SUMMARY OF FDA APPROVED EMF DEVICES

TTFields - Tumor Treating Fields

Device Name	Frequency	Primary Indications
Optune Pax	150 kHz	Adult patients with locally advanced pancreatic cancer **February 11, 2026**
Optune Lua		Adult patients with metastatic non-small cell lung cancer (mNSCLC) **October 15, 2024**
Optune Gio	200 kHz	Adult patients 22 years of age or older with glioblastoma multiforme (GBM) - brain cancer **April 08, 2011**

Miscellaneous Others: AM EF EMF - Amplitude-Modulated Radiofrequency Electromagnetic Fields

Device Name	Frequency	Primary Indications
TheraBionic P1	Carrier: 27.12 MHz; Amplitude-modulated: 0.01 Hz - 150 kHz	Advanced hepatocellular carcinoma (HCC) - liver cancer - that has not responded to other treatments **September 26, 2023**

PEMF - Pulsed Electromagnetic Fields

Device Name	Frequency	Primary Indications
Physio-Stim II	1 Hz - 50 kHz	Treatment of established nonunion fractures acquired secondary to trauma, excluding vertebrae and all flat bones, where the defect width is less than one-half the bone's width **February 21, 1986**
Spinal-Stim Lite		Spinal fusion adjunct to increase the probability of fusion success and as a nonoperative treatment for salvage of failed spinal fusion **May 14, 1998**
Cervical-Stim		Adjunct to cervical fusion surgery in patients at high risk for non-fusion **December 23, 2004**
EBI Bone Healing System		Treatment of fracture nonunions, failed fusions, and congenital pseudarthrosis in the appendicular system **November 6, 1979**
Ivivi SofPulse	specific frequency not detailed	Adjunctive palliative treatment of postoperative pain and edema in superficial soft tissue, and wound healing. **December 11, 2008**
Bemer Pro-Set	30 Hz	General wellness, temporary improvement of local circulation in healthy muscles, and stimulation of healthy muscles to improve performance **February 22, 2017**
iMRS 2000	0.5 - 50 Hz	Improving microcirculation, enhancing muscle performance, reducing pain/inflammation, and supporting general wellness **No date Info**
ActiPatch Plus	Carrier: 27.12 MHz; Pulsed at 1 kHz	Adjunctive treatment of musculoskeletal pain, including back, knee, and neck pain **February 3, 2017**
OrthoCor Active Knee		Adjunctive use in the palliative treatment of post-operative pain and edema in superficial soft tissue, specifically for knee pain **December 18, 2009**
BioniCare Bio-1000	100 Hz +/- 5 Hz	Relief of signs and symptoms of osteoarthritis of the knee **March 15, 1999**
Xstim Spine Fusion Stimulator	60 kHz ±10%	Adjunct electrical treatment to primary lumbar spinal fusion surgery for one or two levels in adult patients **February 9, 2024**
OMI PEMF Mat	1 to 99 Hz	General wellness device for improving circulation, relaxation, pain relief, and recovery **No date Info**
CMF OL1000	76.6 Hz	Noninvasive treatment of an established nonunion acquired secondary to trauma, excluding vertebrae and all flat bones **March 4, 1994**
CMF SpinaLogic	76.6 Hz ±1.0 Hz	Adjunct electromagnetic treatment to primary lumbar spinal fusion surgery for one or two levels **March 4, 1994**

TMS - Transcranial Magnetic Stimulation

Device Name	Frequency	Primary Indications
NeuroStar Advanced Therapy	10 Hz	Treatment of Major Depressive Disorder (MDD) in adults who failed to achieve satisfactory improvement from prior antidepressant medication , and as an adjunct for MDD in adolescents (15-21) **October 7, 2008**
BrainsWay Deep TMS	18 Hz	Treatment of MDD in adults who failed to achieve satisfactory improvement from prior antidepressants. Also cleared for OCD, short-term smoking cessation, anxious depression, and late-life depression **January 7, 2013**
MagVenture MagPro	10 Hz, with high-frequency stimulation capabilities up to 100 Hz	Treatment of MDD in adult patients who have failed to achieve satisfactory improvement from prior antidepressant medication, Obsessive Compulsive Disorder (OCD) **July 31, 2015**
Magstim Horizon	10 Hz, or 50 Hz bursts, with a maximum of 60 Hz	Treatment of MDD in adults who failed prior antidepressant medication , and as an adjunct for OCD, anxious depression in adults, and MDD in adolescents (ages 15-21) **March 15, 2019**
CloudTMS	Typically 10 Hz for MDD or 20 Hz for OCD	Treatment of MDD in adult patients who failed prior antidepressant medication , and as an adjunct for OCD in adults **December 22, 2016**
Nexstim NBS 6	10 Hz bursts , or 50 Hz bursts	Non-invasive mapping of the primary motor cortex and speech areas for pre-procedural planning in neurosurgery **May 22, 2012**
Apollo TMS	10 Hz	Treatment of MDD in adult patients who failed prior antidepressant medication. Also cleared as an adjunct for OCD in adults and MDD in adolescents **May 4, 2018**
Spring TMS	Single-pulse delivery with no fixed programmed pulse repetition rate	Acute treatment of pain associated with migraine headache with aura , and prophylactic use in adults and adolescents **May 21, 2014**
MagVenture Pain Therapy	0.1 - 30 Hz (MagPro R30) or 0.1 - 100 Hz (MagPro X100)	Stimulation of peripheral nerves for the relief of chronic intractable, post-traumatic, and post-surgical pain for patients 18 years or older **August 25, 2023**

NMES - Neuromuscular Electrical Stimulation

Device Name	Frequency	Primary Indications
H-Wave Pro (H-Wave H4 model)	1-70 Hz	Treatment of chronic pain, acute pain, post-surgical pain, and temporary pain **June 1, 2011**
WalkAide II / XFT-2001E	16.7-50 Hz (±10%).	Assist individuals experiencing foot drop due to neurological impairments to facilitate dorsiflexion during walking **November 30, 2017**
NESS H200 / Bioness NESS H200 Wireless	20–45 Hz, 5-Hz resolution	Improvement of hand function and active range of motion in patients with hemiplegia due to stroke or upper limb paralysis due to C5 spinal cord injury **September 11, 2002**

TENS - Transcutaneous Electrical Nerve Stimulator

Device Name	Frequency	Primary Indications
Monarch eTNS	120 Hz	Treatment of pediatric Attention Deficit Hyperactivity Disorder (ADHD) as a monotherapy in patients ages 7 through 12 years old **July 31, 2018**
Cefaly Dual	100 Hz (ACUTE Mode) and 60 Hz (PREVENT Mode)	Acute treatment of migraine with or without aura and prophylactic treatment of episodic migraine in adults 18 years of age or older **November 28, 2017**

Nerivio REN	100–120 Hz	Acute and/or preventive treatment of migraine with or without aura in patients 8 years of age or older **May 20, 2019**
Cala Trio	50-150 Hz (typically bursts of 150 Hz tuned around 4-12 Hz)	Temporary relief of hand tremors in the treated hand following stimulation in adults with essential tremor **October 5, 2021**
Cala kIQ	150 Hz	Temporary relief of hand tremors in the treated hand following stimulation in adults with essential tremor **November 22, 2022**
Alpha-Stim AID	0.5 Hz (average pulse repetition frequency is 0.8 Hz)	Treatment of anxiety and insomnia **May 12, 1992**
Alpha-Stim M	0.5, 1.5, or 100 Hz	Treatment of anxiety, insomnia, and pain **May 12, 1992**
gammaCore Sapphire	5000 Hz (Pulse Frequency), 25 Hz (Burst Frequency)	Preventive and acute treatment of migraine headache, and adjunctive preventive and acute treatment of episodic cluster headache in adults (and adolescents for migraine) **April 14, 2017**

PENFS - Percutaneous Electrical Nerve Field Stimulator

Device Name	Frequency	Primary Indications
P-Stim	1 Hz	Electro-acupuncture device for use in the practice of acupuncture by qualified practitioners **March 30, 2006**
NSS-2 Bridge / Masimo Bridge	Alternating frequencies of 1 Hz and 10 Hz	Reduce the symptoms of opioid withdrawal **November 15, 2017**
IB-Stim		Functional abdominal pain associated with irritable bowel syndrome (IBS) and functional dyspepsia (FD) in patients 8 years and older **June 7, 2019**

PNS - Peripheral Nerve Stimulator

Device Name	Frequency	Primary Indications
Axon Therapy	0-2 Hz	Relief of chronic intractable pain, post-traumatic pain, post-surgical pain and/or relief of chronic painful diabetic peripheral neuropathy in the lower extremities **June 11, 2021**
ReActiv8	1 - 26 Hz (Nominal value 20 Hz)	Management of intractable chronic low back pain associated with multifidus muscle dysfunction **June 16, 2020**
Moventis PNS	5 to 1,500 Hz	Pain management in adults who have severe intractable chronic pain of peripheral nerve origin **August 14, 2020**
Nalu Neurostimulation System	2 Hz to 1500 Hz	Management of chronic, intractable pain of the trunk and/or limbs (spinal cord stimulation) and peripheral nerve origin (peripheral nerve stimulation) **March 22, 2019**
SPRINT PNS System	5 – 150 Hz	Symptomatic relief of chronic, intractable pain, post-surgical, and post-traumatic acute pain for up to 60 days **July 31, 2018**

Miscellaneous Others: ST - Scrambler Therapy

Device Name	Frequency	Primary Indications
Calmare MC-5A	43-52 Hz	Symptomatic relief of chronic intractable pain, post-surgical pain, post-traumatic acute pain, and specific neuropathic conditions **February 20, 2009**

Reference: Brain wave frequency typically range from **0.5 to over 100 Hz** during normal activity.

Source: https://pmc.ncbi.nlm.nih.gov/articles/PMC10385593/#:~:text=These%2014%20EEG%20signals%20are,attention%2C%20memory%2C%20and%20emotion

1 kHz (kilohertz) = 1,000 Hertz (Hz)

1 MHz (megahertz) = 1,000,000 Hertz (Hz)

1 GHz (gigahertz) = 1,000,000,000 Hertz (Hz)