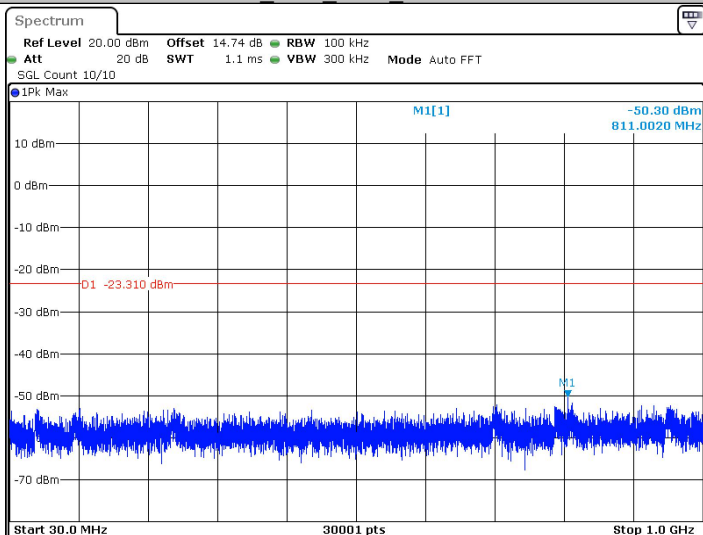
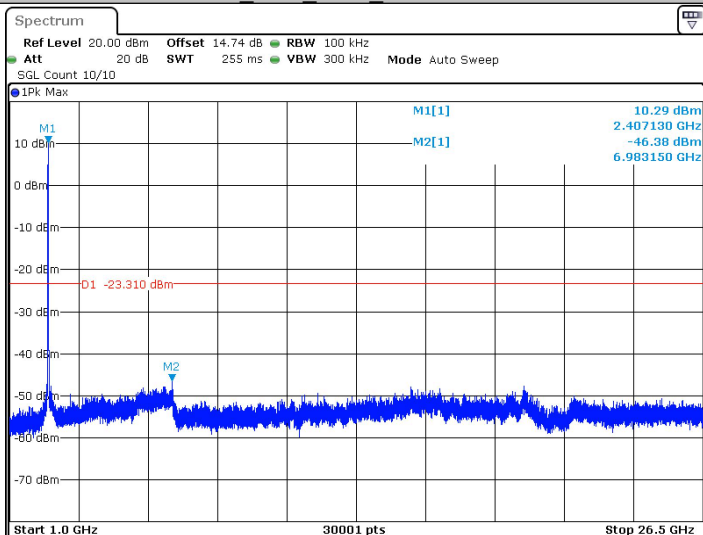


11G_Ant1_2412_30~1000



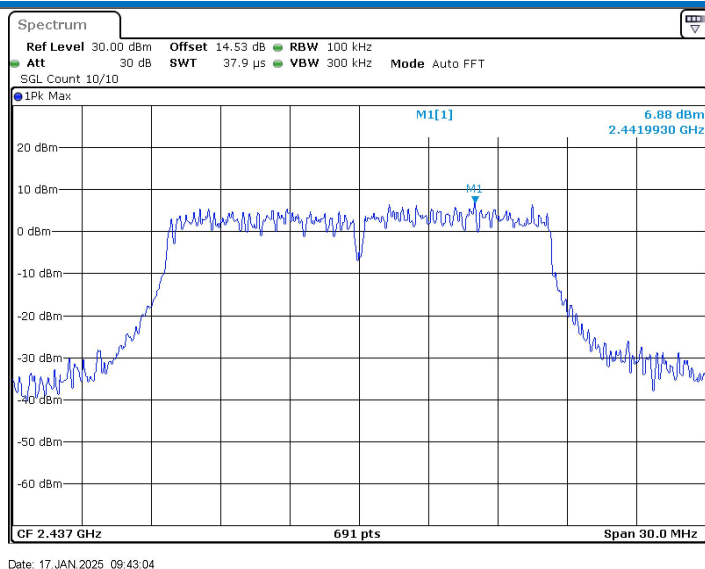
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11G_Ant1_2412_1000~26500

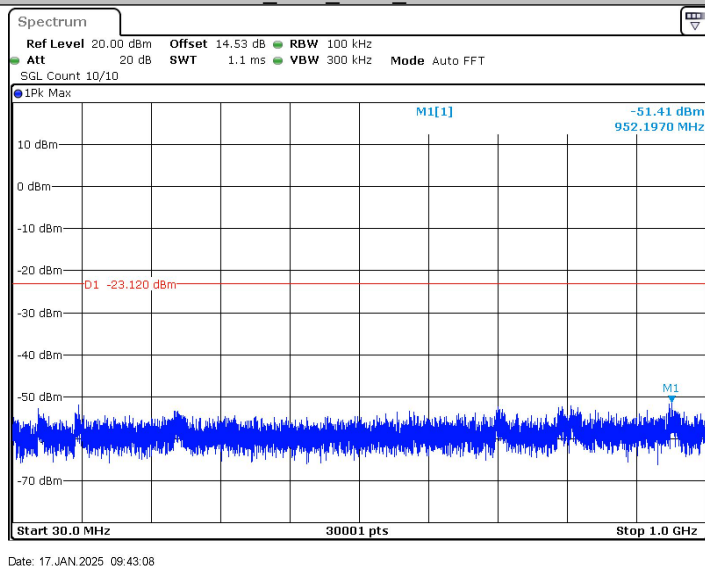


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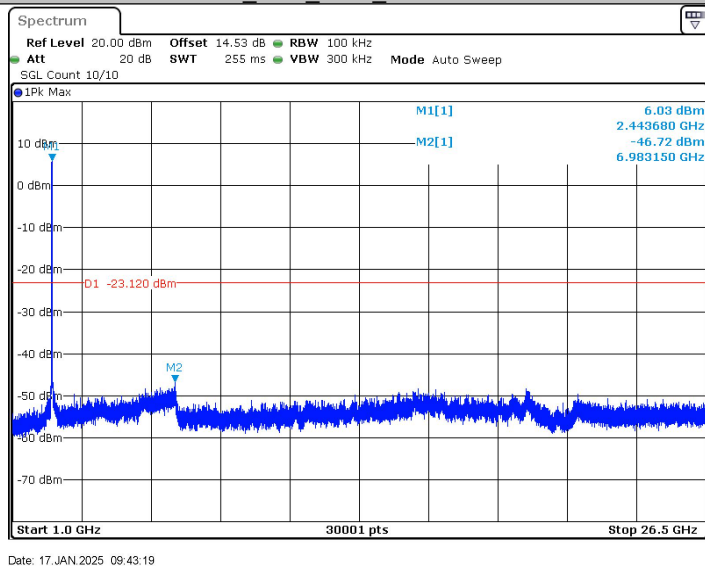
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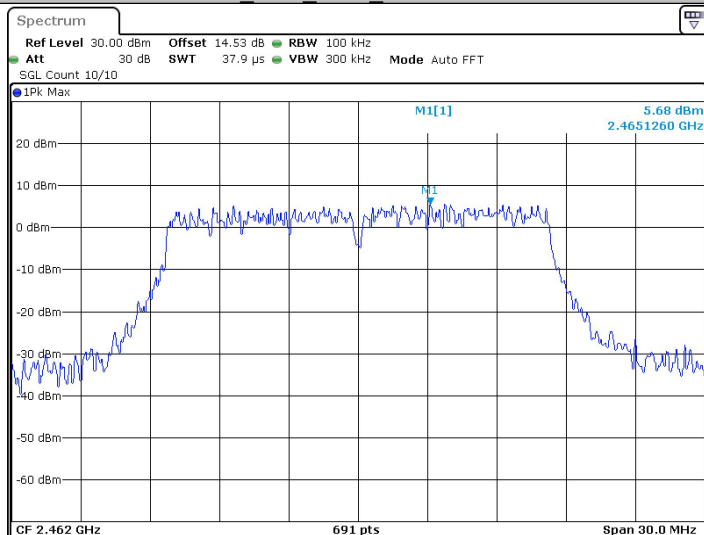
11G_Ant1_2437_30~1000



11G_Ant1_2437_1000~26500

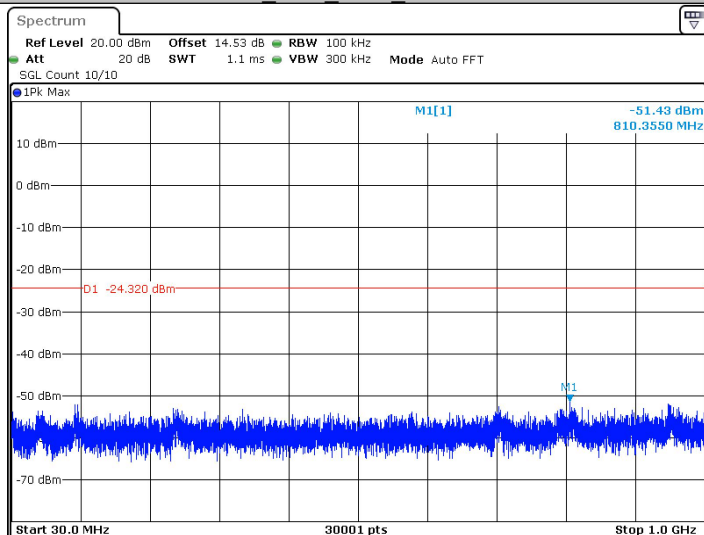


11G_Ant1_2462_0~Reference



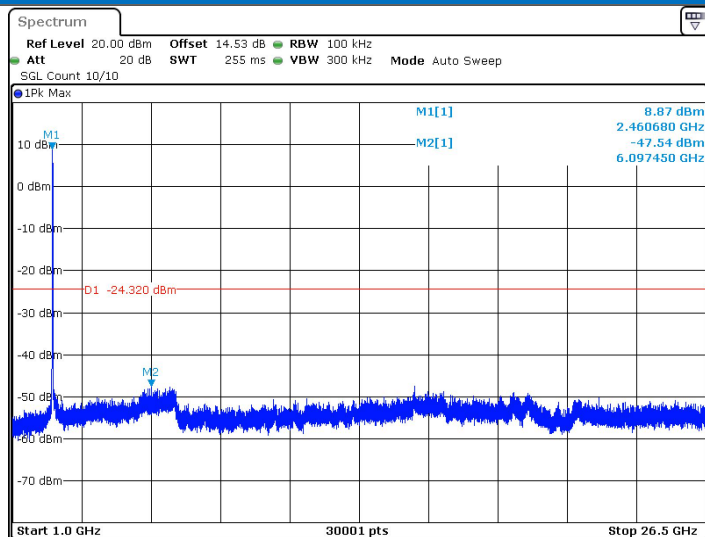
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11G_Ant1_2462_30~1000



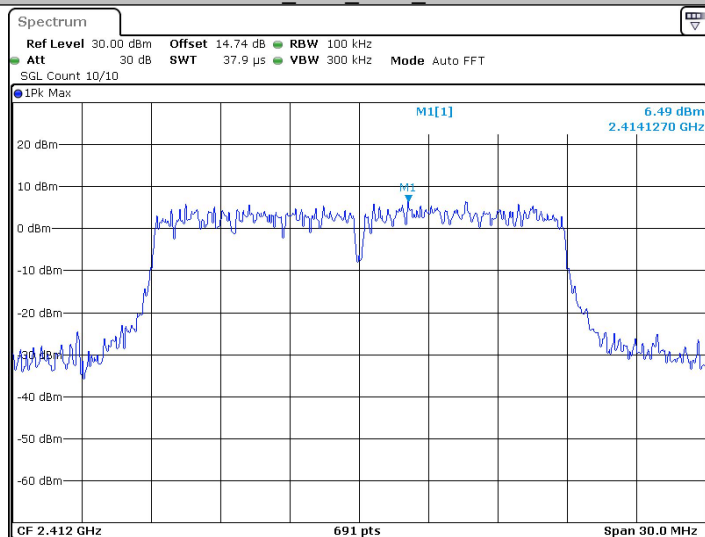
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11G_Ant1_2462_1000~26500



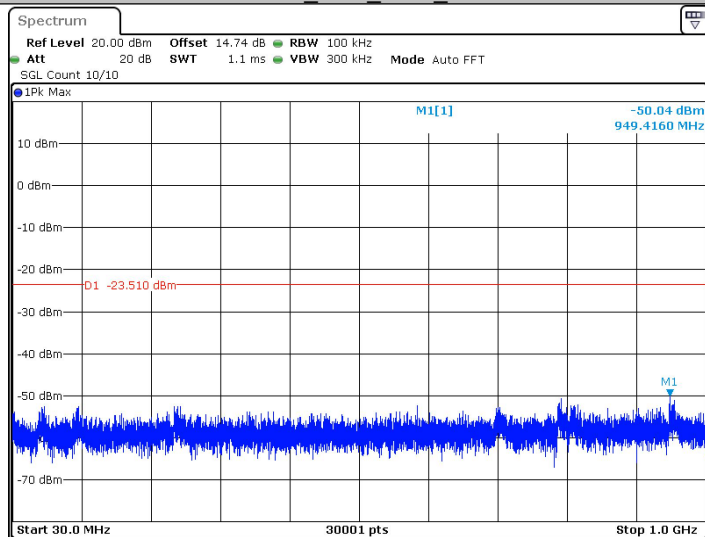
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11N20SISO_Ant1_2412_0~Reference



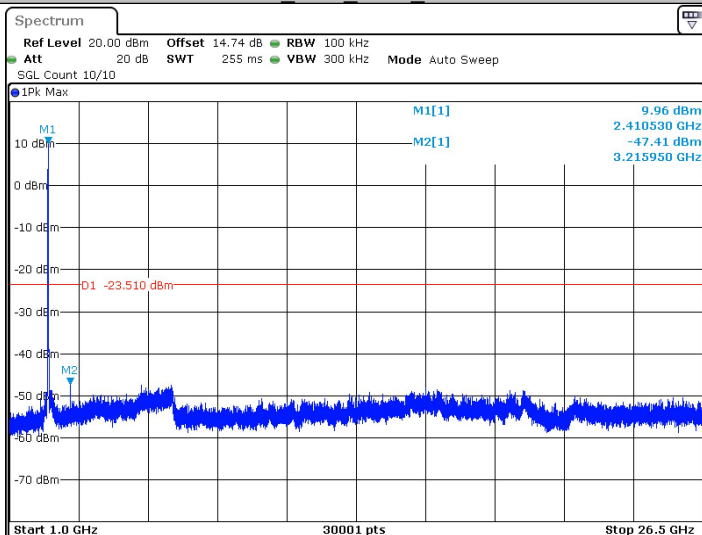
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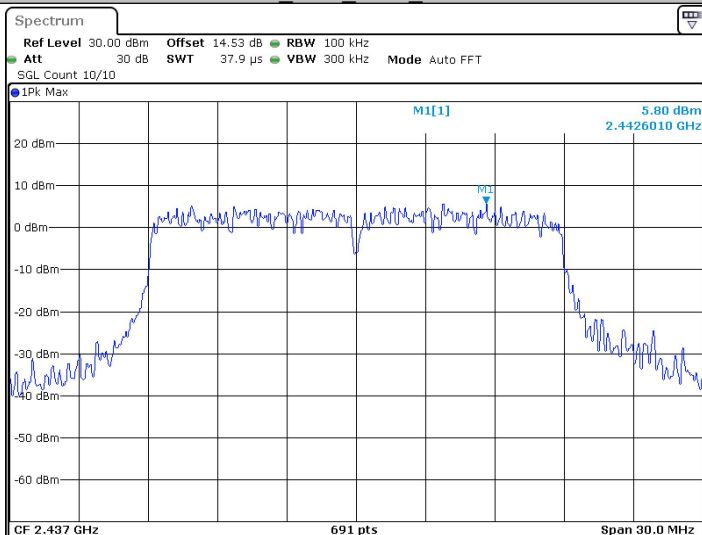
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11N20SISO_Ant1_2412_1000~26500



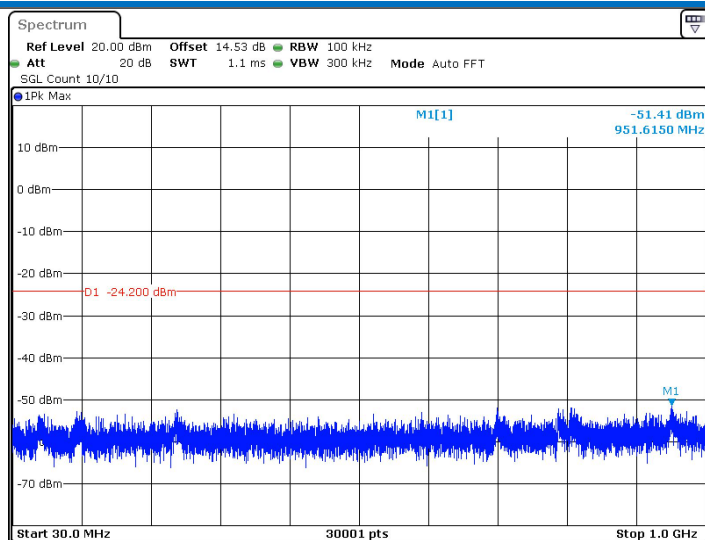
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11N20SISO_Ant1_2437_0~Reference



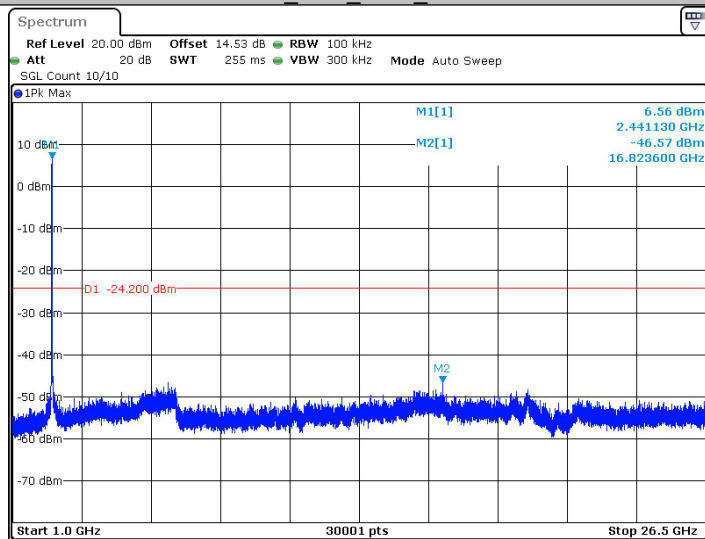
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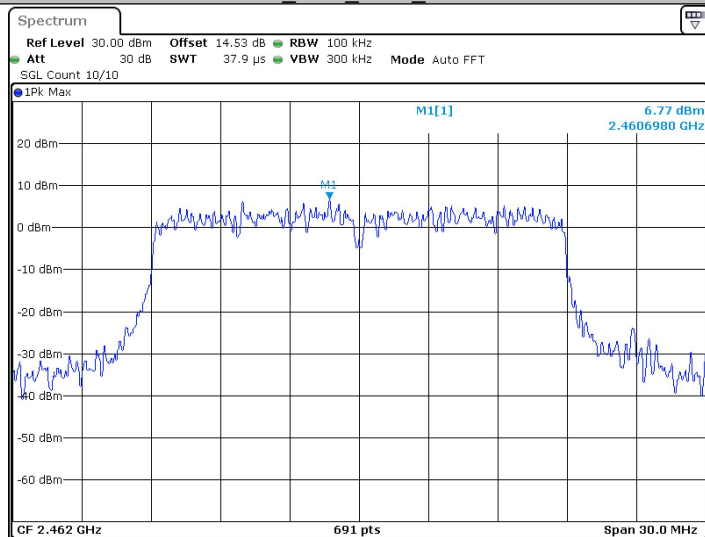
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11N20SISO_Ant1_2437_1000~26500



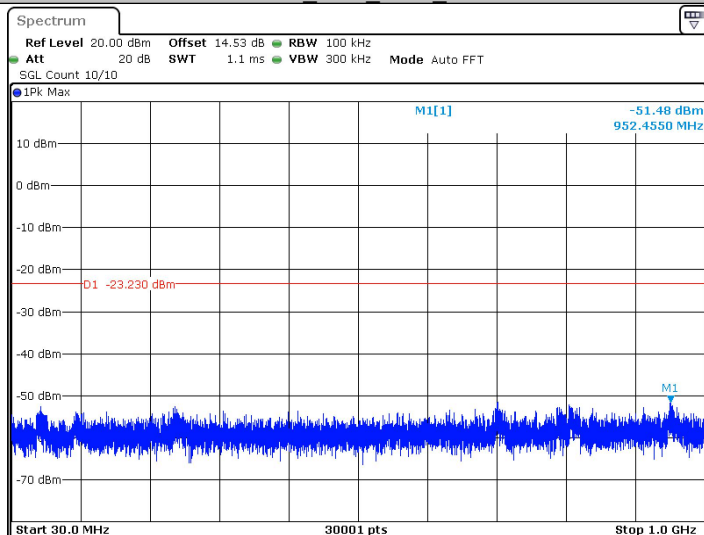
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11N20SISO_Ant1_2462_0~Reference



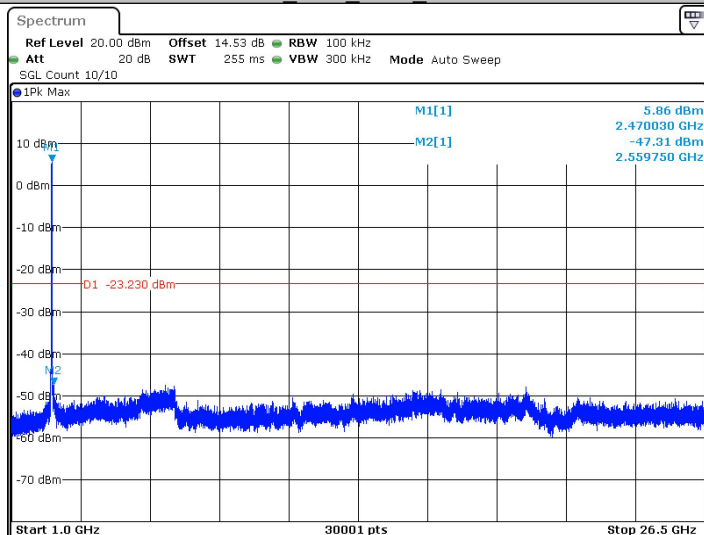
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11N20SISO_Ant1_2462_30~1000



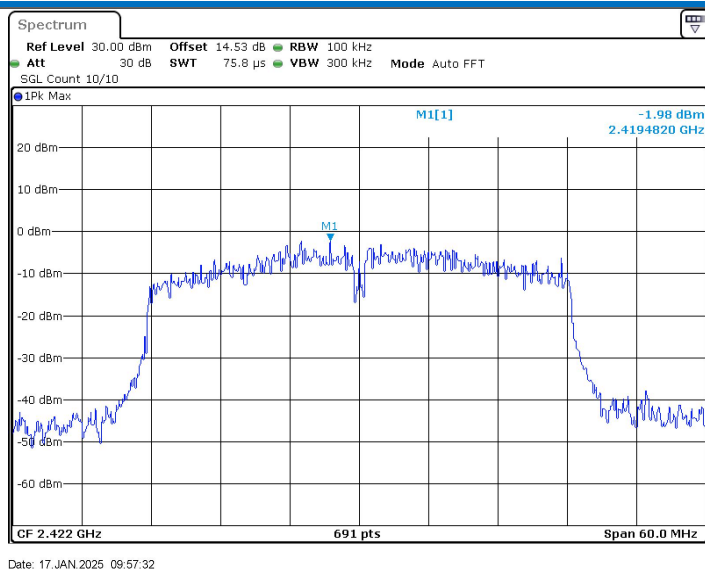
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11N20SISO_Ant1_2462_1000~26500

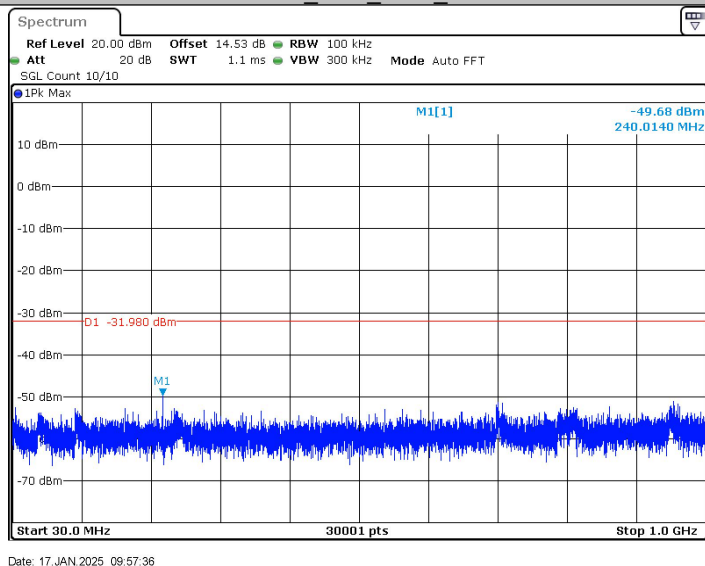


Date: 17 JAN 2025 09:49:19

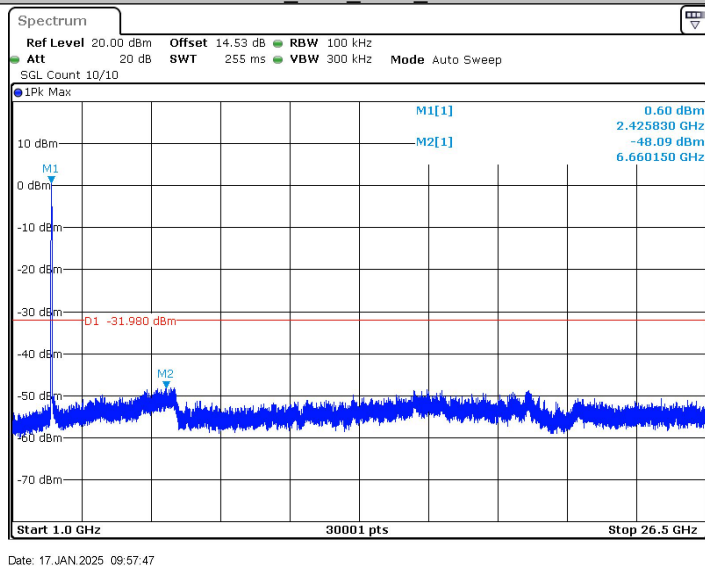
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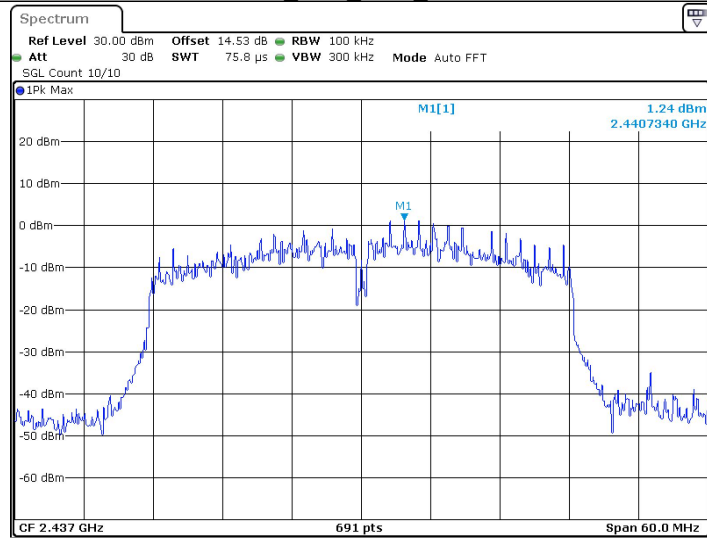
11N40SISO_Ant1_2422_30~1000



11N40SISO_Ant1_2422_1000~26500

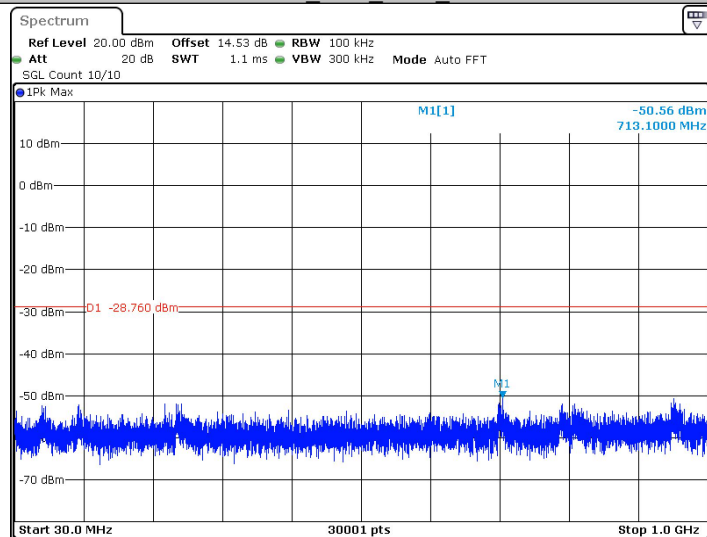


11N40SISO_Ant1_2437_0~Reference



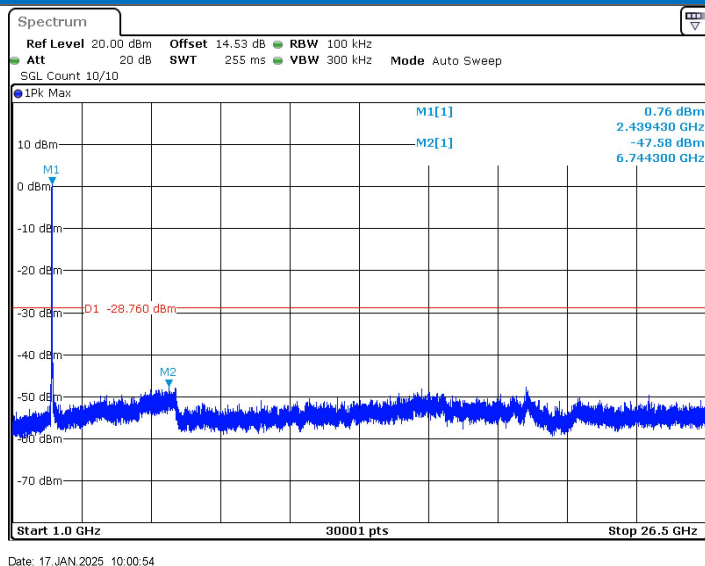
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11N40SISO_Ant1_2437_30~1000

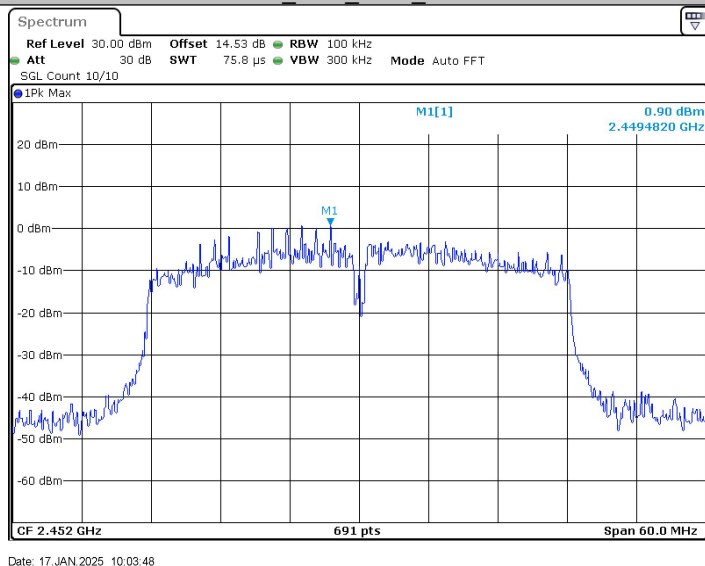


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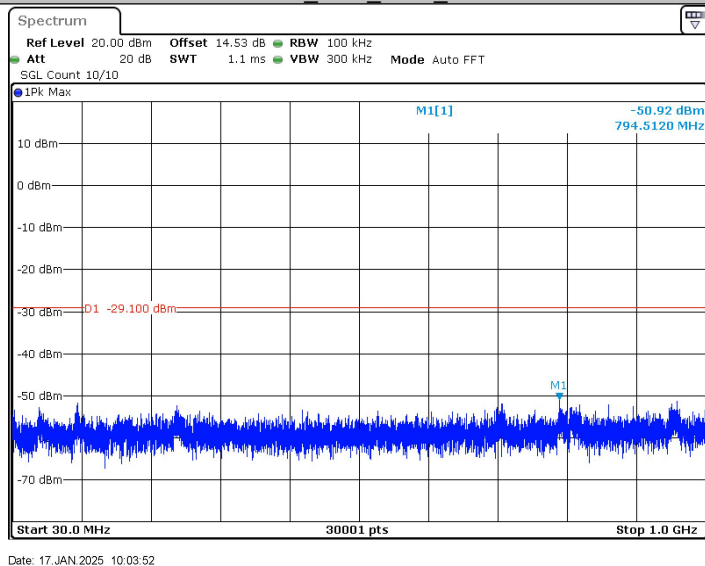
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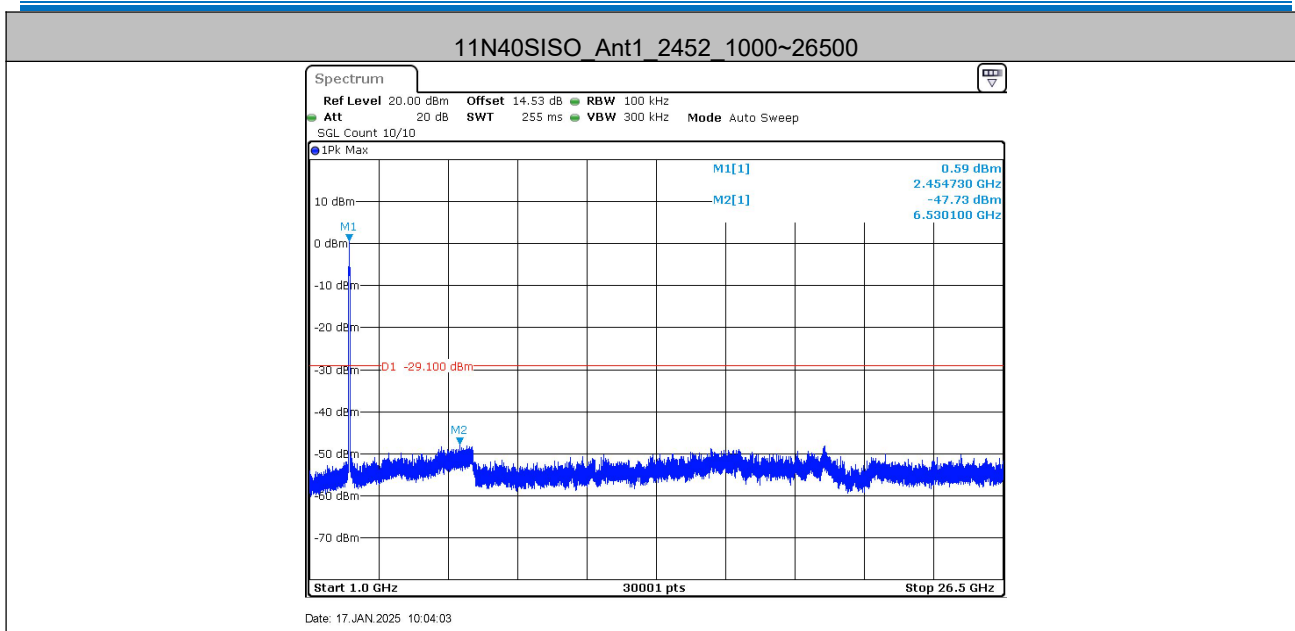


11N40SISO_Ant1_2452_0~Reference



11N40SISO_Ant1_2452_30~1000





Remark:

Pretest 9kHz to 25GHz, find the highest point when testing, so only the worst data were shown in the test report. Per FCC Part 15.33 (a) and 15.31 (o) ,The amplitude of spurious emissions from intentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this part.

5.8 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205				
Test Method:	ANSI C63.10 2013				
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
	Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.				

Test Setup:

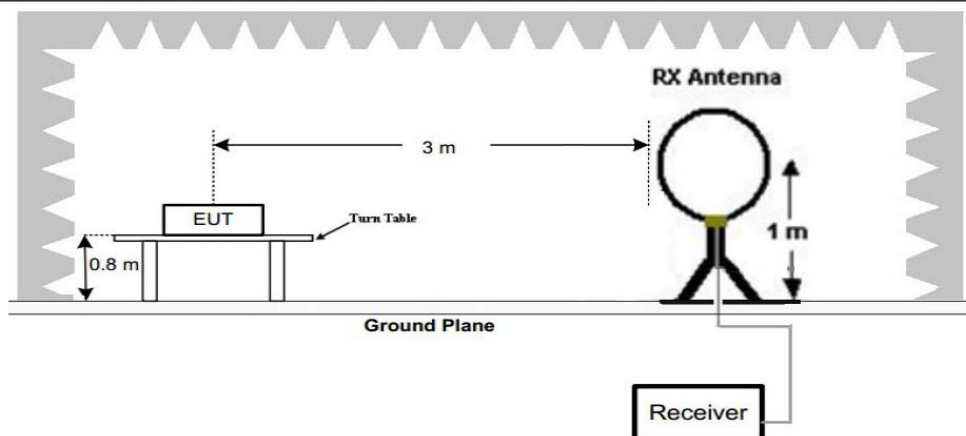


Figure 1. Below 30MHz

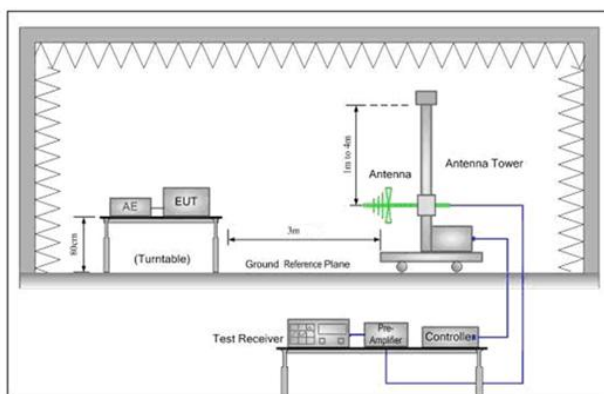


Figure 2. 30MHz to 1GHz

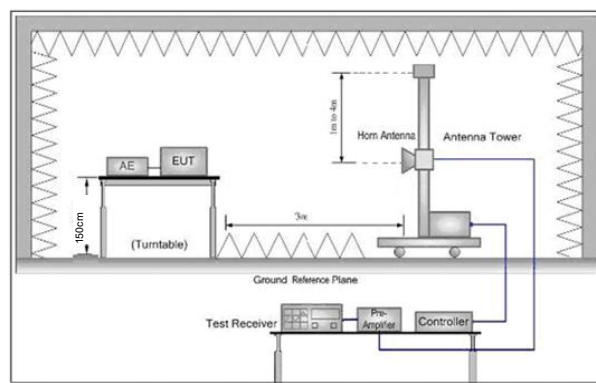


Figure 3. Above 1 GHz

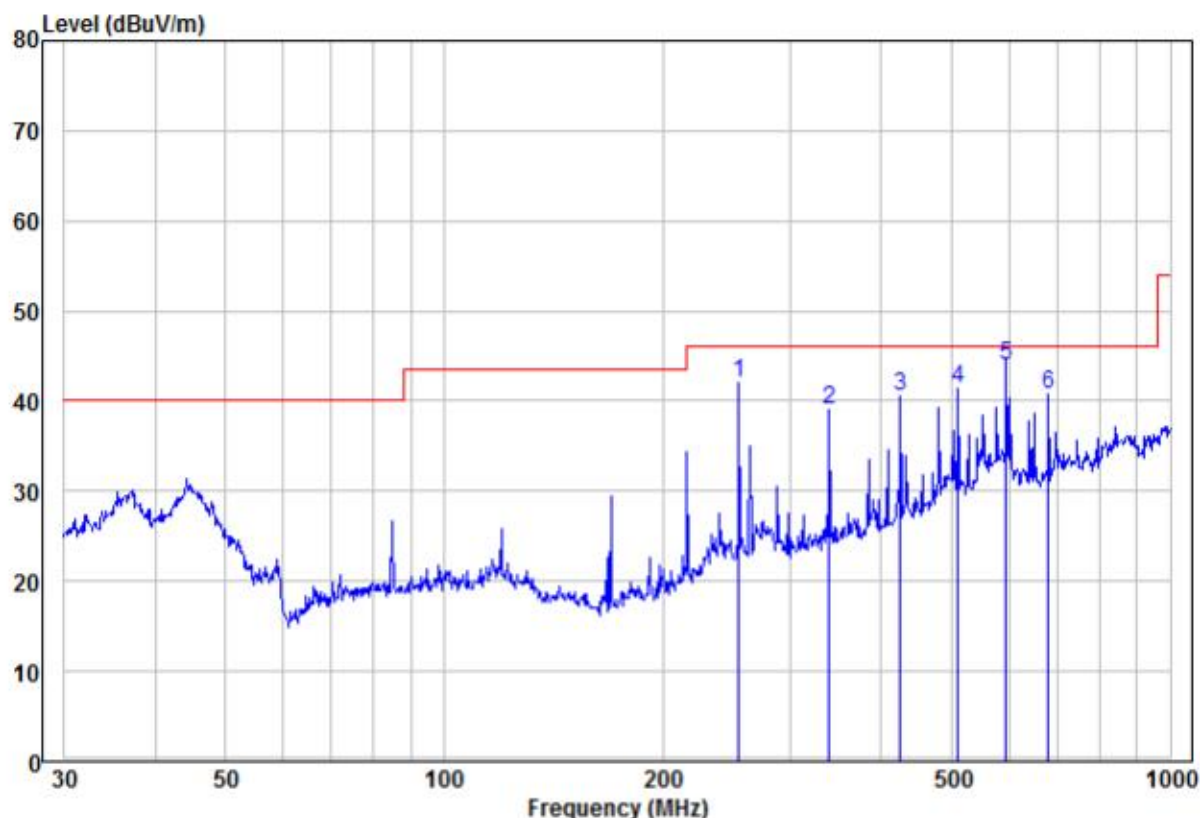
Test Procedure:

- a. 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
Note: For the radiated emission test above 1GHz:
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.

	d. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. 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. g. Test the EUT in the lowest channel, the middle channel, the Highest channel. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case . i. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates at lowest, middle and highest channel.
Final Test Mode:	Only the worst case is recorded in the report.
Test Results:	Pass

5.8.1 Radiated emission below 1GHz

30MHz~1GHz
Vertical



		Read		Limit	Over			
	Freq	Level	Factor	Level	Line	Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1 pk	254.73	29.03	13.03	42.06	46.00	-3.94	Peak	VERTICAL
2	339.59	23.34	15.61	38.95	46.00	-7.05	Peak	VERTICAL
3	425.03	23.53	17.04	40.57	46.00	-5.43	Peak	VERTICAL
4	510.04	21.36	20.06	41.42	46.00	-4.58	Peak	VERTICAL
5 pp	595.13	23.80	20.24	44.04	46.00	-1.96	QP	VERTICAL
6	679.96	18.87	21.80	40.67	46.00	-5.33	Peak	VERTICAL

Remark:

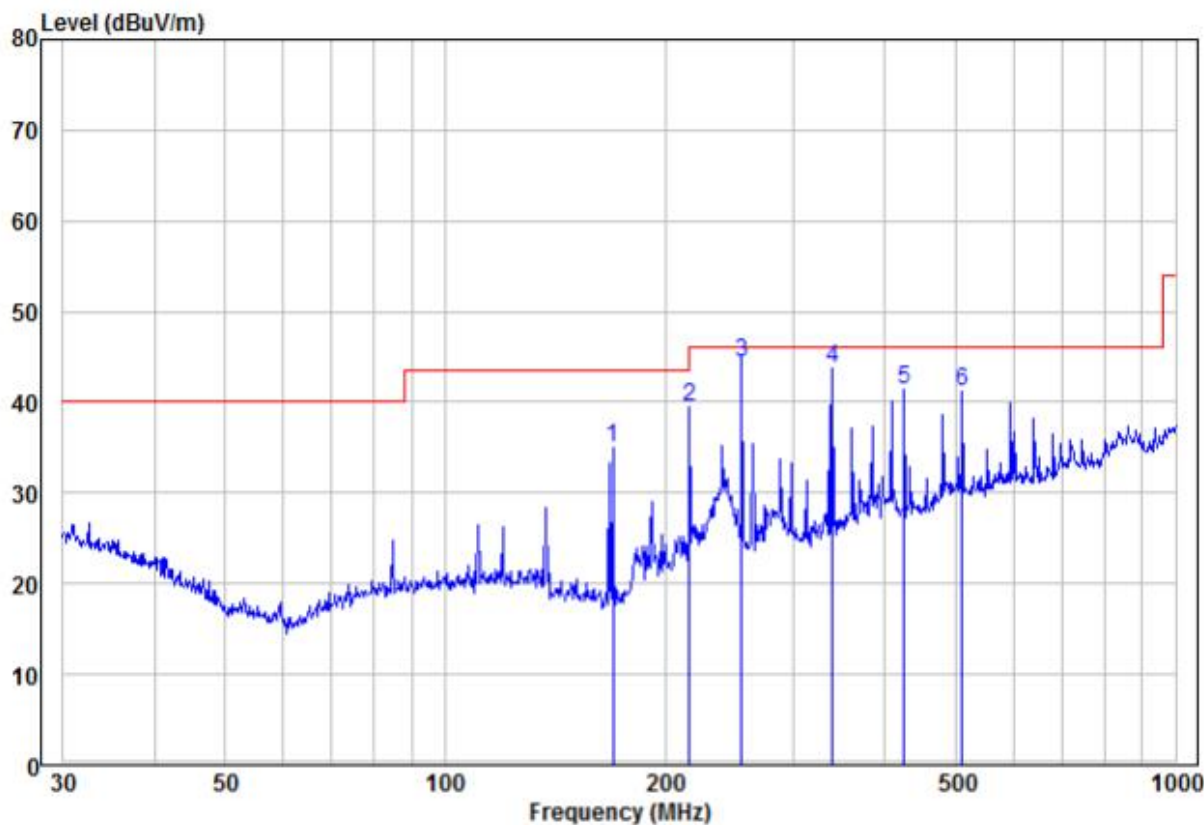
The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

Horizontal



	Read			Limit	Over		
Freq	Level	Factor	Level	Line	Limit	Remark	Pol/Phase
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	169.60	26.63	8.31	34.94	43.50	-8.56 Peak	HORIZONTAL
2	216.02	29.80	9.75	39.55	46.00	-6.45 Peak	HORIZONTAL
3 pp	254.73	31.30	13.03	44.33	46.00	-1.67 QP	HORIZONTAL
4	339.59	28.07	15.61	43.68	46.00	-2.32 QP	HORIZONTAL
5 pk	425.03	24.40	17.04	41.44	46.00	-4.56 Peak	HORIZONTAL
6	510.04	21.13	20.06	41.19	46.00	-4.81 Peak	HORIZONTAL

Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Factor= Antenna Factor + Cable Factor – Preamplifier Factor,

Level = Read Level + Factor,

Over Limit=Level-Limit Line.

5.8.2 Transmitter emission above 1GHz

Test mode:		802.11b(1Mbps)		Test channel:		Lowest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
4824.000	54.05	-4.26	49.79	74	-24.21	peak	H
4824.000	37.21	-4.26	32.95	54	-21.05	AVG	H
7236.000	51.35	1.18	52.53	74	-21.47	peak	H
7236.000	37.78	1.18	38.96	54	-15.04	AVG	H
4824.000	56.03	-4.26	51.77	74	-22.23	peak	V
4824.000	39.32	-4.26	35.06	54	-18.94	AVG	V
7236.000	52.09	1.18	53.27	74	-20.73	peak	V
7236.000	35.80	1.18	36.98	54	-17.02	AVG	V

Test mode:		802.11b(1Mbps)		Test channel:		Middle	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
4874.000	52.78	-4.12	48.66	74	-25.34	peak	H
4874.000	36.14	-4.12	32.02	54	-21.98	AVG	H
7311.000	49.26	1.46	50.72	74	-23.28	peak	H
7311.000	35.69	1.46	37.15	54	-16.85	AVG	H
4874.000	53.88	-4.12	49.76	74	-24.24	peak	V
4874.000	37.82	-4.12	33.70	54	-20.30	AVG	V
7311.000	48.34	1.46	49.80	74	-24.20	peak	V
7311.000	36.11	1.46	37.57	54	-16.43	AVG	V

Test mode:		802.11b(1Mbps)		Test channel:		Highest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
4924.000	52.33	-4.03	48.30	74	-25.70	peak	H
4924.000	37.44	-4.03	33.41	54	-20.59	AVG	H
7386.000	49.42	1.66	51.08	74	-22.92	peak	H
7386.000	36.20	1.66	37.86	54	-16.14	AVG	H
4924.000	54.16	-4.03	50.13	74	-23.87	peak	V
4924.000	37.25	-4.03	33.22	54	-20.78	AVG	V
7386.000	50.86	1.66	52.52	74	-21.48	peak	V
7386.000	37.77	1.66	39.43	54	-14.57	AVG	V

Remark:

- 1) The 1Mbps of rate of 802.11b is the worst case.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- 3) Scan from 9kHz to 25GHz, The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

Test mode:		802.11g(6Mbps)		Test channel:		Lowest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
4824.000	54.20	-4.26	49.94	74	-24.06	peak	H
4824.000	36.02	-4.26	31.76	54	-22.24	AVG	H
7236.000	51.29	1.18	52.47	74	-21.53	peak	H
7236.000	38.30	1.18	39.48	54	-14.52	AVG	H
4824.000	54.83	-4.26	50.57	74	-23.43	peak	V
4824.000	38.75	-4.26	34.49	54	-19.51	AVG	V
7236.000	51.74	1.18	52.92	74	-21.08	peak	V
7236.000	35.13	1.18	36.31	54	-17.69	AVG	V

Test mode:		802.11g(6Mbps)		Test channel:		Middle	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
4874.000	52.86	-4.12	48.74	74	-25.26	peak	H
4874.000	36.76	-4.12	32.64	54	-21.36	AVG	H
7311.000	48.89	1.46	50.35	74	-23.65	peak	H
7311.000	36.60	1.46	38.06	54	-15.94	AVG	H
4874.000	53.33	-4.12	49.21	74	-24.79	peak	V
4874.000	37.75	-4.12	33.63	54	-20.37	AVG	V
7311.000	48.76	1.46	50.22	74	-23.78	peak	V
7311.000	35.66	1.46	37.12	54	-16.88	AVG	V

Test mode:		802.11g(6Mbps)		Test channel:		Highest	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
4924.000	52.51	-4.03	48.48	74	-25.52	peak	H
4924.000	37.25	-4.03	33.22	54	-20.78	AVG	H
7386.000	50.80	1.66	52.46	74	-21.54	peak	H
7386.000	36.47	1.66	38.13	54	-15.87	AVG	H
4924.000	54.27	-4.03	50.24	74	-23.76	peak	V
4924.000	38.43	-4.03	34.40	54	-19.60	AVG	V
7386.000	50.74	1.66	52.40	74	-21.60	peak	V
7386.000	36.53	1.66	38.19	54	-15.81	AVG	V

Remark:

- 1) The 6Mbps of rate of 802.11g is the worst case.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- 3) Scan from 9kHz to 25GHz, The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.