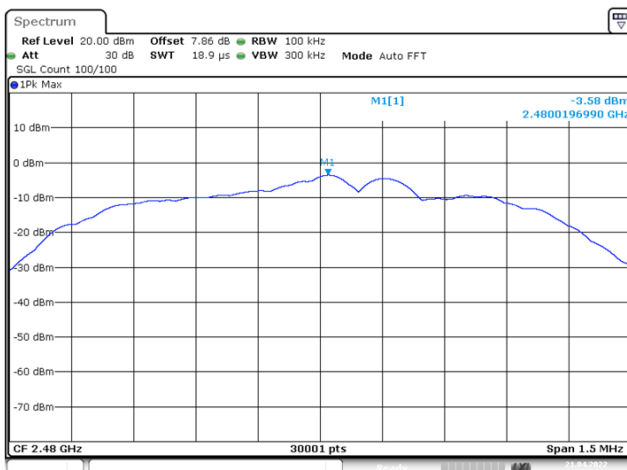


Date: 21.APR.2022 10:56:50

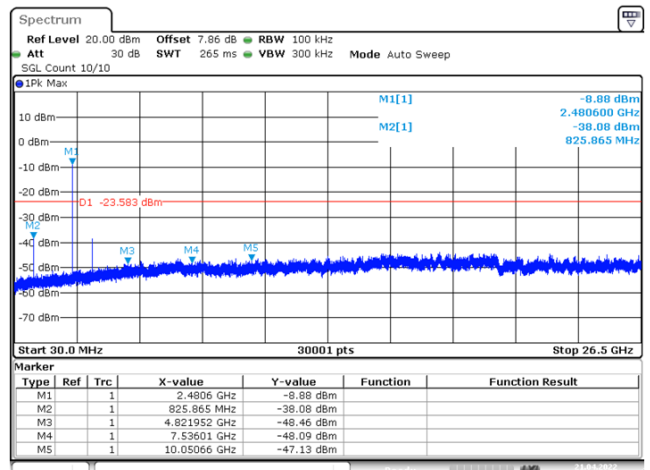


Date: 21.APR.2022 10:57:04

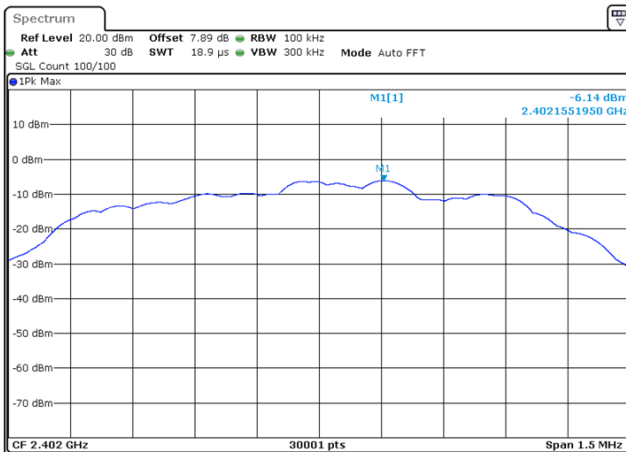
Highest Channel



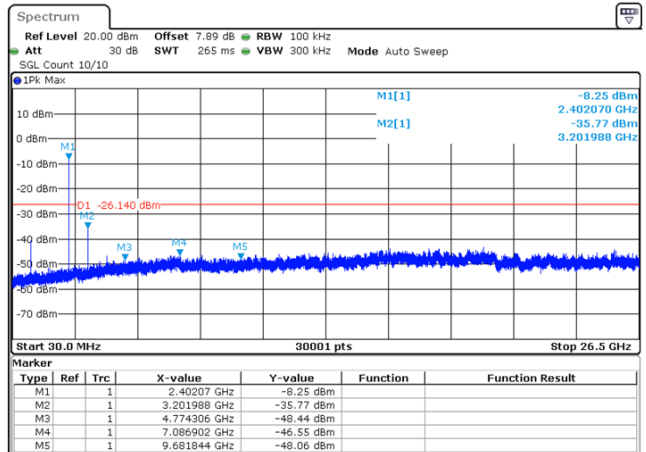
Date: 21.APR.2022 10:58:50



Date: 21.APR.2022 10:59:04

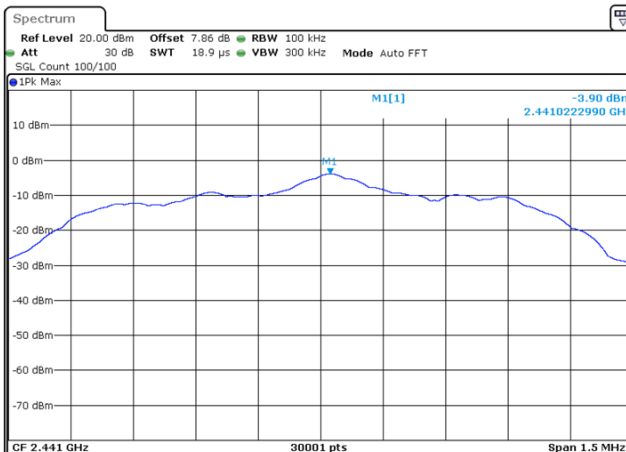
8DPSK
Lowest Channel

Date: 21.APR.2022 11:07:16

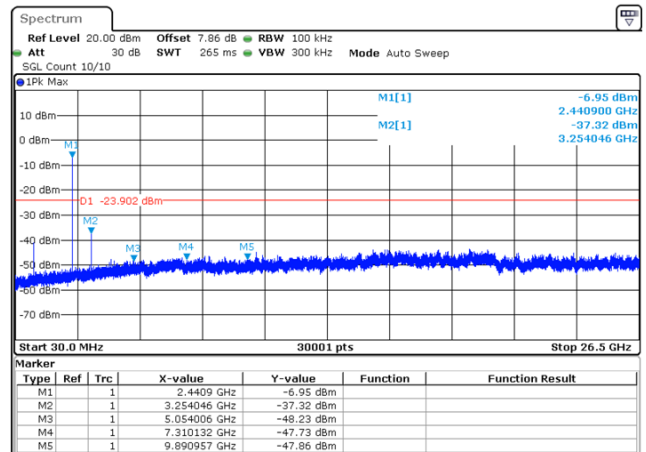


Date: 21.APR.2022 11:07:29

Middle channel

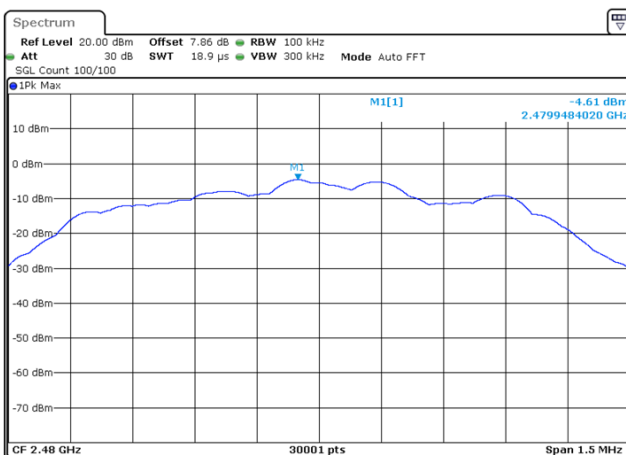


Date: 21.APR.2022 11:08:50

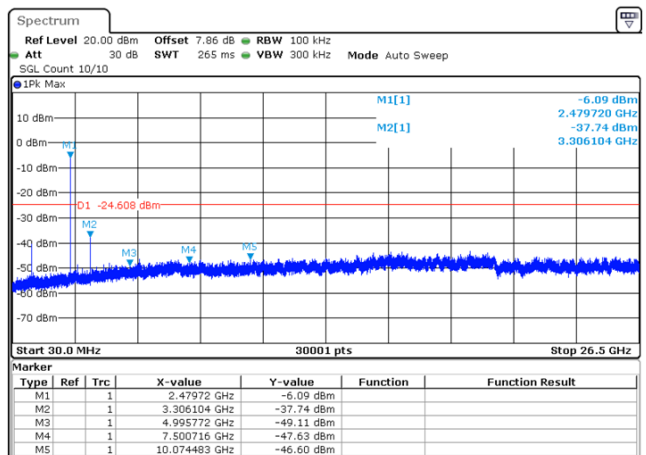


Date: 21.APR.2022 11:09:04

Highest Channel

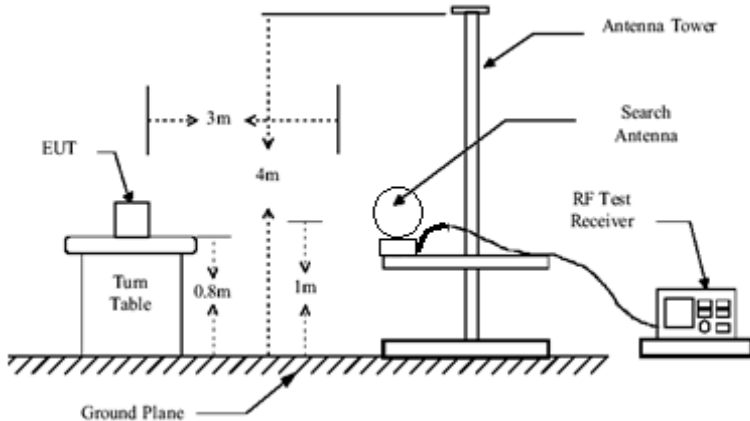
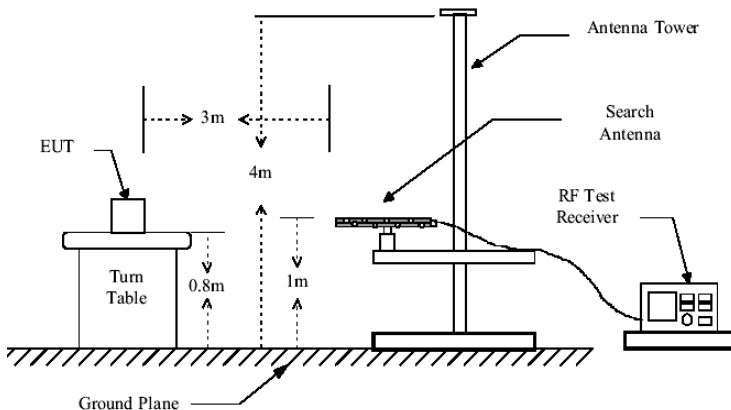


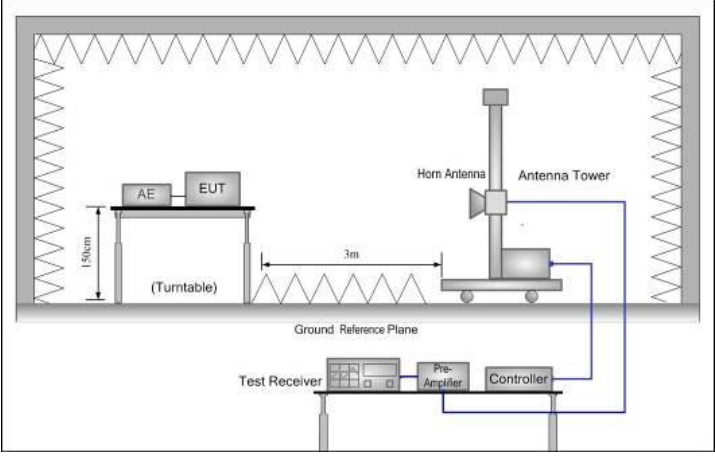
Date: 21.APR.2022 11:10:36



Date: 21.APR.2022 11:10:49

5.10.2 Radiated Emission Method

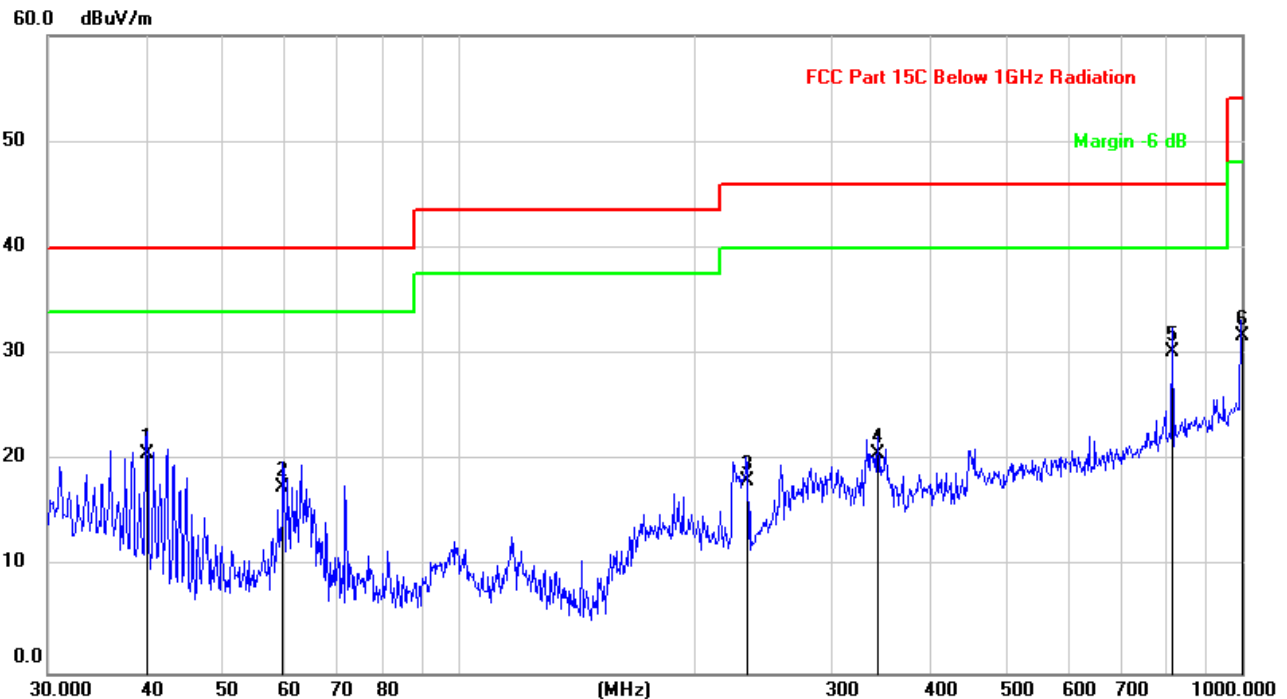
Test Requirement:	FCC Part15 C Section 15.209				
Test Frequency Range:	9kHz to 25GHz				
Test Distance:	3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	9kHz-150kHz	Quasi-peak	200Hz	600Hz	Quasi-peak Value
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
RMS		1MHz	3MHz	Average Value	
Limit:	Frequency (MHz)		Limit (uV/m @3m)		Distance (m)
	0.009-0.490		2400/F(kHz)		300
	0.490-1.705		24000/F(kHz)		30
	1.705-30		30		30
	30-88		100		3
	88-216		150		3
	216-960		200		3
	Above 1GHz		500		3
Test setup:	Below 1GHz(9KHz~30MHz)				
					
	Below 1GHz(30MHz~1GHz)				
Test setup:					
	Above 1GHz				

	
Test Procedure:	<ol style="list-style-type: none"> 1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 4.9 for details
Test mode:	Non-hopping mode
Test results:	Pass
Remark:	<ol style="list-style-type: none"> 1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case. 2. 9 kHz to 30 MHz is noise floor, so only shows the data of above 30MHz in this report.

Measurement Data(worst case):

Below 1GHz:

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	BT Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	DC7.4V	Environment:	Temp: 23.4℃ Humi: 54%

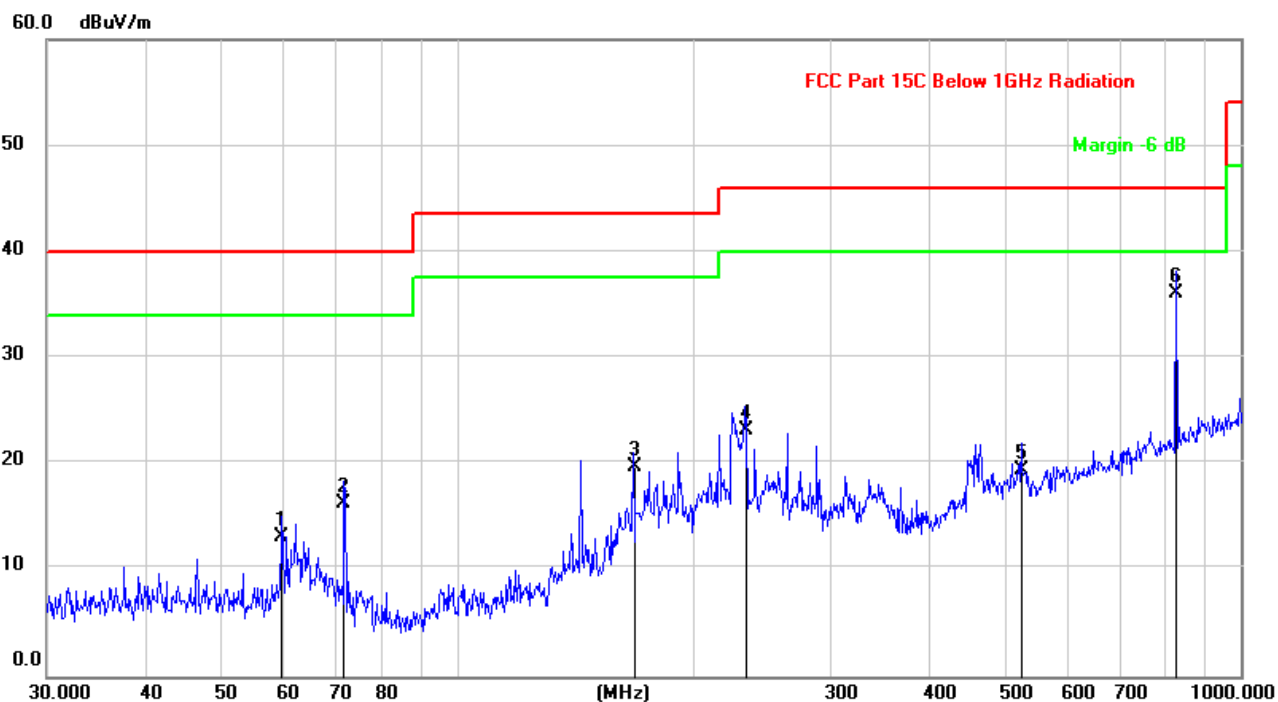


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		40.1347	35.60	-14.92	20.68	40.00	-19.32	QP
2		59.8588	33.60	-16.14	17.46	40.00	-22.54	QP
3		233.3487	31.33	-13.23	18.10	46.00	-27.90	QP
4		343.1800	30.56	-10.00	20.56	46.00	-25.44	QP
5	*	815.9678	31.13	-0.87	30.26	46.00	-15.74	QP
6		996.4996	30.61	1.09	31.70	54.00	-22.30	QP

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product Name:	Thermal Printer	Product Model:	P3W2
Test By:	Leo Zhang	Test mode:	BT Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	DC7.4V	Environment:	Temp: 23.4℃ Humi: 54%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		59.8588	29.24	-16.14	13.10	40.00	-26.90	QP
2		71.8320	33.69	-17.47	16.22	40.00	-23.78	QP
3		167.8243	36.44	-16.69	19.75	43.50	-23.75	QP
4		233.3487	36.35	-13.23	23.12	46.00	-22.88	QP
5		524.5541	25.47	-6.05	19.42	46.00	-26.58	QP
6	*	827.4934	36.79	-0.69	36.10	46.00	-9.90	QP

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Above 1GHz:

Test channel: Lowest channel						
Detector: PeakValue						
Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	34.90	7.54	42.44	74.00	-31.56	Vertical
4804.00	42.82	7.54	50.36	74.00	-23.64	Horizontal
Detector: AverageValue						
Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	22.34	7.54	29.88	54.00	-24.12	Vertical
4804.00	26.03	7.54	33.57	54.00	-20.43	Horizontal
Test channel: Middle channel						
Detector: PeakValue						
Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4882.00	34.43	7.79	42.22	74.00	-31.78	Vertical
4882.00	38.46	7.79	46.25	74.00	-27.75	Horizontal
Detector: AverageValue						
Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4884.00	21.98	7.79	29.77	54.00	-24.23	Vertical
4884.00	24.46	7.79	32.25	54.00	-21.75	Horizontal
Test channel: Highest channel						
Detector: PeakValue						
Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	35.47	8.06	43.53	74.00	-30.47	Vertical
4960.00	37.85	8.06	45.91	74.00	-28.09	Horizontal
Detector: AverageValue						
Frequency (MHz)	Read Level (dBuV)	Correct Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	22.45	8.06	30.51	54.00	-23.49	Vertical
4960.00	23.78	8.06	31.84	54.00	-22.16	Horizontal
Remark: 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor. 2. The emission levels of other frequencies are very lower than the limit and not show in test report.						

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