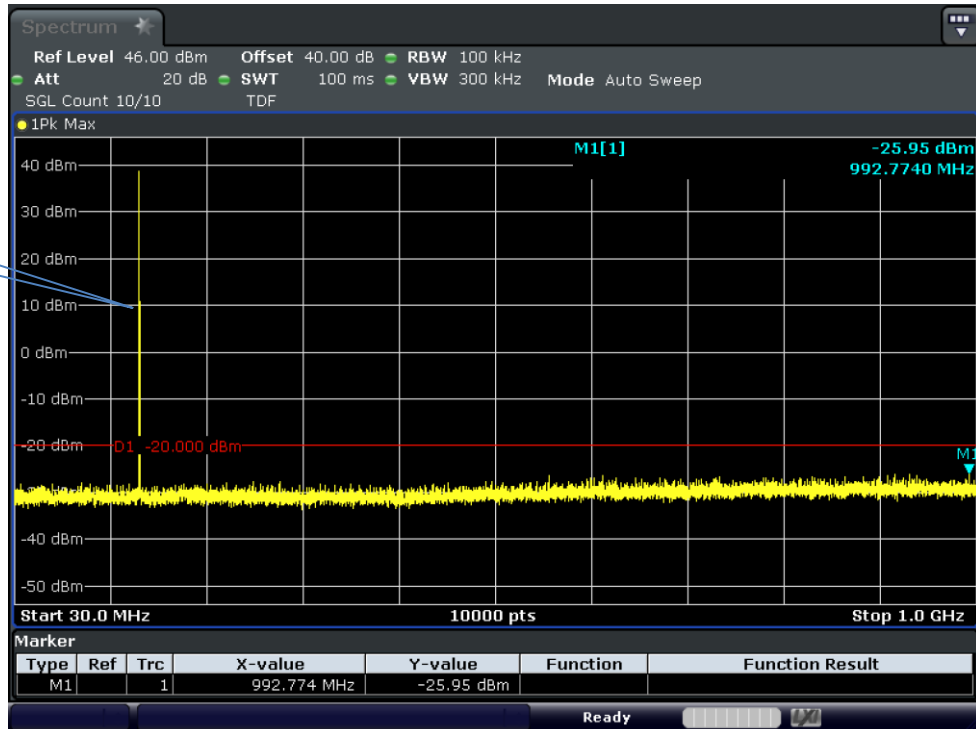
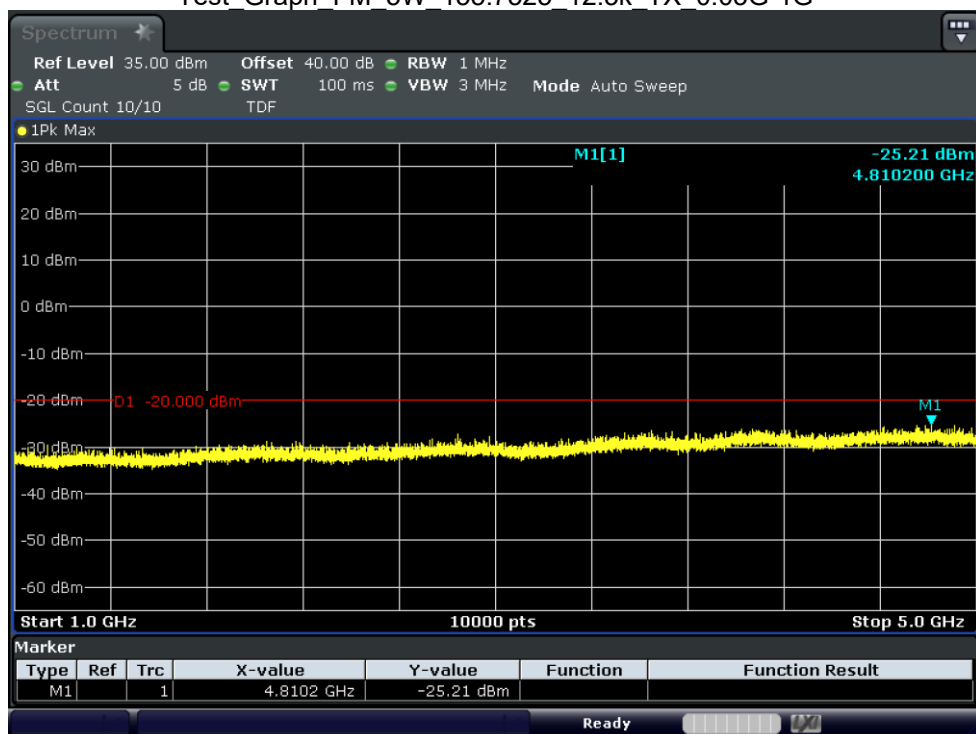




Fundamental

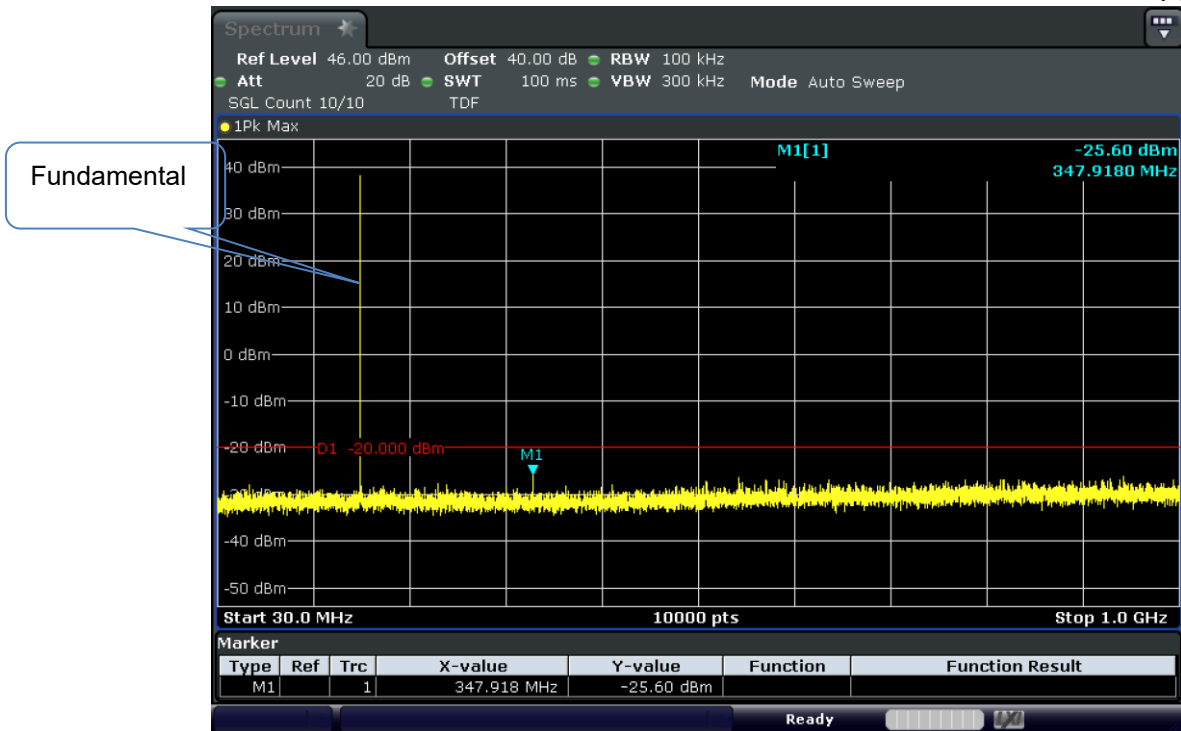


Test Graph FM 5W 155.7525 12.5k TX 0.03G-1G

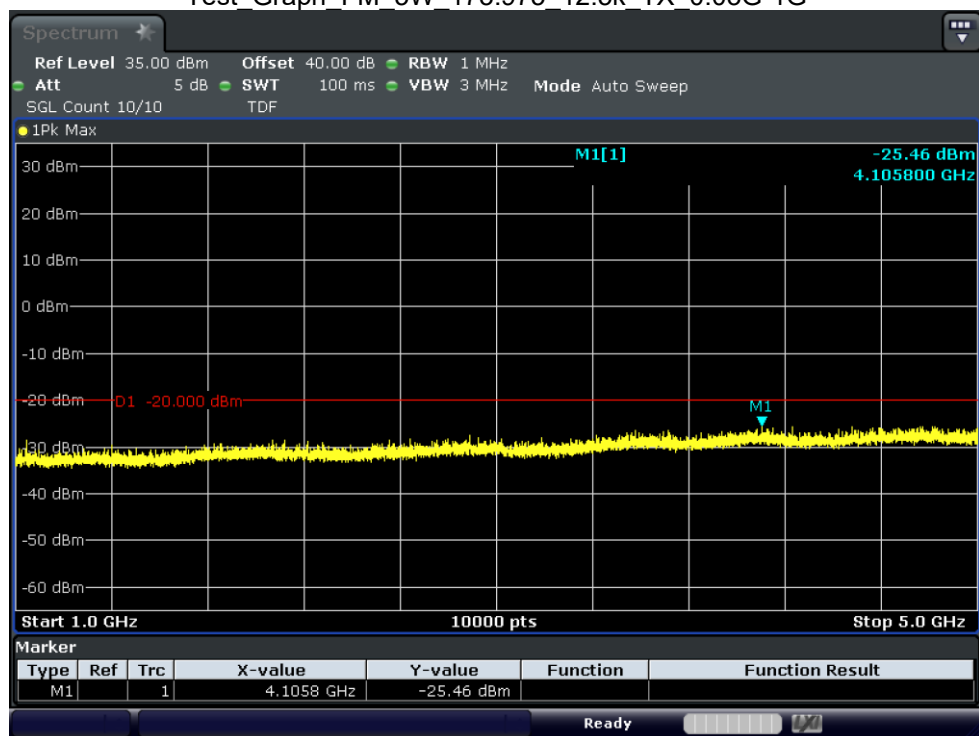


Test_Graph_FM_5W_155.7525_12.5k_TX_1G-5G





Test Graph FM 5W 173.975 12.5k TX 0.03G-1G

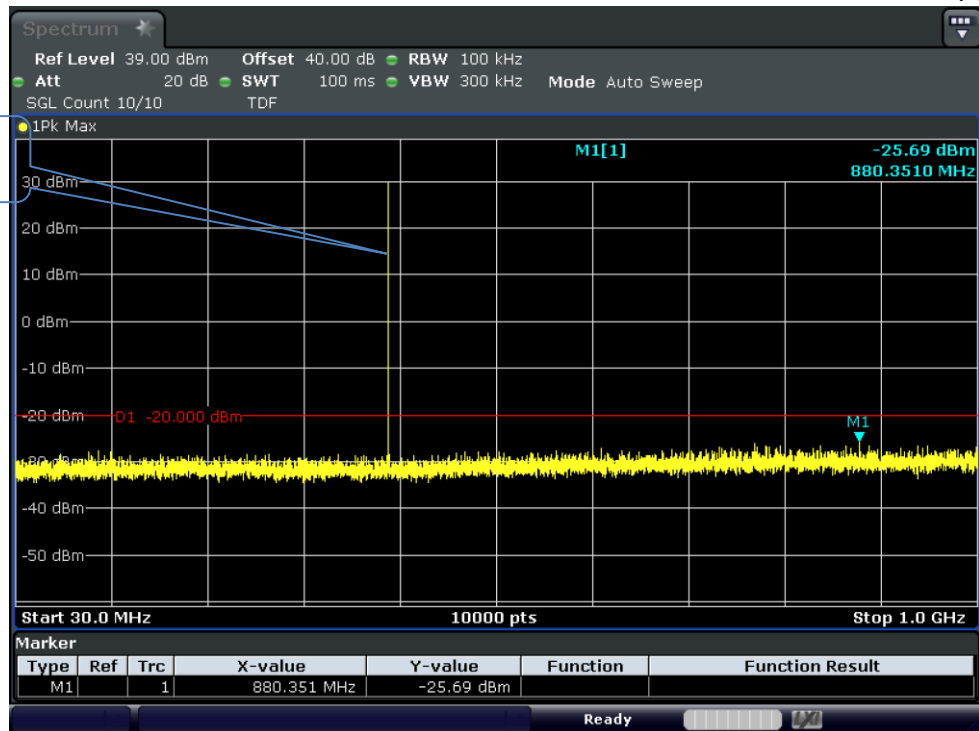


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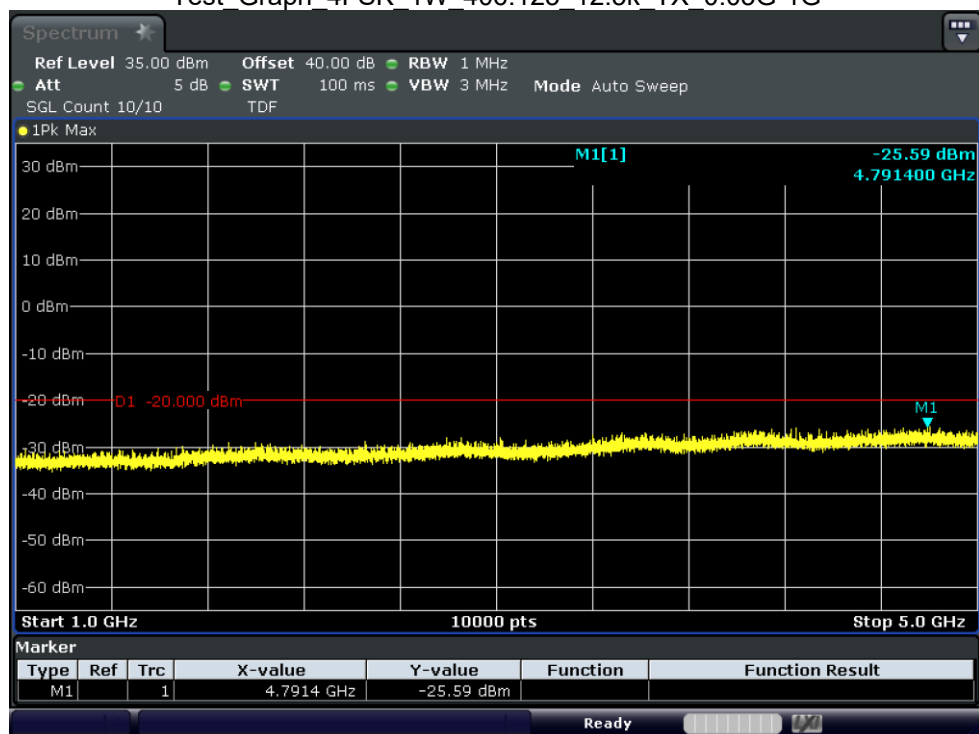




Fundamental



Test Graph 4FSK 1W 406.125 12.5k TX 0.03G-1G

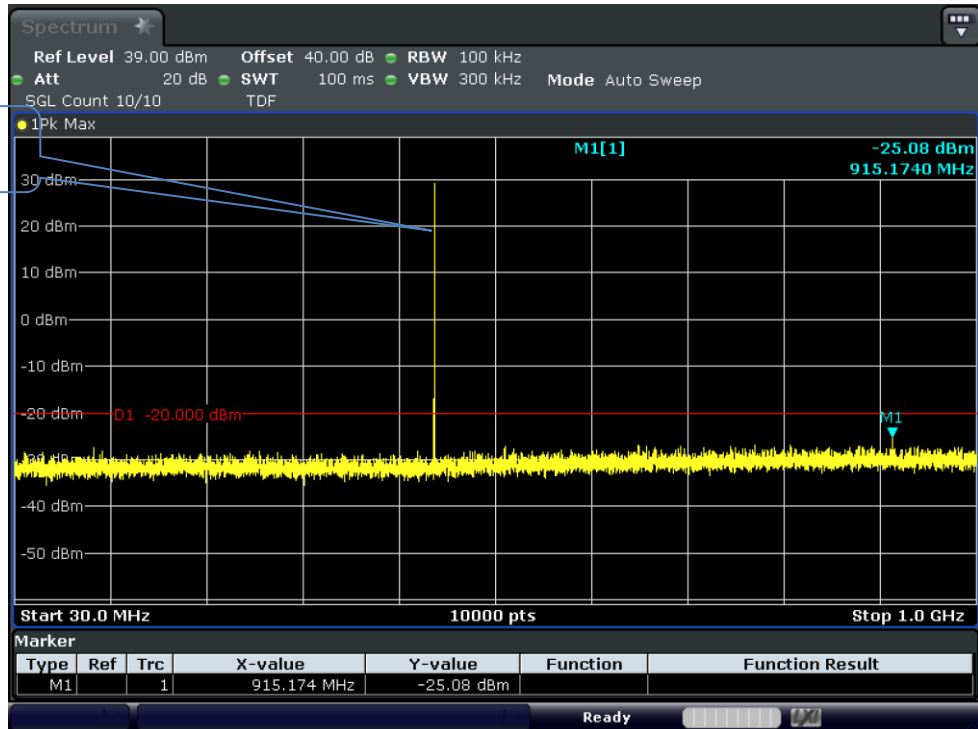


Test_Graph_4FSK_1W_406.125_12.5k_TX_1G-5G

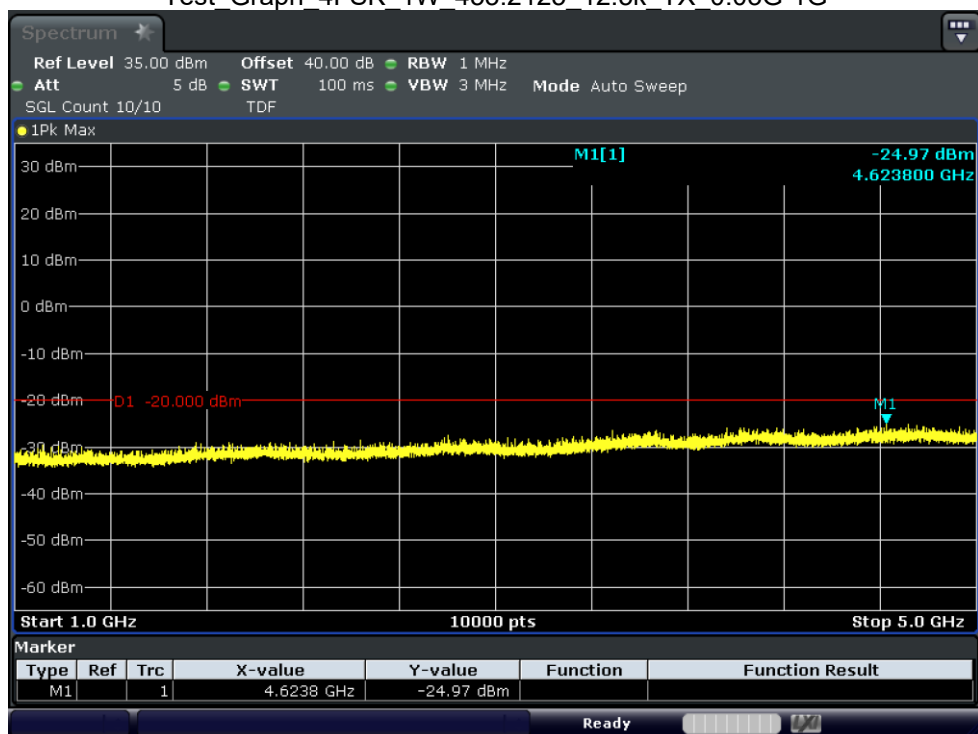




Fundamental



Test Graph 4FSK 1W 453.2125 12.5k TX 0.03G-1G

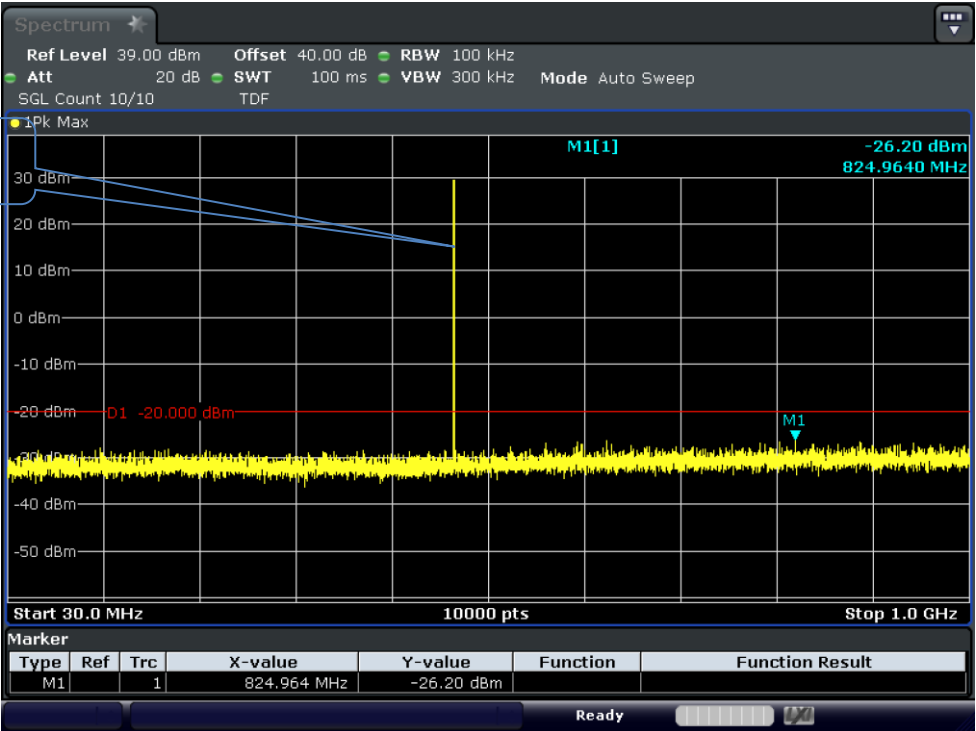


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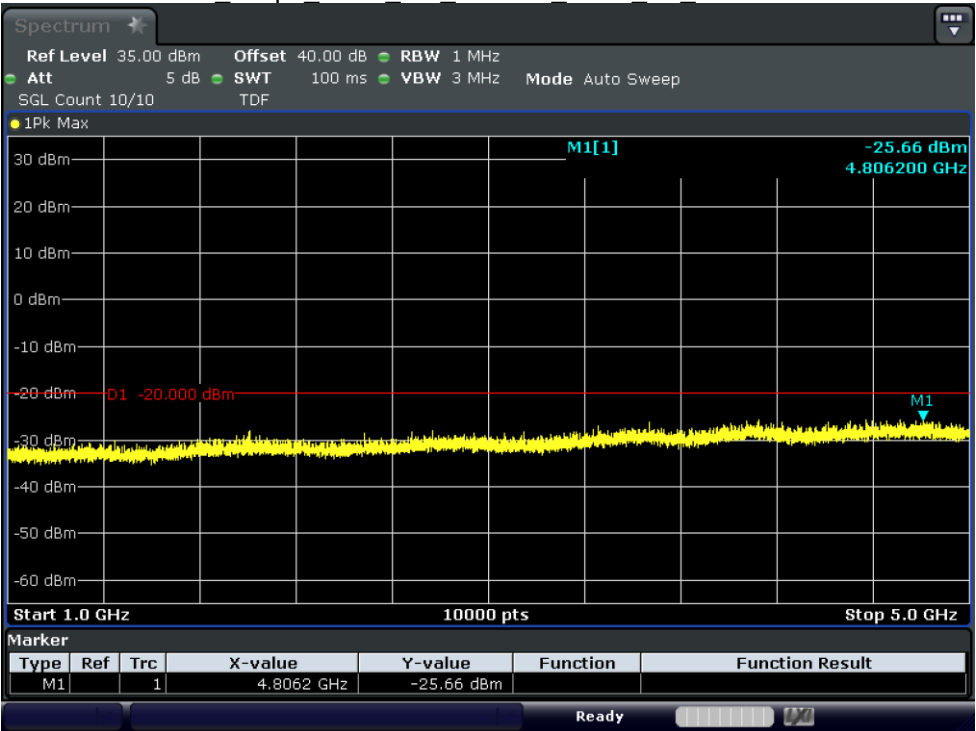




Fundamental



Test Graph 4FSK 1W 479.975 12.5k TX 0.03G-1G

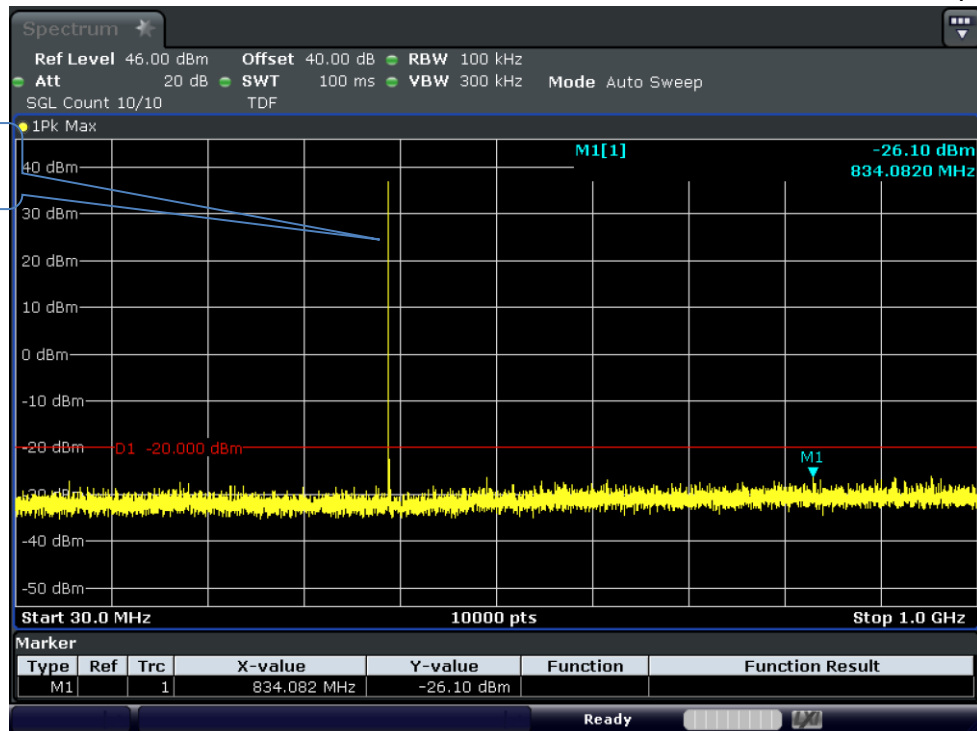


Test_Graph_4FSK_1W_479.975_12.5k_TX_1G-5G

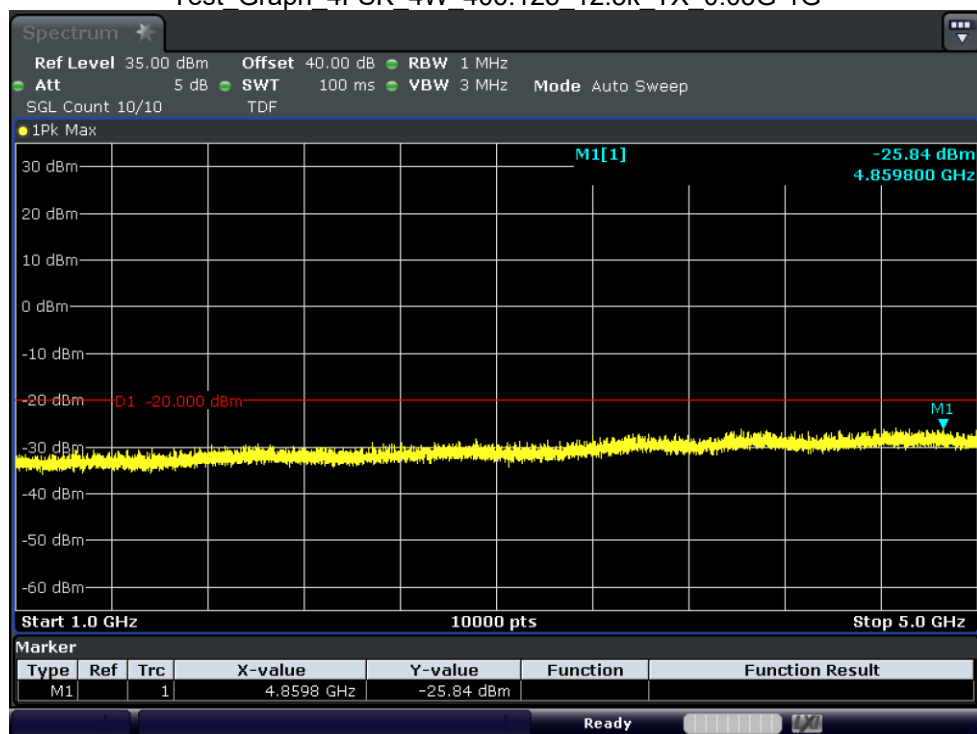




Fundamental

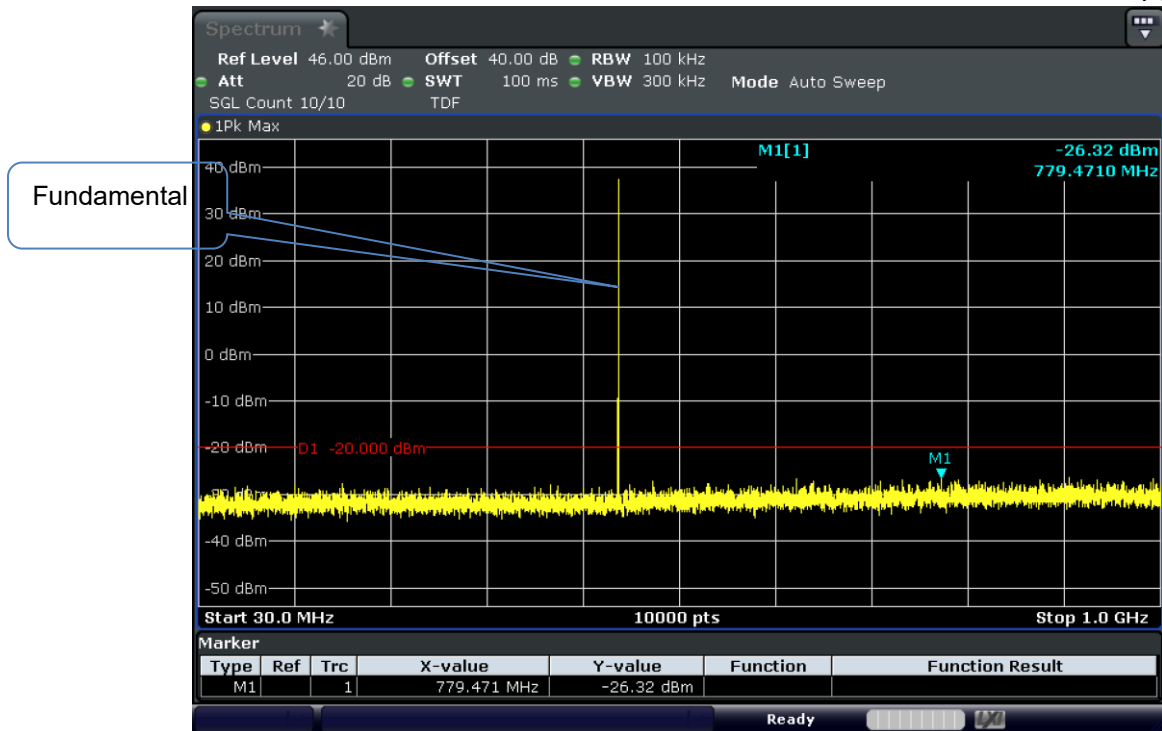


Test Graph 4FSK 4W 406.125 12.5k TX 0.03G-1G

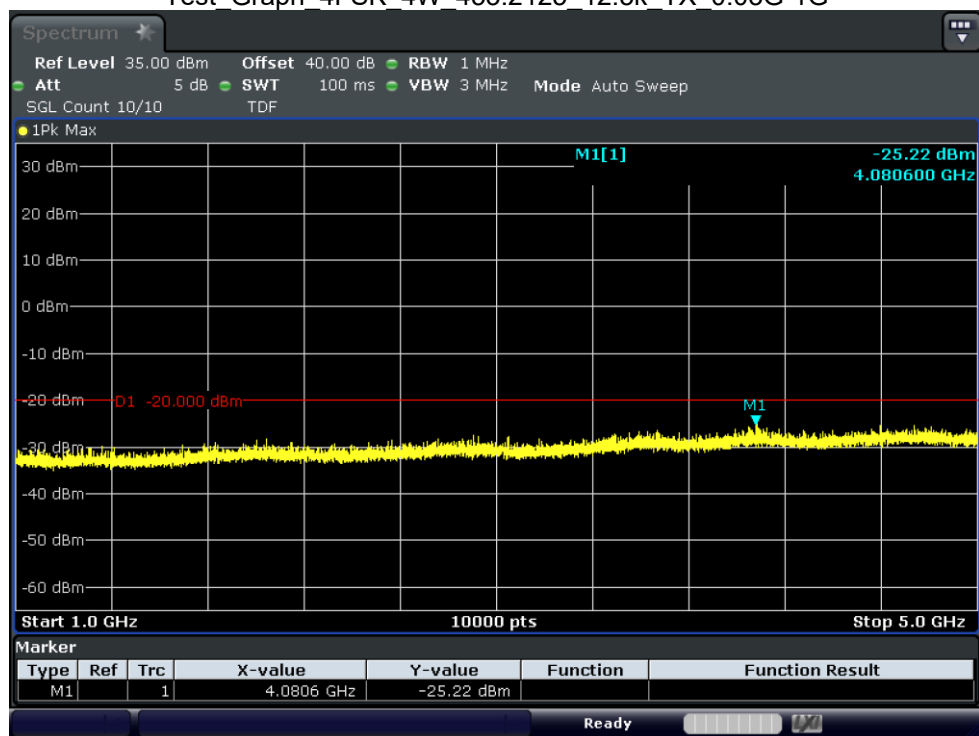


Test_Graph_4FSK_4W_406.125_12.5k_TX_1G-5G



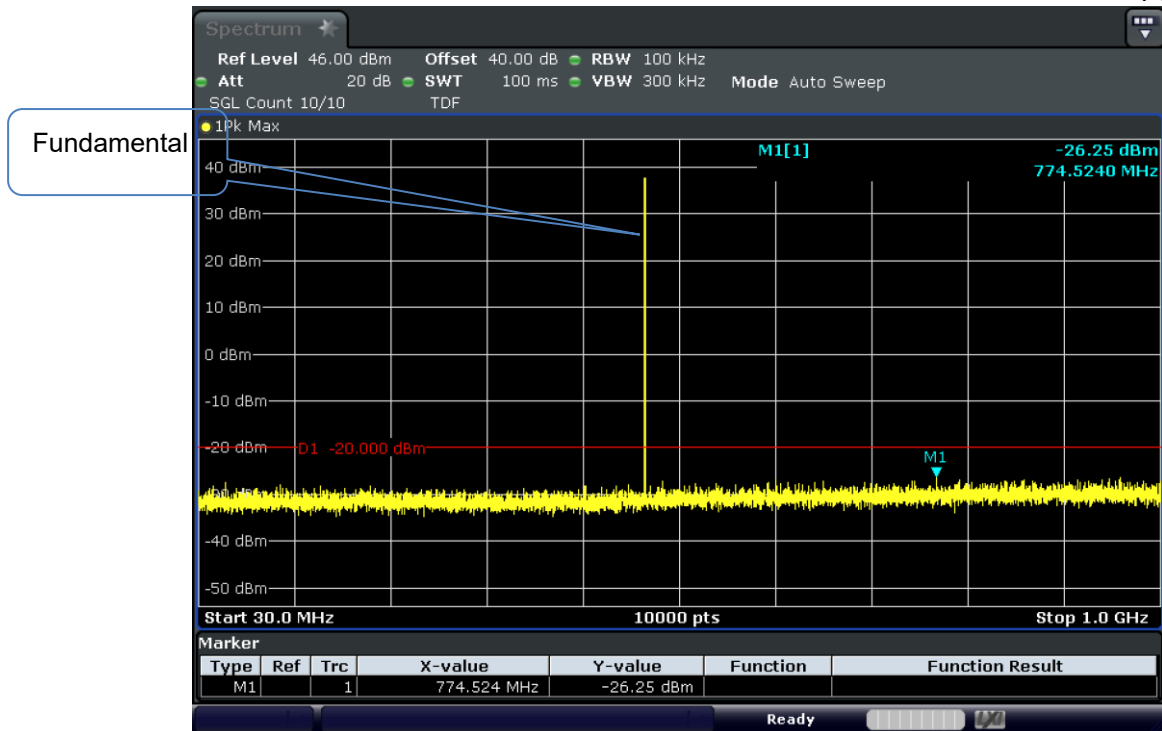


Test Graph 4FSK 4W 453.2125 12.5k TX 0.03G-1G

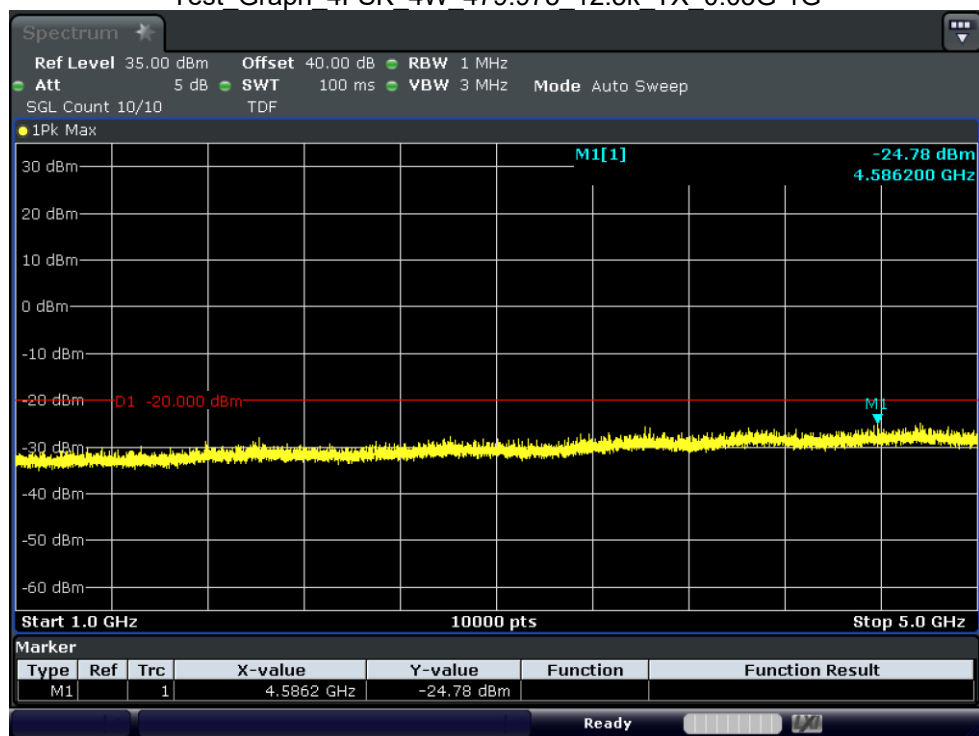


Test_Graph_4FSK_4W_453.2125_12.5k_TX_1G-5G





Test Graph 4FSK 4W 479.975 12.5k TX 0.03G-1G

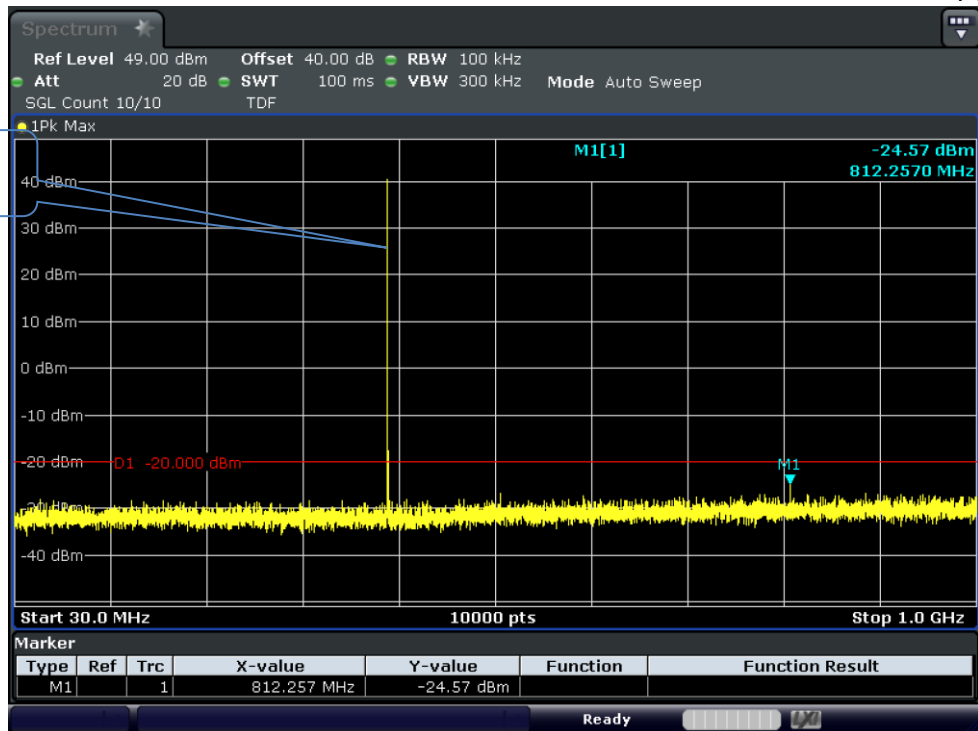


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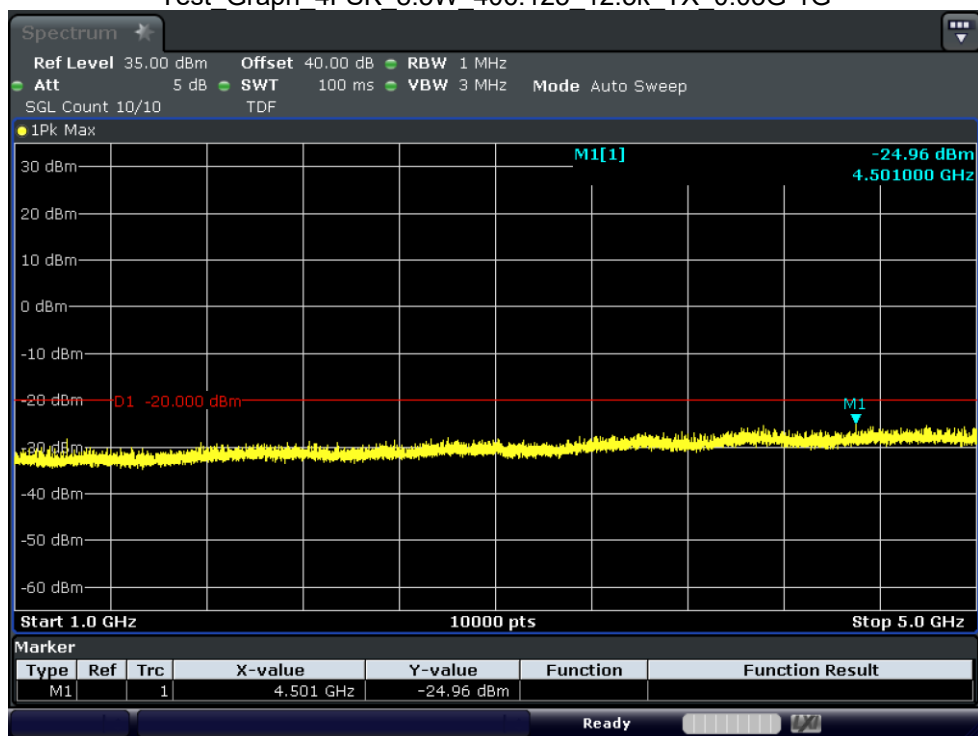




Fundamental

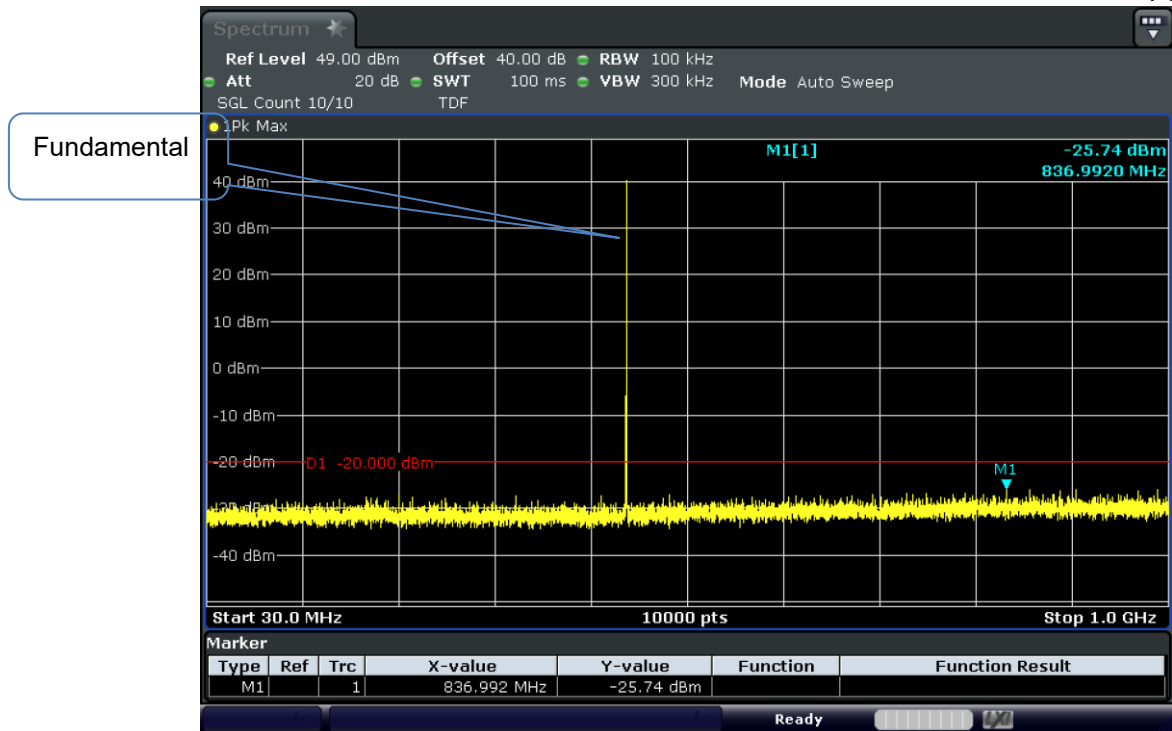


Test Graph 4FSK 8.5W 406.125 12.5k TX 0.03G-1G

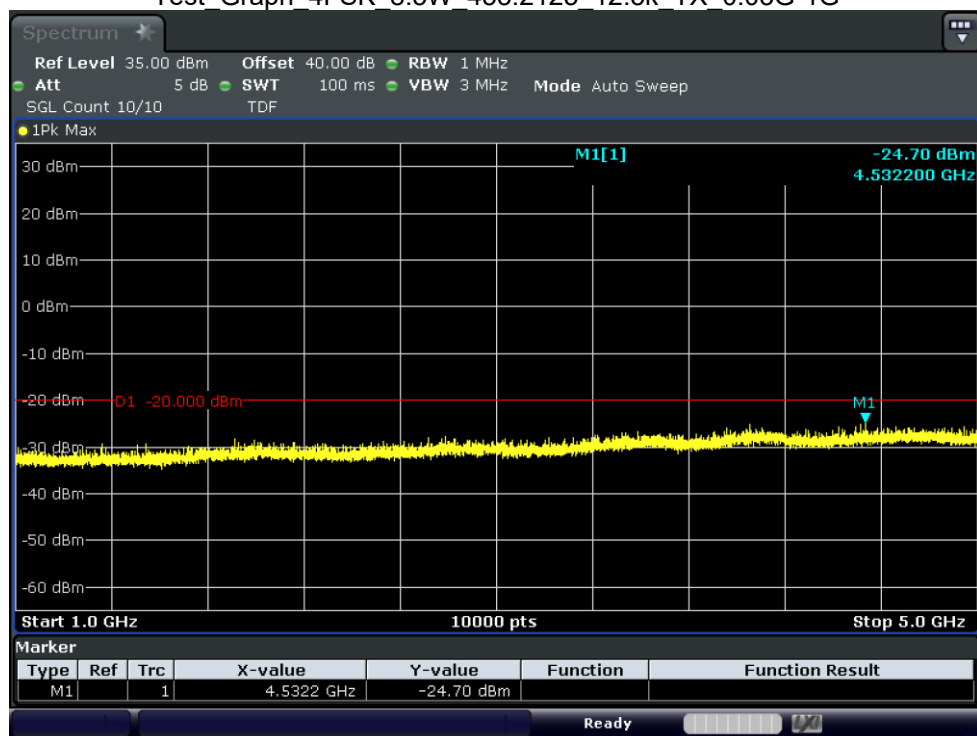


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Test Graph 4FSK 8.5W 453.2125 12.5k TX 0.03G-1G

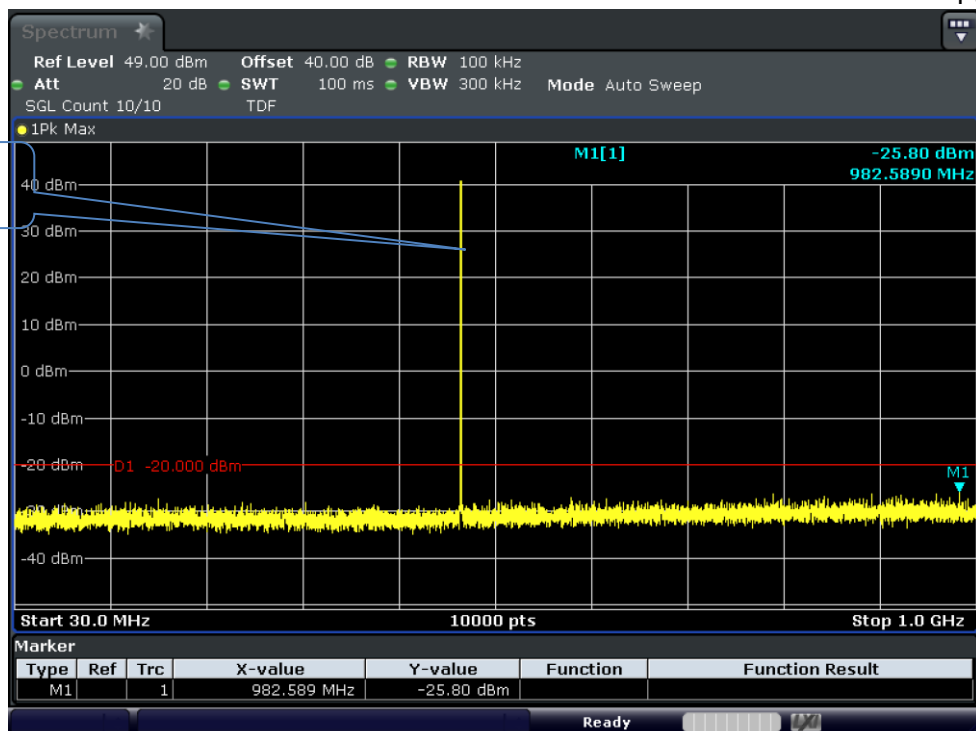


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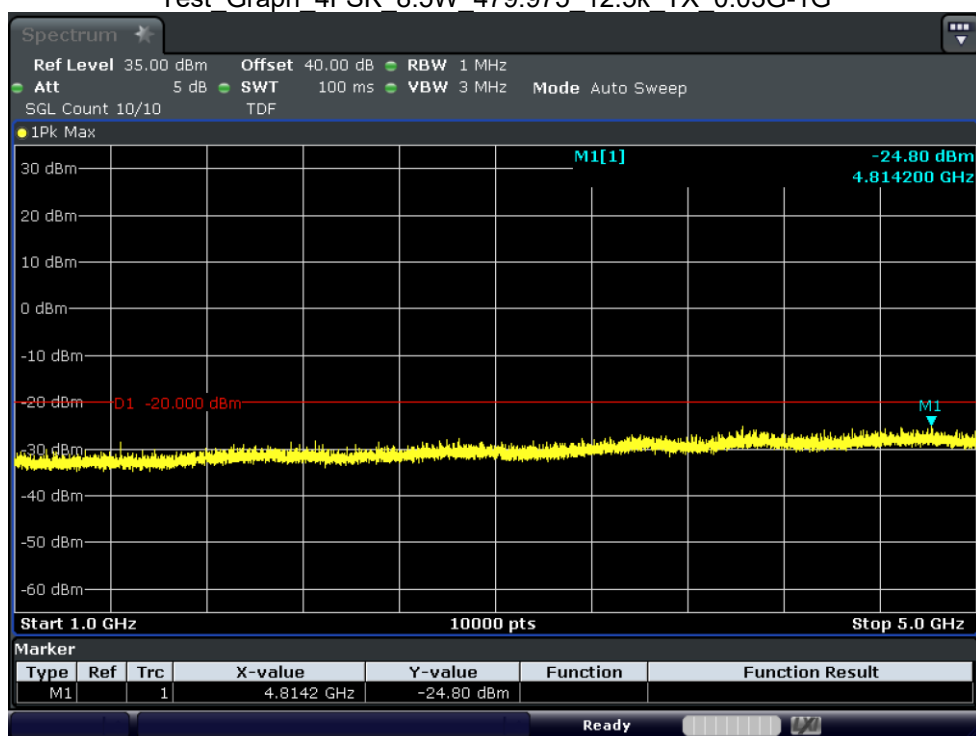




Fundamental



Test Graph 4FSK 8.5W 479.975 12.5k TX 0.03G-1G

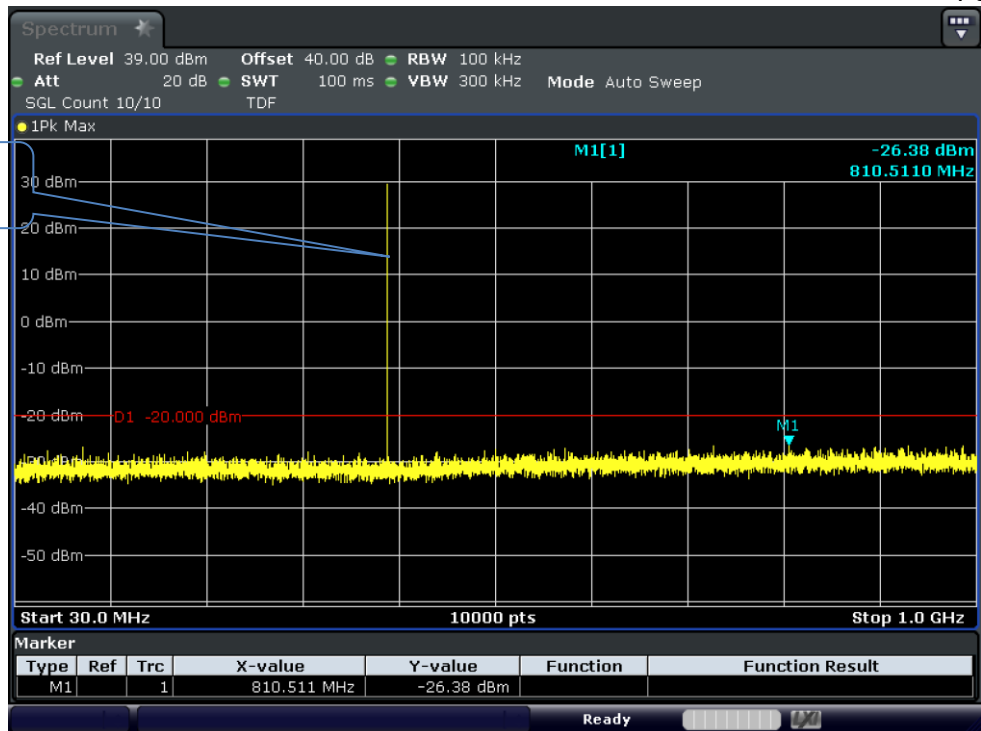


Test_Graph_4FSK_8.5W_479.975_12.5k_TX_1G-5G

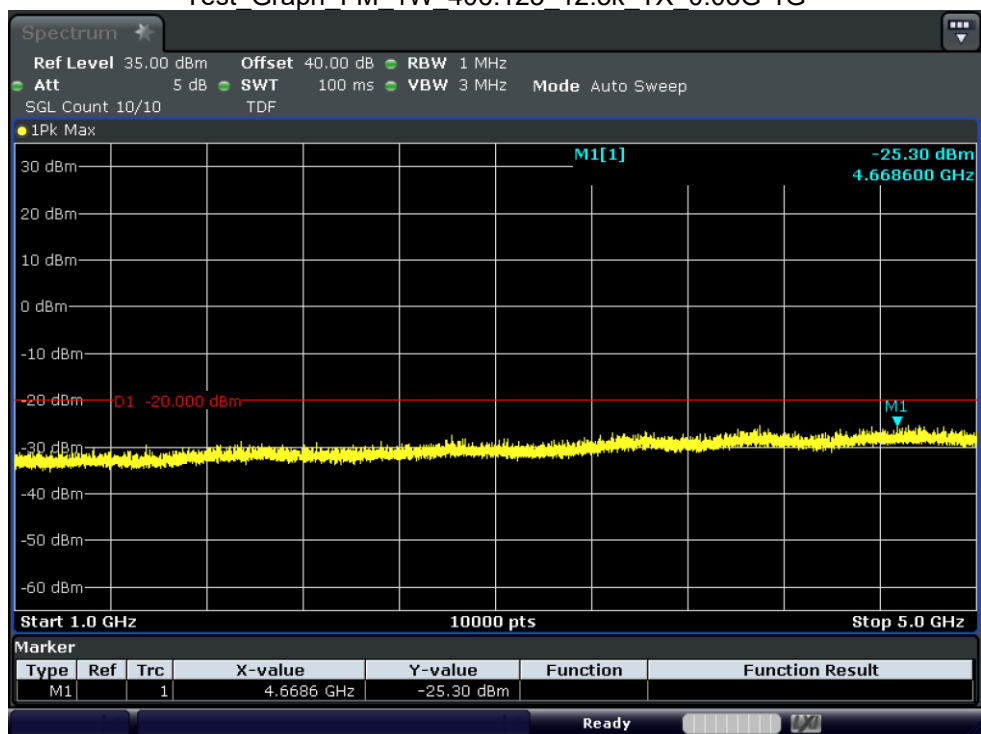




Fundamental

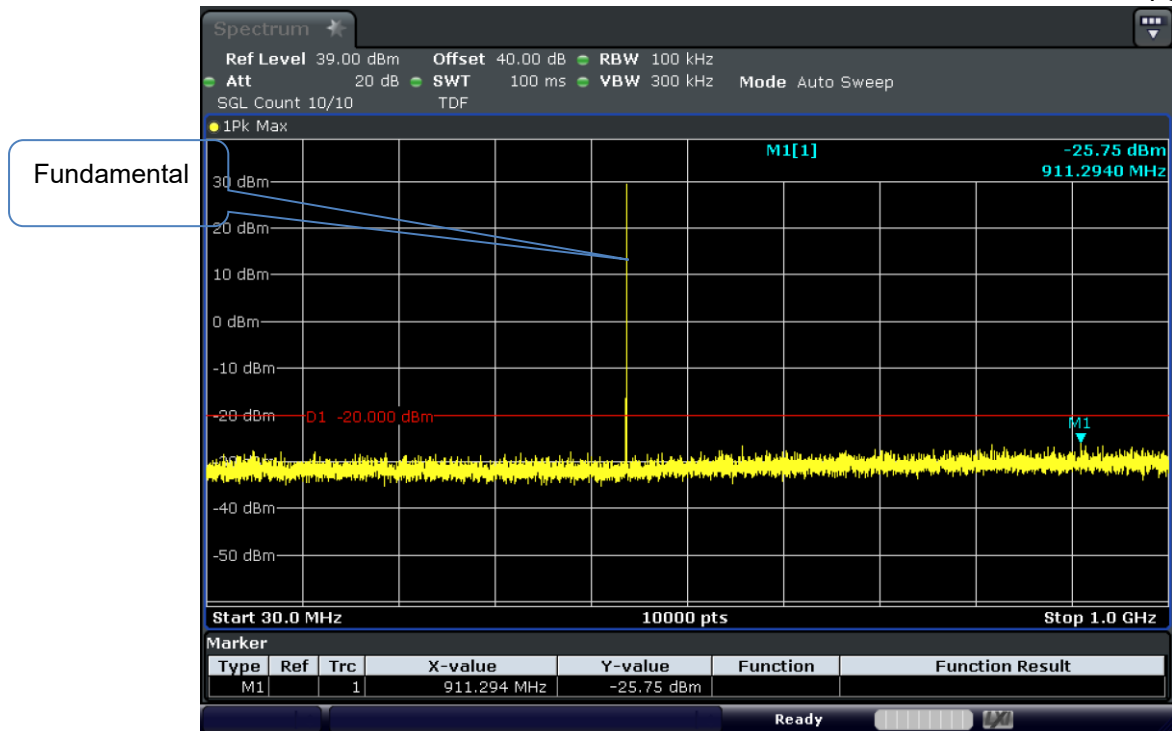


Test Graph FM 1W 406.125 12.5k TX 0.03G-1G

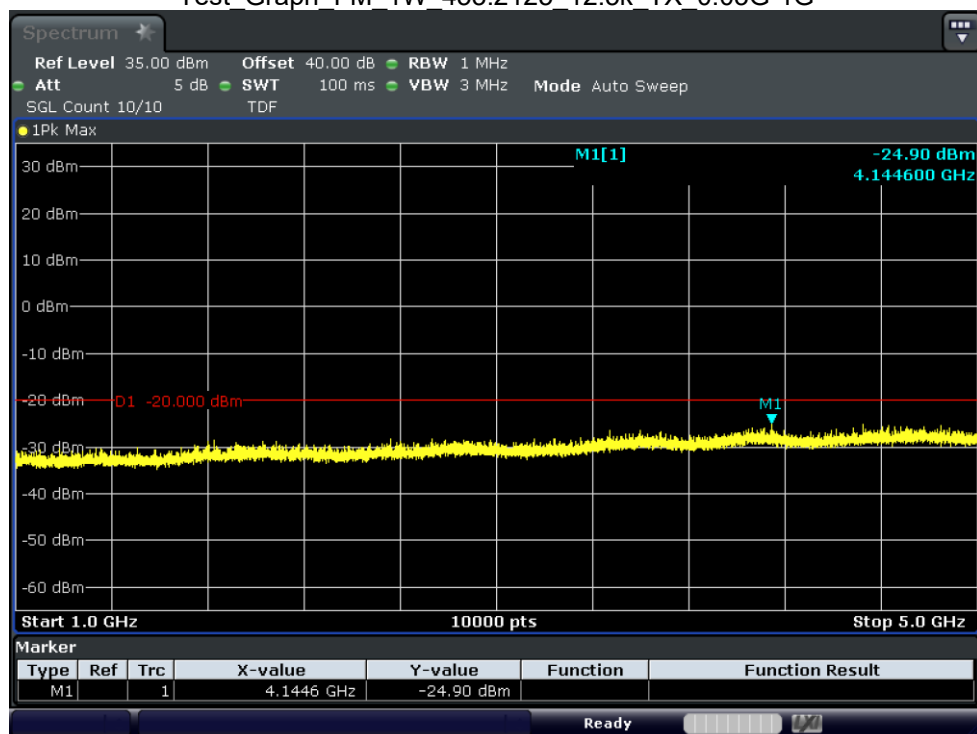


Test_Graph_FM_1W_406.125_12.5k_TX_1G-5G





Test Graph FM 1W 453.2125 12.5k TX 0.03G-1G

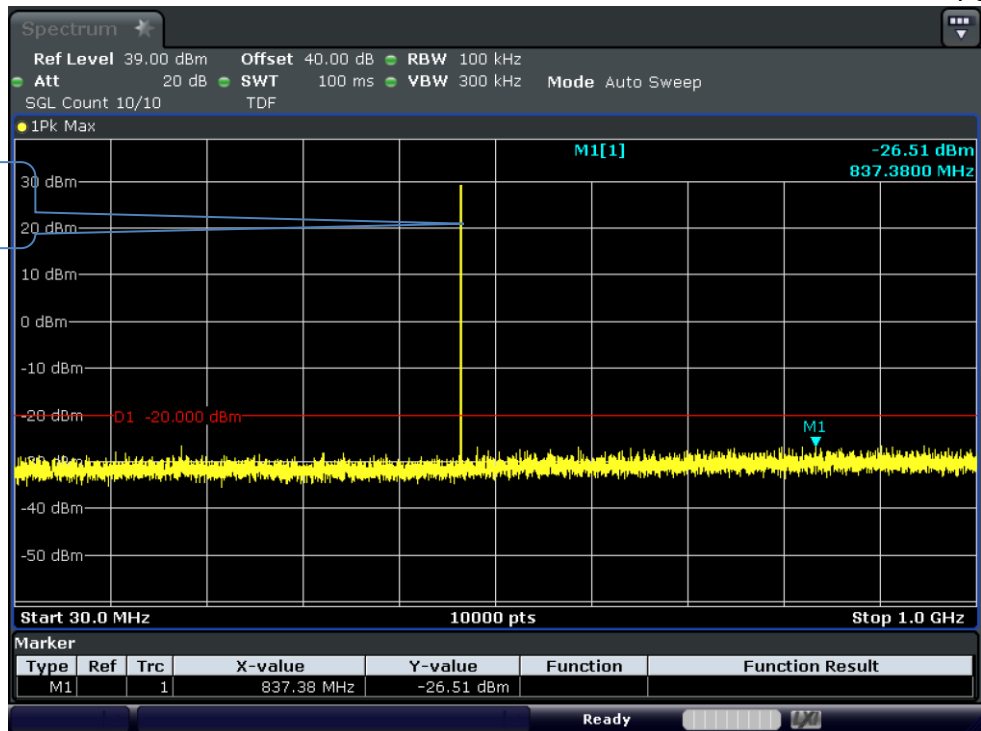


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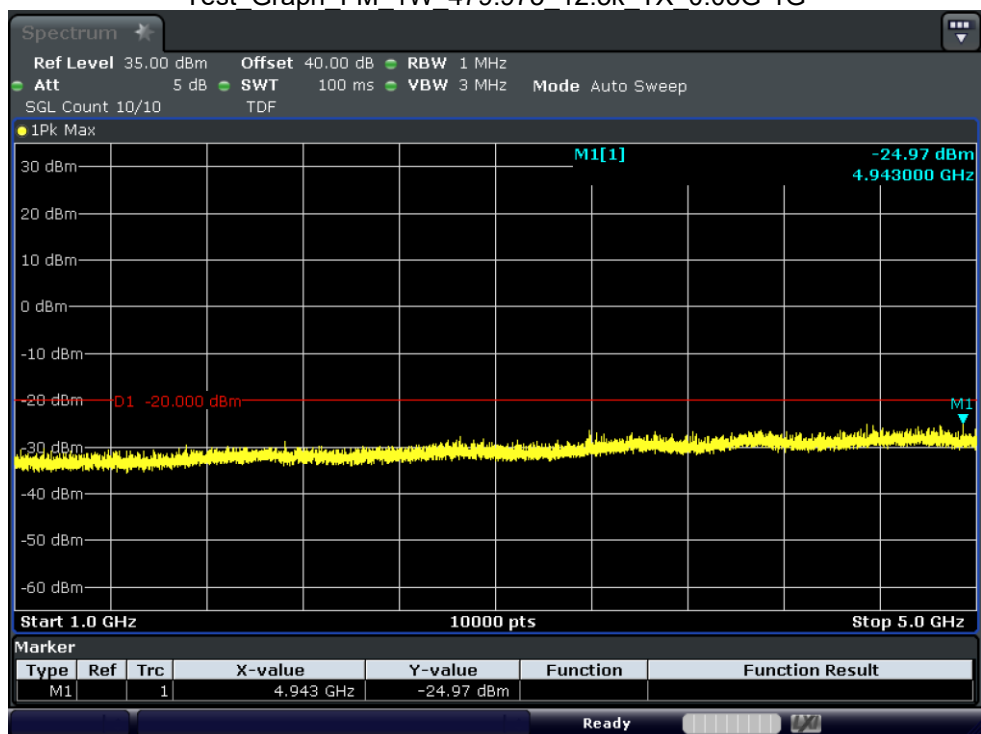




Fundamental



Test Graph FM 1W 479.975 12.5k TX 0.03G-1G

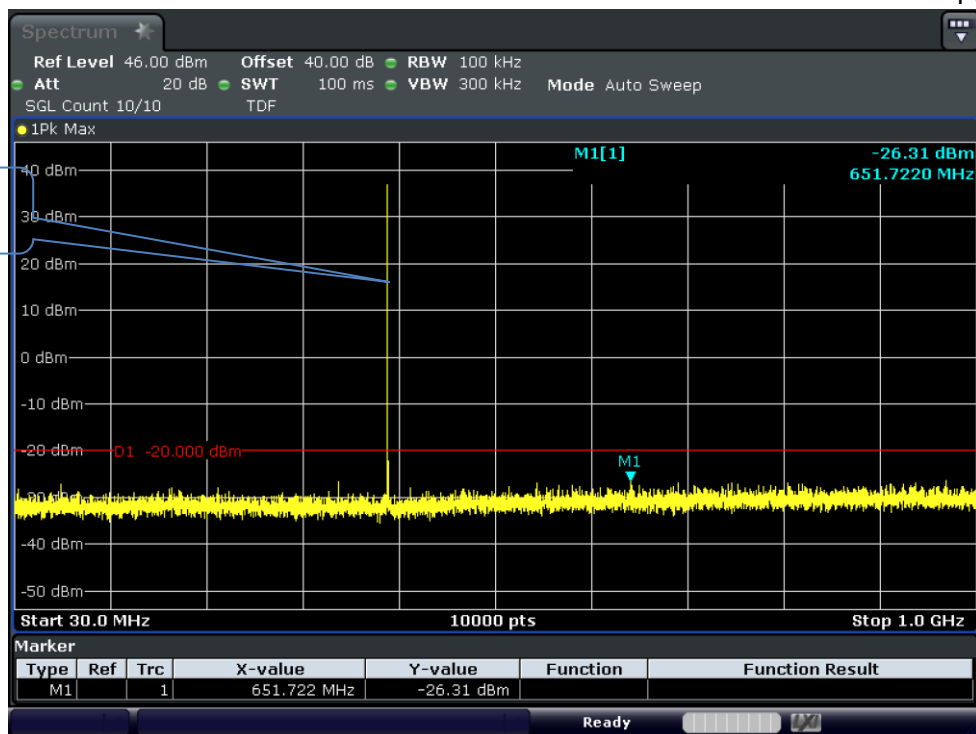


Test_Graph_FM_1W_479.975_12.5k_TX_1G-5G

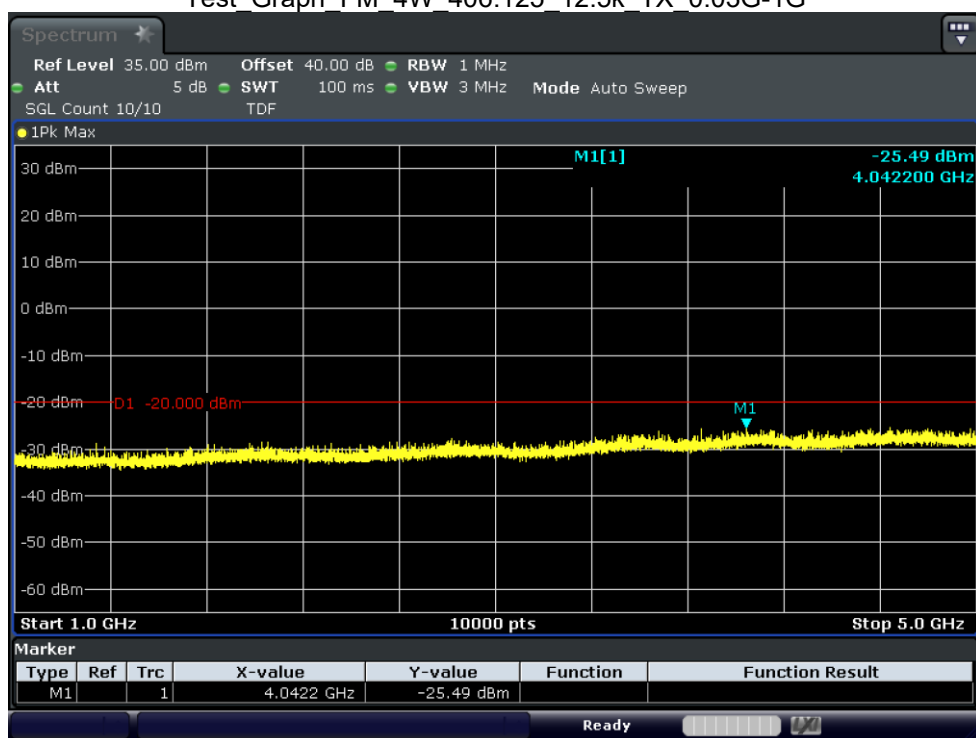




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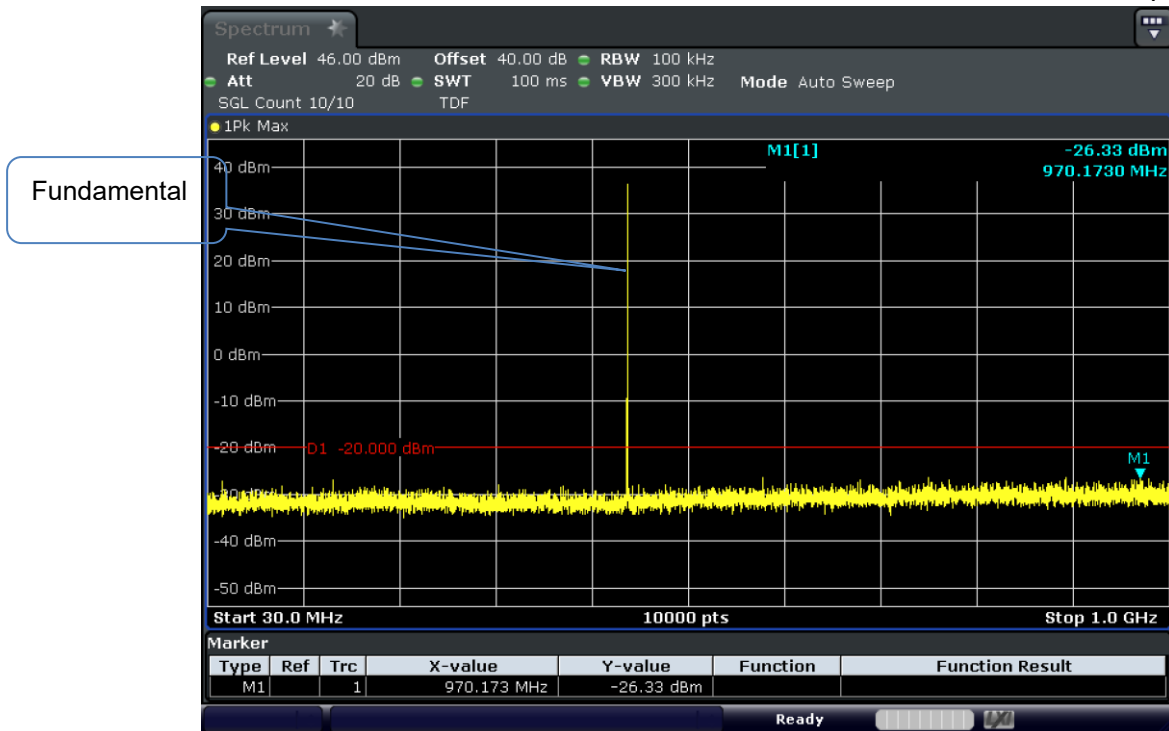


Test Graph FM 4W 406.125 12.5k TX 0.03G-1G

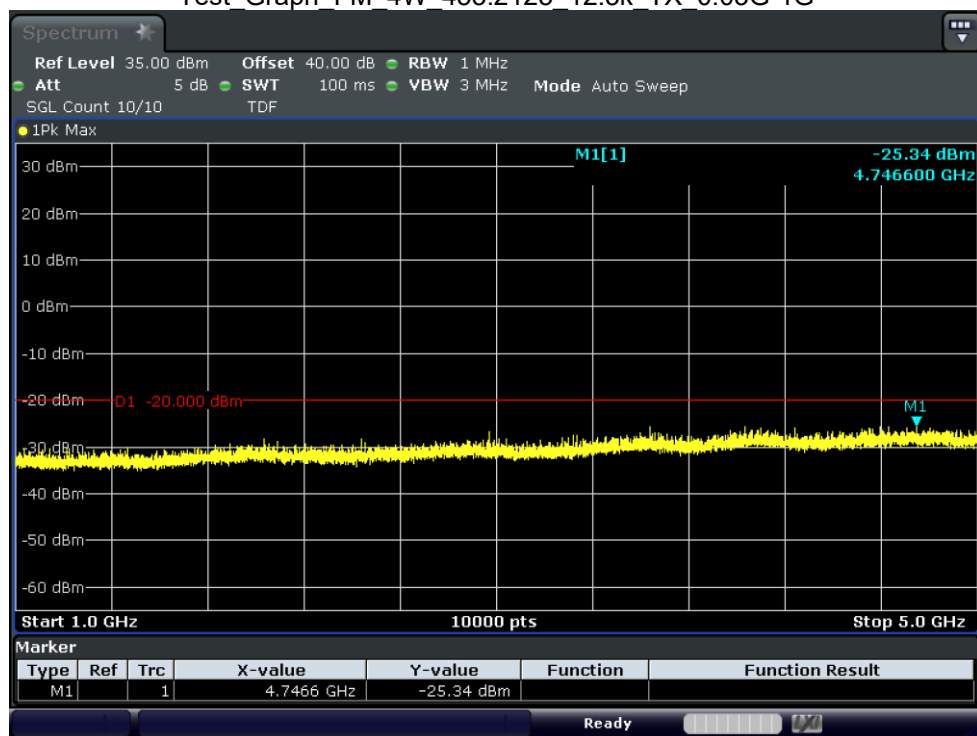


Test_Graph_FM_4W_406.125_12.5k_TX_1G-5G





Test Graph FM 4W 453.2125 12.5k TX 0.03G-1G

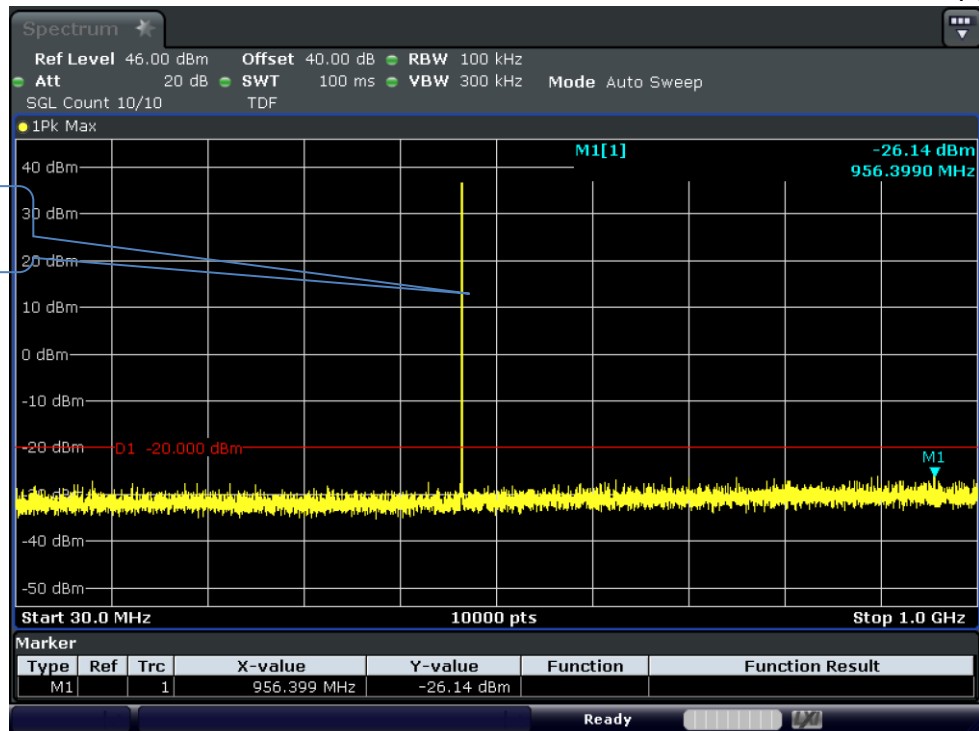


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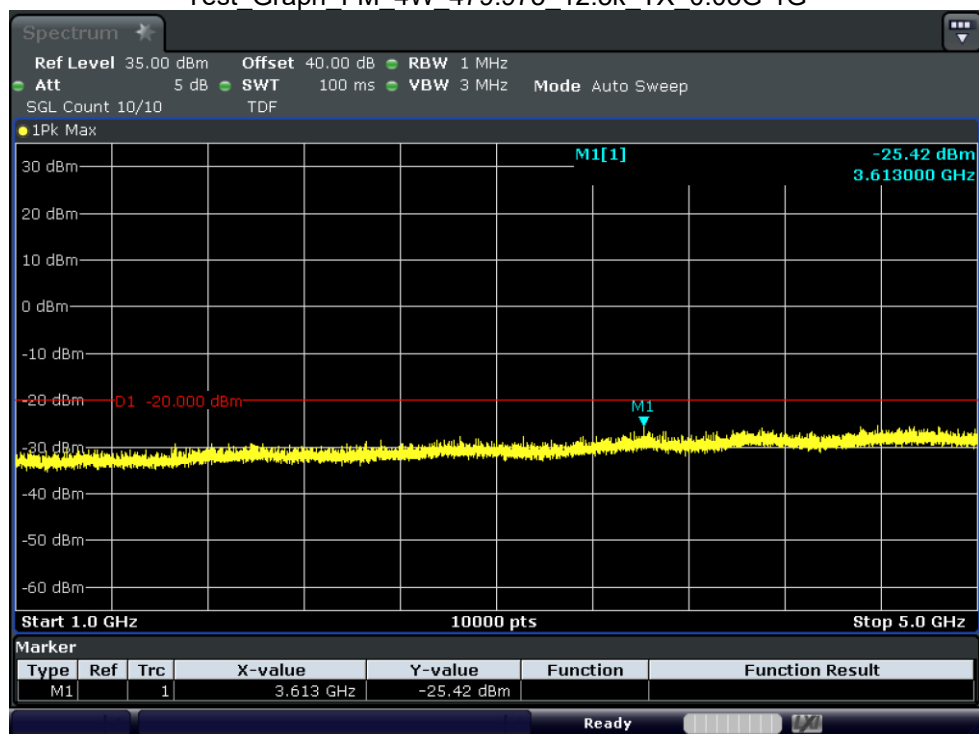




Fundamental



Test Graph FM 4W 479.975 12.5k TX 0.03G-1G

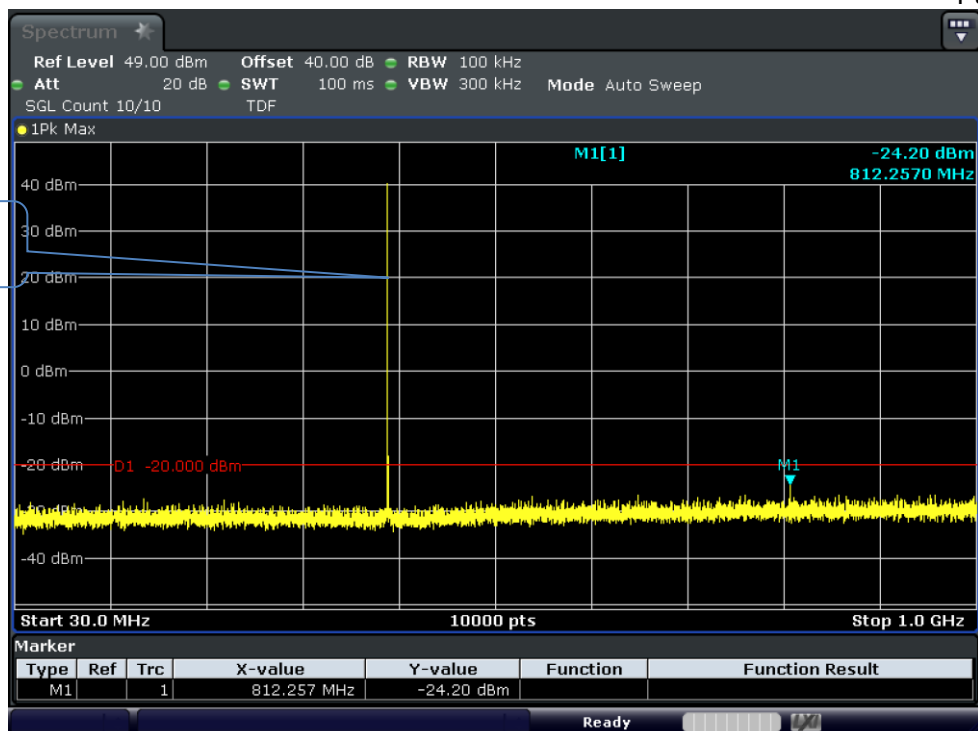


Test_Graph_FM_4W_479.975_12.5k_TX_1G-5G

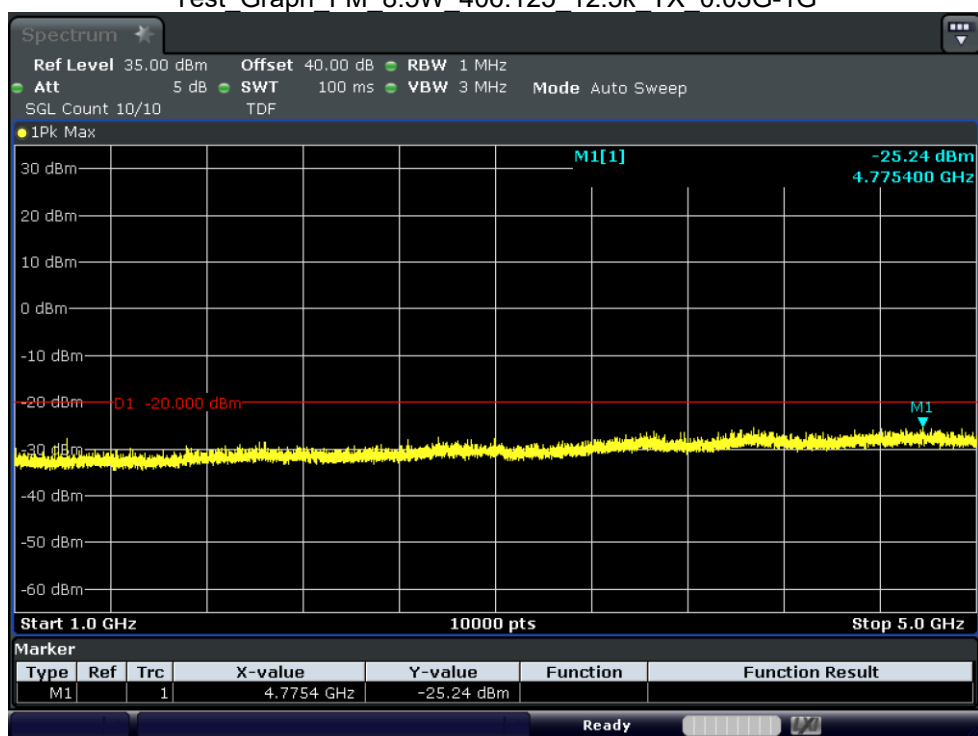




Fundamental

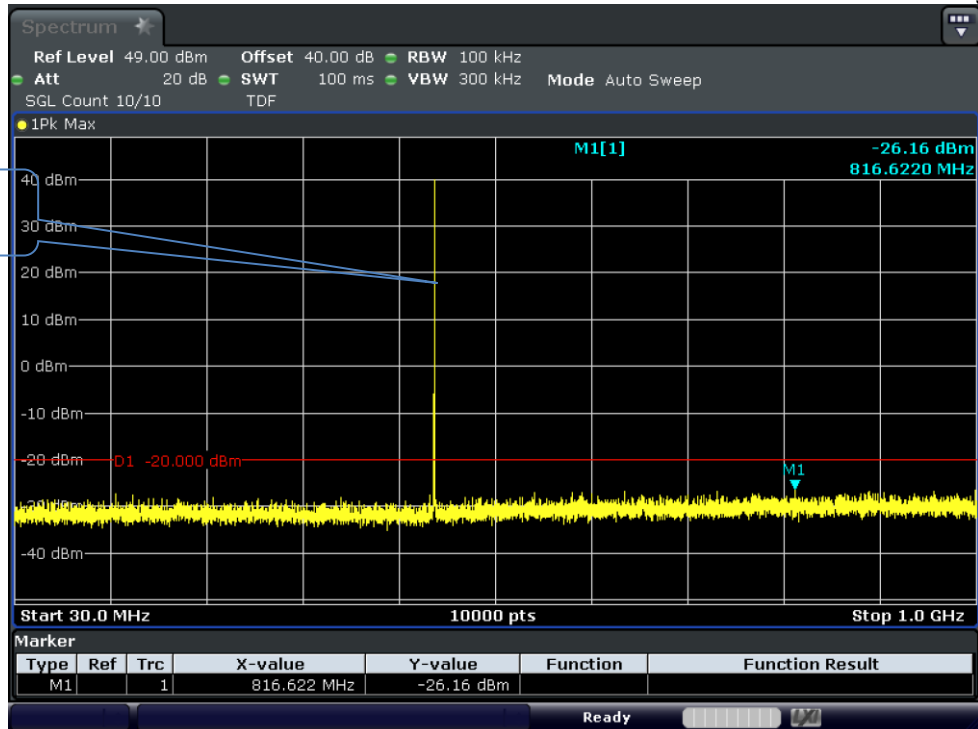


Test Graph FM 8.5W 406.125 12.5k TX 0.03G-1G

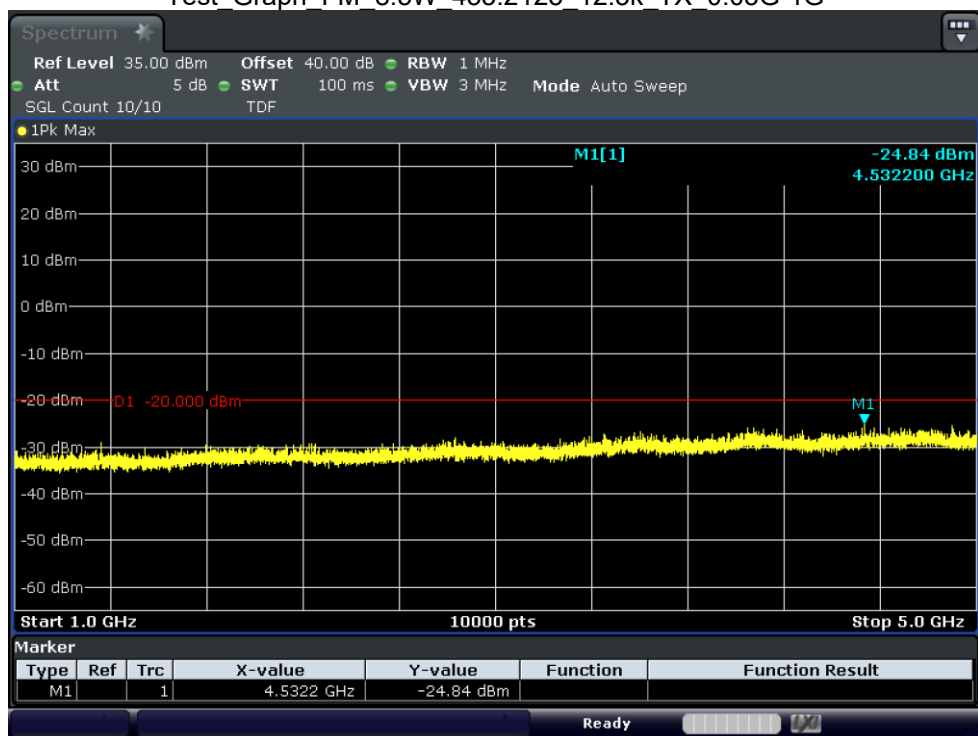


Test_Graph_FM_8.5W_406.125_12.5k_TX_1G-5G



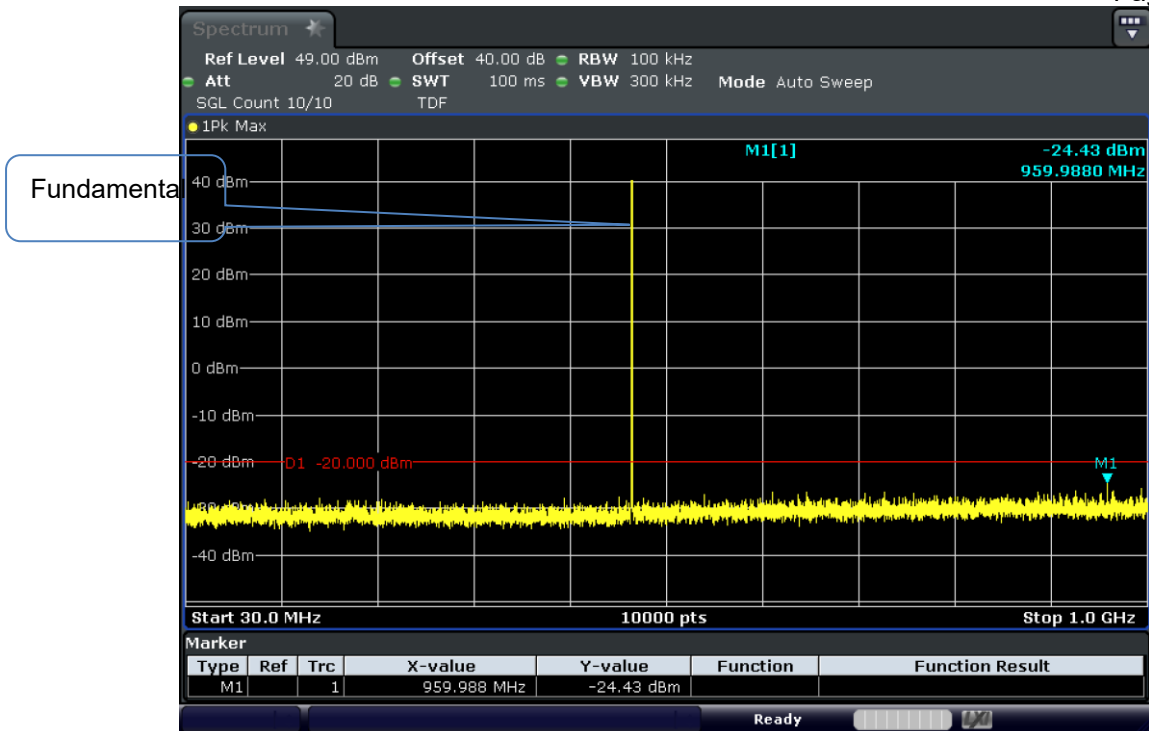


Test Graph FM 8.5W 453.2125 12.5k TX 0.03G-1G

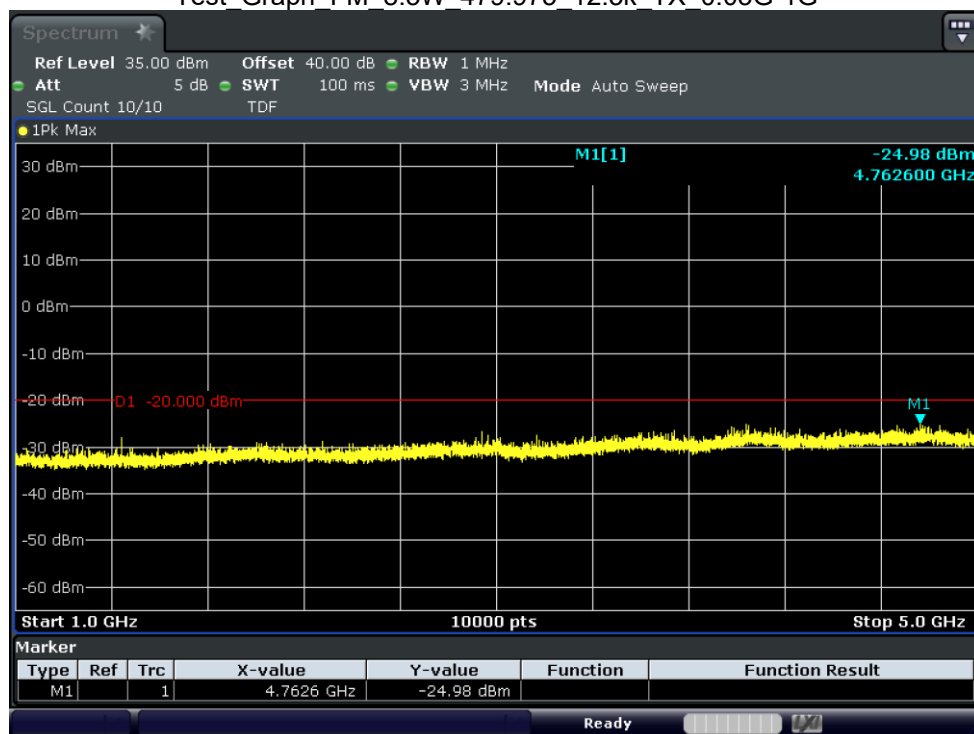


Test_Graph_FM_8.5W_453.2125_12.5k_TX_1G-5G





Test Graph FM 8.5W 479.975 12.5k TX 0.03G-1G



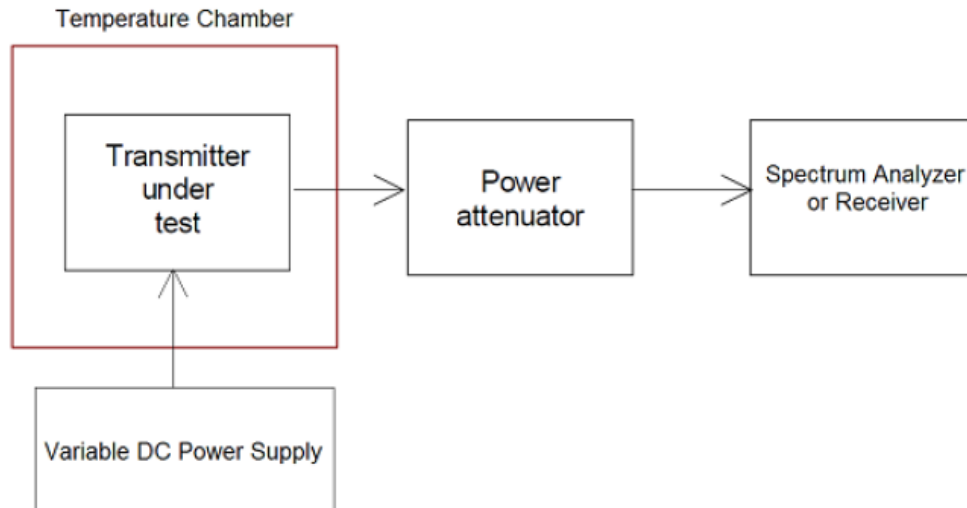
Test_Graph_FM_8.5W_479.975_12.5k_TX_1G-5G





4.6. Frequency Stability

TEST CONFIGURATION



TEST PROCEDURE

The EUT was set in the climate chamber and connected to an external DC power supply. The RF output was directly connected to frequency meter. The coupling loss of the additional cables was recorded and taken in account for all the measurements. After temperature stabilization (approx. 20 min for each stage), the frequency for the lower, the middle and the highest frequency range was recorded. For Frequency stability Vs. Voltage the EUT was connected to a DC power supply and the voltage was adjusted in the required ranges. The result was recorded.

TEST APPLICABLE

- 1 According to FCC Part 2 Section 2.1055 (a)(1), the frequency stability shall be measured with variation of ambient temperature from -30°C to +60°C centigrade.
- 2 According to FCC Part 2 Section 2.1055 (a) (2), for battery powered equipment, the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point, which is specified by the manufacture.
- 3 Vary primary supply voltage from 85 to 115 percent of the nominal value; if manufacturer declares extreme voltage within 85 to 115 percent of the nominal value, measured at extreme voltage declared by manufacturer.

LIMIT

Frequency Band	Channel Bandwidth	Mobile Station (>2 W)	Mobile Station (≤2 W)	Fixed/Base Station
150-174 MHz	25 kHz	±5 ppm	±50 ppm	±5 ppm
150-174 MHz	12.5 kHz	±5 ppm	±50 ppm	±2.5 ppm
150-174 MHz	6.25 kHz	±2.0 ppm	±50 ppm	±1.0 ppm
421-512 MHz	25 kHz	±5 ppm	±5 ppm	±2.5 ppm
421-512 MHz	12.5 kHz	±2.5 ppm	±5 ppm	±1.5 ppm
421-512 MHz	6.25 kHz	±1.0 ppm	±5 ppm	±0.5 ppm

Note: The transmitter output power is based on the manufacturer's maximum rated output power in accordance with FCC §90.213(b).





TEST RESULTS

Test conditions		Frequency error (ppm)		
Voltage Condition	Temp(°C)	136.025 MHz	155.7525MHz	173.975MHz
NV	-30	0.044	0.043	0.043
	-20	0.044	0.045	0.043
	-10	0.041	0.044	0.045
	0	0.045	0.045	0.048
	10	0.045	0.045	0.046
	20	0.046	0.044	0.047
	30	0.047	0.047	0.050
	40	0.046	0.048	0.048
	50	0.049	0.049	0.050
LV	20	0.043	0.043	0.043
HV	20	0.042	0.043	0.044
Limit(ppm)		5	5	5
Result		PASS	PASS	PASS

Test conditions		Frequency error (ppm)		
Voltage Condition	Temp(°C)	406.125 MHz	453.2125MHz	469.975MHz
NV	-30	0.045	0.044	0.043
	-20	0.045	0.045	0.044
	-10	0.044	0.041	0.046
	0	0.043	0.043	0.046
	10	0.042	0.045	0.046
	20	0.044	0.046	0.045
	30	0.048	0.048	0.047
	40	0.045	0.046	0.049
	50	0.047	0.047	0.051
LV	20	0.046	0.043	0.041
HV	20	0.046	0.044	0.043
Limit(ppm)		2.5	2.5	2.5
Result		PASS	PASS	PASS

NV: Normal Voltage 7.40V

LV: Low Voltage 6.29V

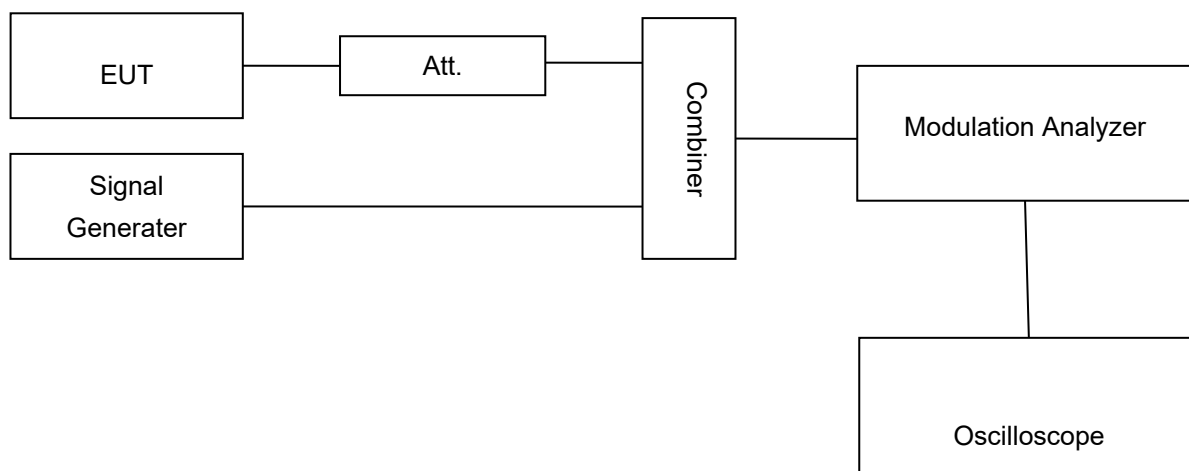
HV: High Voltage 8.51V





4.7. Transient Frequency Behavior

TEST CONFIGURATION



TEST PROCEDURE

1. Connect the EUT and test equipment as shown on the following block diagram.
2. Set the Spectrum Analyzer to measure FM deviation, and tune the RF frequency to the transmitter assigned frequency.
3. Set the signal generator to the assigned transmitter frequency and modulate it with a 1 kHz tone at ± 12.5 kHz deviation and set its output level to -100dBm.
4. Turn on the transmitter.
5. Supply sufficient attenuation via the RF attenuator to provide an input level to the Spectrum Analyzer that is 40 dB below the maximum allowed input power when the transmitter is operating at its rated power level. Note this power level on the Spectrum Analyzer as P0.
6. Turn off the transmitter.
7. Adjust the RF level of the signal generator to provide RF power equal to P0. This signal generator RF level shall be maintained throughout the rest of the measurement.
8. Remove the attenuation 1, so the input power to the Spectrum Analyzer is increased by 30 dB when the transmitter is turned on.
9. Adjust the vertical amplitude control of the spectrum analyzer to display the 1000 Hz at ± 4 divisions vertically centered on the display. Set trigger mode of the Spectrum Analyzer to "Video", and tune the "trigger level" on suitable level. Then set the "trigger offset" to -10ms for turn on and -15ms for turn off.
11. Turn on the transmitter and the transient wave will be captured on the screen of Spectrum Analyzer. Observe the stored display. The instant when the 1 kHz test signal is completely suppressed is considered to be t_0 . The trace should be maintained within the allowed divisions during the period t_1 and t_2 .
12. Then turn off the transmitter, and another transient wave will be captured on the screen of Spectrum Analyzer. The trace should be maintained within the allowed divisions during the period t_3 .





LIMIT

Time intervals ^{1, 2}	Maximum frequency difference ³	All equipment	
		150 to 174 MHz	421 to 512 MHz
Transient Frequency Behavior for Equipment Designed to Operate on 25 kHz Channels			
t ₁ ⁴	± 25.0 kHz	5.0 ms	10.0 ms
t ₂	± 12.5 kHz	20.0 ms	25.0 ms
t ₃ ⁴	± 25.0 kHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 12.5 kHz Channels			
t ₁ ⁴	± 12.5 kHz	5.0 ms	10.0 ms
t ₂	± 6.25 kHz	20.0 ms	25.0 ms
t ₃ ⁴	± 12.5 kHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 6.25 kHz Channels			
t ₁ ⁴	± 6.25 kHz	5.0 ms	10.0 ms
t ₂	± 3.125 kHz	20.0 ms	25.0 ms
t ₃ ⁴	± 6.25 kHz	5.0 ms	10.0 ms

¹ t_{on} is the instant when a 1 kHz test signal is completely suppressed, including any capture time due to phasing.

t₁ is the time period immediately following t_{on}.

t₂ is the time period immediately following t₁.

t₃ is the time period from the instant when the transmitter is turned off until t_{off}.

t_{off} is the instant when the 1 kHz test signal starts to rise.

² During the time from the end of t₂ to the beginning of t₃, the frequency difference must not exceed the limits specified in §90.213.

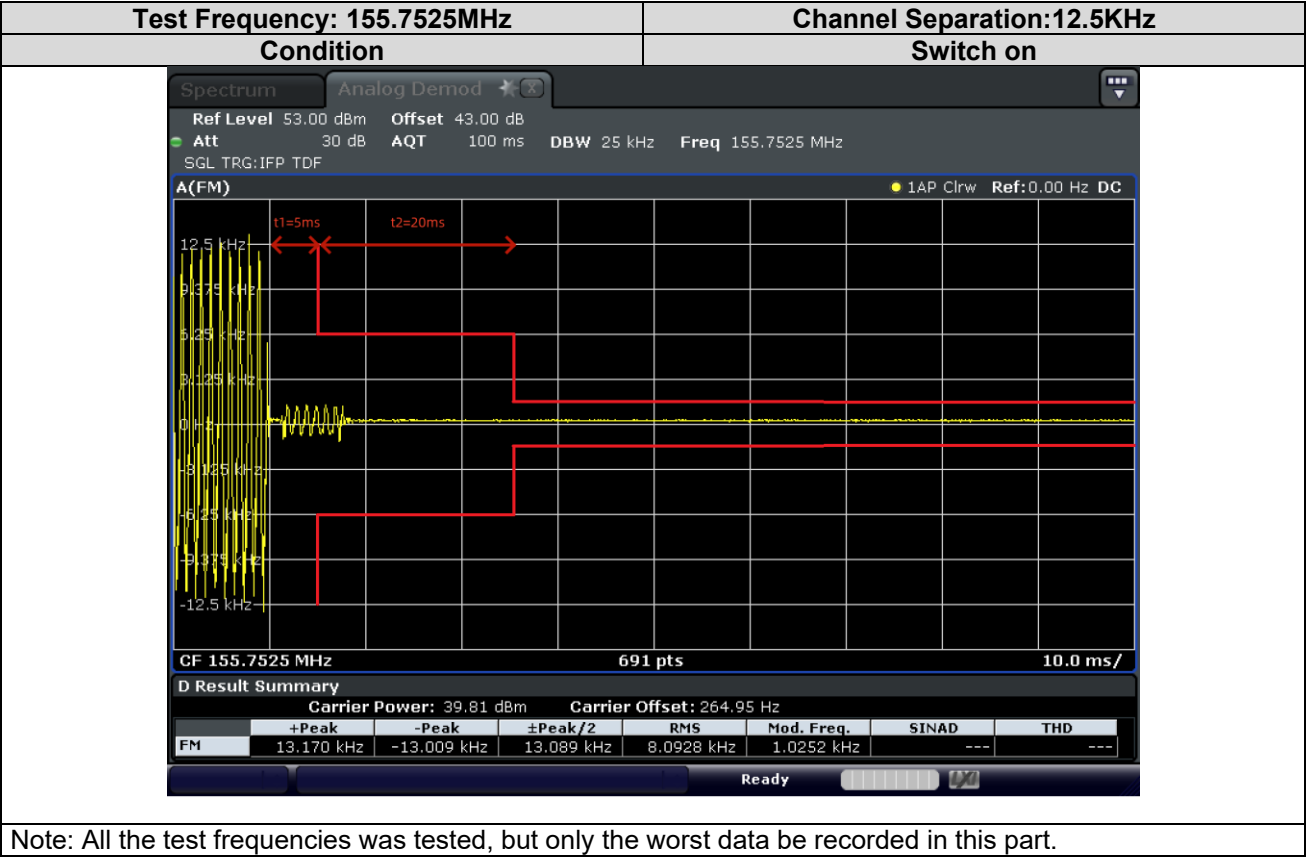
³ Difference between the actual transmitter frequency and the assigned transmitter frequency.

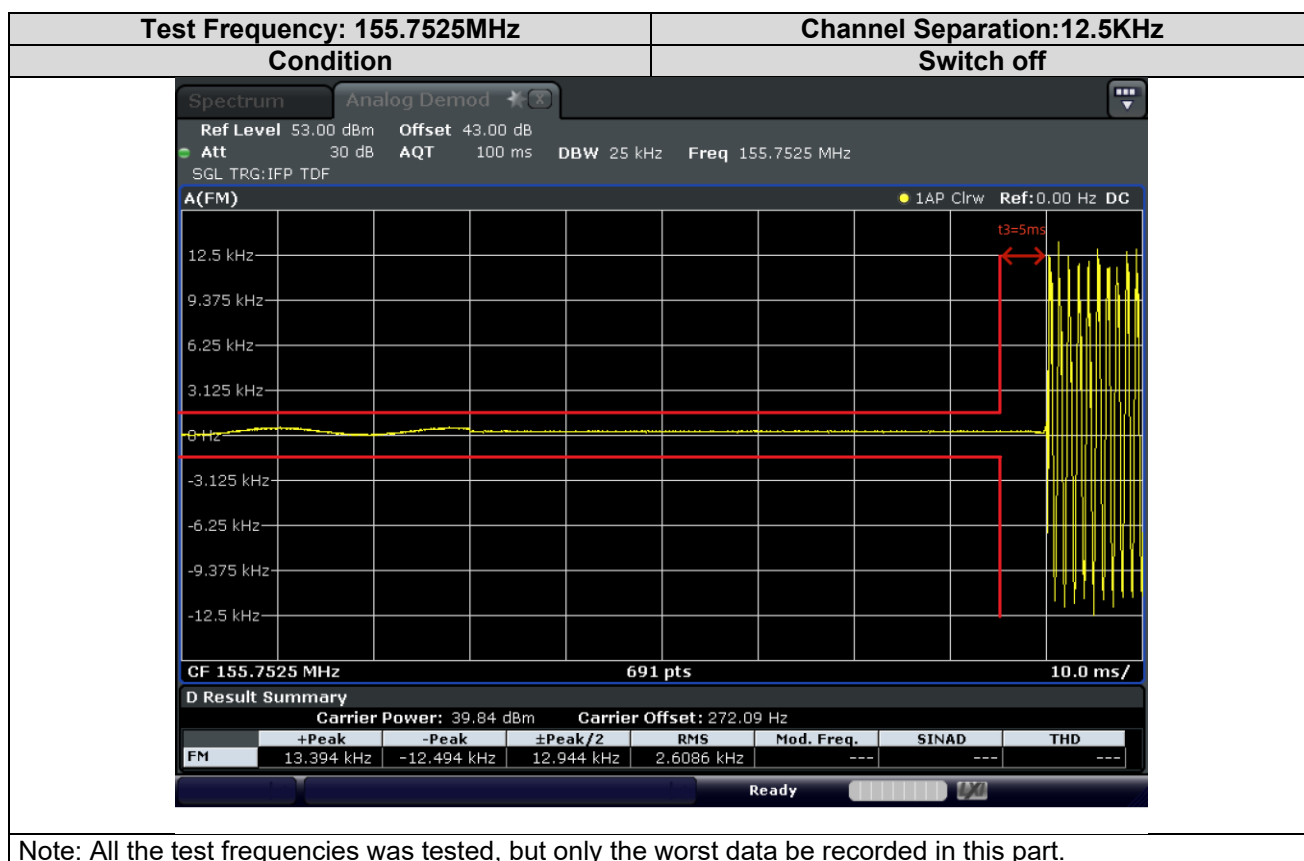
⁴ If the transmitter carrier output power rating is 6 watts or less, the frequency difference during this time period may exceed the maximum frequency difference for this time period.

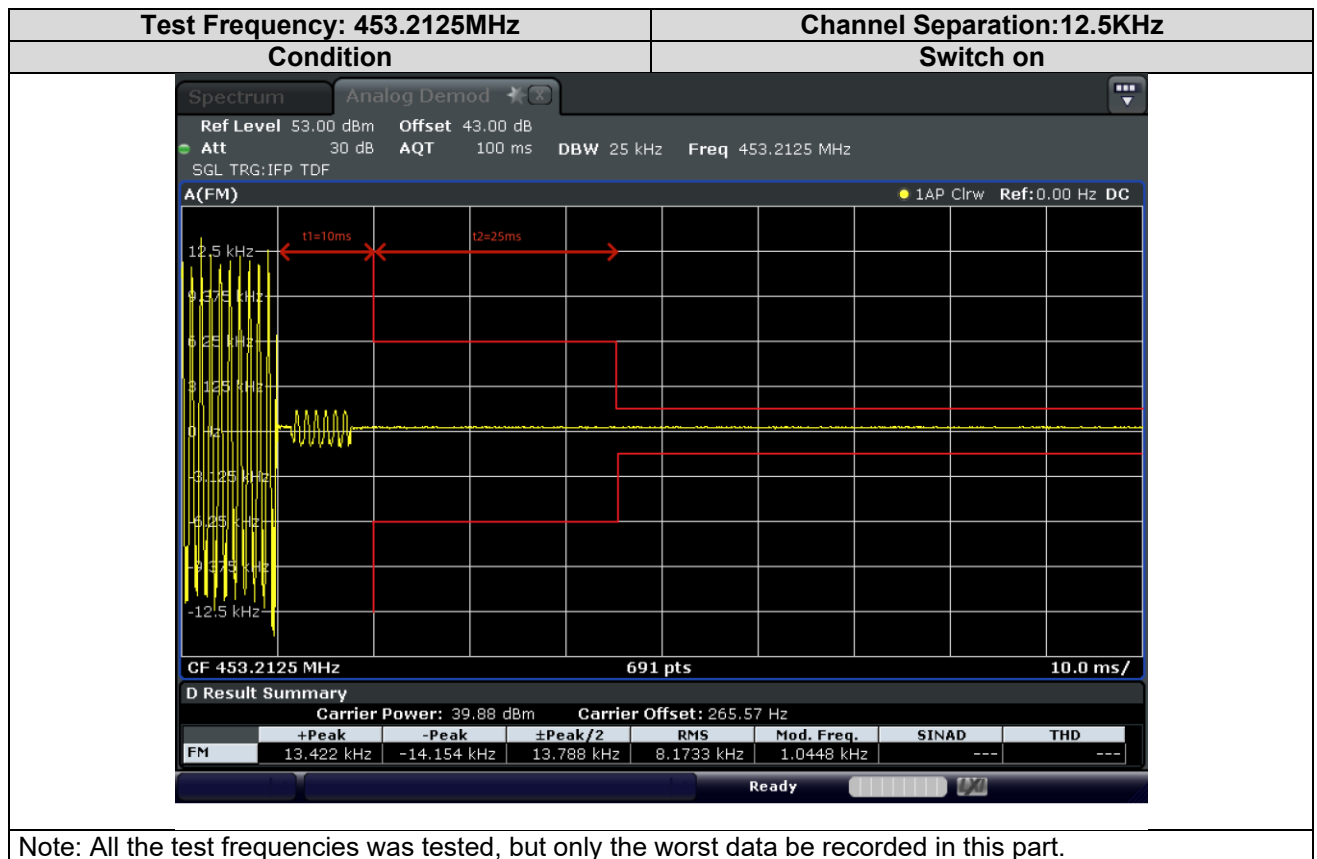


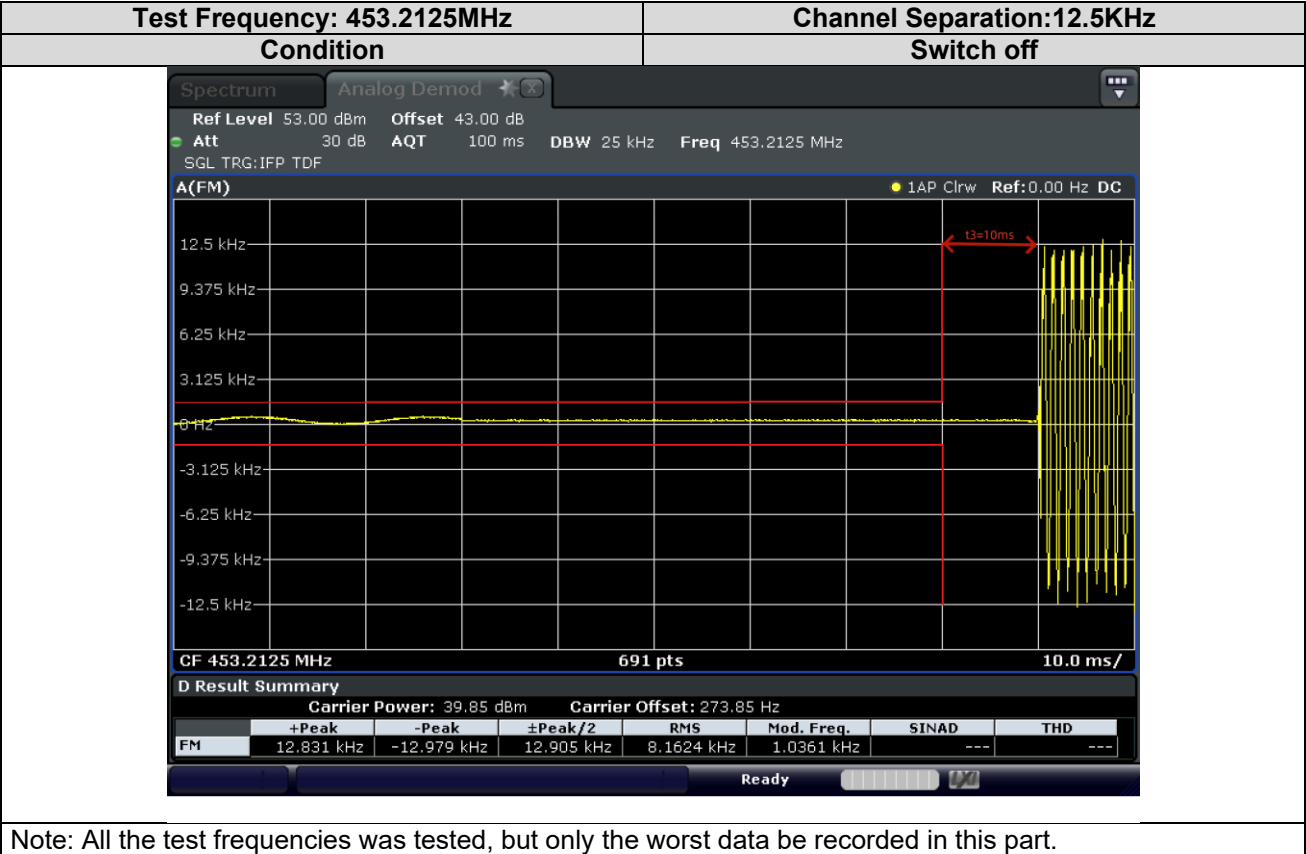


TEST RESULTS











5. TEST SETUP PHOTOGRAPHS OF EUT

Please refer to separated files for Test Setup Photos of the EUT.

6. EXTERIOR PHOTOGRAPHS OF EUT

Please refer to separated files for External Photos of the EUT.

7. INTERIOR PHOTOGRAPHS OF EUT

Please refer to separated files for Internal Photos of the EUT.

.....**End of Report**.....

