

Summary of PEMF and EMF testing of MediCrystal Bio-Magnetic Amethyst Tourmaline V-mats

MediCrystal Bio-Magnetic Amethyst Tourmaline V-Mats feature Pulsed Electromagnetic Fields System. The PEMF function allows to adjust frequencies manually with a dial in the range between 1 and 30 Hz, with the 1 Hz increment. Also, you can select 1 of 13 programs of different length from 1 to 12 hours automatically changing frequencies as per set algorithms.

The mini mat has three PEMF coils, midsize mat comes with six coils, professional one with eight coils, and the single-size mat has ten PEMF coils positioned across two parallel lines extending from the feet zone to the logo area of the mat.

PEMF for different frequencies over two coils

Researched by C.D. Lytle, PhD, in February 2020

MediCrystal Bio-Magnetic Amethyst Tourmaline V-Mat 72"x24".

Mat settings: PEMF On, Heat Off

Controller: H-60VA, 50 Gauss pulses at 1-30Hz (variable)

Magnetometer: EMF Tester PCE-EMF823. Although the quoted range is 30-300 Hz, a careful independent comparison indicated the PCE-EMF823 was accurate down to at least 8Hz.

Magnetometer was laid horizontally on mat to reduce effect of uneven surface, sensor was 5/8" (1.6 cm) above mat surface.* Distance from PEMF coil to mat surface is unknown.

PEMF for different frequency settings at two coils*

PEMF Frequency` (Hz)	Meter reading (mGauss)
30	5188
25	5238
20	5173
15	4960
10	5020
6	4973
4	4845
2	4788
1	4740

*Meter was placed over two coils located at 53.5" from top of mat and 7.25 inches or 16 from the side of the mat that included the power plug. Combined average of the measurements are presented.

Observations:

1. Measured values varied little while the frequency changed over a factor of 30.
2. Measured values were 9.5-10.3 % of the 50 Gauss rated intensity.

Profile of PEMF over two lines of coils along length of mat

MediCrystal Bio-Magnetic Amethyst Tourmaline V-Mat 72"x24".

Mat settings: PEMF On, Heat Off

Controller: H-60VA, 50 Gauss pulses at 30Hz

Magnetometer: PCE-EMF823. Range used: 0 - 20000 mGauss

Magnetometer was laid horizontally on mat to reduce effect of uneven surface, sensor was 5/8" above mat surface. Measurements over the peaks were also made with the meter held vertically with sensor directly against the mat surface.

PEMF measurements made over two lines of coils along length of mat, distances measured from top edge of heated area

Meter position	Line 1*		Line 2*	
	5/8" above mat	Mat surface	5/8" above mat	Mat surface
Distance from top	PEMF level		PEMF level	
(inch)	(mGauss)		(mGauss)	
10	140		150	
13.5	515		615	
17.5**	5990	6365	5575	6875
22	825		865	
26.5	225		230	
31	470		535	
35.5**	5030	6230	5375	5795
40	760		775	
44.5	15		225	
49	345		415	
53.5**	4880	5790	5450	6210
58	535		430	
62.5	90		55	

*Line 1: 7.25" from power plug side of mat; Line 2 at 16"

** Denotes PEMF peaks, presumably over PEMF coils, evenly spaced along Line 1 or Line 2

Observations:

1. Measurements over coils on mat surface was 5.8-6.9 Gauss (~12% of rated 50 Gauss coils).
2. PEMF intensity dropped roughly 89% from the peak value within 4.5" along the mat length.
3. Horizontal placement of meter resulted in roughly 87% of intensity value at mat surface.

PEMF at Bottom Surface over 6 Coils

MediCrystal Bio-Magnetic Amethyst Tourmaline V-Mat 72"x24".

Mat settings: PEMF On, Heat Off

Controller: H-60VA, 50 Gauss pulses at 30Hz

Magnetometer: PCE-EMF823. Range used: 0 - 20000 mGauss

Magnetometer was placed vertically with sensor directly against the mat surface.

PEMF measurements on Bottom and Top Surface of 6 coils*

Meter position		Bottom surface	Top surface
Distance from top end of mat (inch)	Distance from power plug side of mat	PEMF level (mGauss)	PEMF level (mGauss)
17.5	7.25	9740	6365
"	16	8710	6875
35.5	7.25	9310	6230
"	16	8488	5795
53.5	7.25	8320	5790
"	16	8825	6210

*Coil positions determined in previous experiments.

Observations

- 1. Measurements over coils on bottom mat surface was 8.3-9.7 Gauss (~18% of rated 50 Gauss coils).**
- 2. PEMF intensity on the bottom surface of the mat was ~43% higher than that on the top. surface.**
- 3. The differences found here confirm that the coils are nearer the bottom surface of the mat and further indicate that that surface is permeable to PEMF.**
- 4. To get the PEMF of maximum intensity you can use the mat without heating with the bottom surface of the mat on your body, or laying on the bottom surface with crystals side to the floor or bed.**

Profile of PEMF across mat, perpendicular to length

MediCrystal Bio-Magnetic Amethyst Tourmaline V-Mat 72"x24".

Mat settings: PEMF On, Heat Off

Controller: H-60VA, 50 Gauss pulses at 30Hz

Magnetometer: PCE-EMF823. Range used: 0 - 20000 mGauss

Magnetometer was laid horizontally on mat to reduce effect of uneven surface, sensor was 5/8" above mat surface.

PEMF measurements made along line parallel to crystal tubes

Distance from top of mat (inches)	Distance from power plug side of mat*				
	4.25	7.25*	12	16*	19
	PEMF				
	(mGauss)				
17.5	920	5990	1160	5575	2300
35.5	855	5030	1225	5375	2540
53.5	915	4880	2465	5450	3095

* measurements associated with apparent coil

Observations:

- 1. PEMF intensity drop off from the peak value was roughly 83% by 3" on the power plug side of the mat, but only ~50% on the other side. Reason for asymmetry unknown.**

PEMF measured at different heights over one coil

MediCrystal Bio-Magnetic Amethyst Tourmaline V-Mat 72"x24".

Mat settings: PEMF On, Heat Off

Controller: H-60VA, 50 Gauss pulses at 30Hz

Magnetometer: PCE-EMF823. Range used: 0 - 20000 mGauss

Magnetometer was held horizontally on or above mat surface.

PEMF measurements above PEMF coil*

Height above mat surface	PEMF	Intensity drop off
<u>Inches</u>	<u>mGauss</u>	<u>%</u>
1.	4217	
2.	2060	51
3.	820	81
4.	390	91
5.	245	94
6	50	99

* measured at 53.5" from top of mat and 7.25" from power plug side of mat.

Observation:

1. PEMF intensity drop off measured above the mat was greater than that measured along the mat surface.

Distribution of 100 mGauss PEMF above mat

MediCrystal Bio-Magnetic Amethyst Tourmaline V-Mat 72"x24".

Mat settings: PEMF On, Heat Off

Controller: H-60PVA, 50 Gauss pulses at 30Hz

Magnetometer: Trifield EMF Meter 100XE, range used: 0 - 100 mGauss

Height above mat for 100 mGauss reading

Distance from top of mat	Distance from power plug side of mat		
	6"	12"	18"
10"	10"	11"	14"
16"	11"	12"	15"
22"	11"	12"	15"
28"	11"	12"	16"
34"	11"	13"	16"
40"	10"	13"	14"
46"	11"	15"	13"
52"	13"	13"	15"
58"	12"	11"	13"
64"	11"	10"	12"

Conclusion:

1. There is a 'cloud' of 100 mGauss PEMF over most of the mat extending at least 10 inches above the mat.

Effectiveness of EMI (Electro-Magnetic Interception)

MediCrystal Bio-Magnetic Amethyst Tourmaline V-Mat 72"x24".

Mat settings: Heat On, PEMF Off

Controller: H-60VA

Magnetometer: Trifield EMF Meter 100XE, Ranges used: 0.2-3 mGauss or 0-100 mGauss

Magnetometer was laid horizontally on mat to reduce effect of uneven surface.

Position on mat for EMF reading above 0.2 mGauss*

Distance from top of mat (inches)	Distance from power plug side of mat (inches)	EMF reading (mGauss)
30.5	12	4.5
53	9.5	4.6
50	0.5	8.5
Power Plug		30

*** No readings over the mat were at or above 0.2 mGauss, the limit of detectability of the meter, except at the noted locations when the heat was on.**

Observations:

- 1. Three locations were located, in addition to the power plug.**
- 2. Two locations were near the center of the mat, but not over PEMF coils.**
- 3. The remaining location was very near the edge of the mat on the power plug side.**
- 4. The 'hot spots' relate to the safety sensors or bimetal switches functioning.**

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