

Functional EMF Meter -r2 BOM

Reference	Description	Value	Quantity	Dat sheet or Part Link
				AliExpress. 17/25cm 5 Section Metal Full-Channel Am Fm Radio Antenna Telescopic Antenna Rotating Antenna Aerial M2.5 https://www.aliexpress.us/item/3256806492066394.html
				eBay for the ATT
AE1	Antenna 3" ~ 8 5/8", 5 Segment, Dia. 5mm (.198") or ATT 5000 Cordless phone antenna	Ant 3", 5mm	0	+ Red Enamel 26 AWG Wire Wrap
AE1 Option	ATT 5000 Cordless phone antenna	6mm Dia 3" antenna	1	eBay as low as \$3 each
BT1	6v Battery Pack - 6V Option	4 AA Batteries		For 6V supply BT1, BT1 3D, Buck1 are required.
BT1 3D	6v Battery Pack Mount, 3D printed	AA 3D Holder	1	Aliexpress: https://www.aliexpress.us/item/3256805289292980.html
BUCK1	6V buck converter	DD0315NA	1	https://www.aliexpress.us/item/2251832636713190.html
BT1,BT2	9v Battery Clip and Holder - 9V Option	3D Printed	2	For 9V supply BT1, BT2, 9V batteries with clips, 3D printed 9V battery Holder required
YC1,YC2,YC3	Yellow .022uF Cosmetic Capacitor (22n)	Y .022uF Cosmetic	3	All Electronics, Yellow Metallized polyester film radial capacitors. 22n or 22 nf desired. .022uF
WC2,WC2	White .001uF Cosmetic Capacitor (10n)	W .001uF Cosmetic	2	All Electronics, White Metallized polyester film radial capacitors. Marking 10n desired, .001uF
C1	Mylar Capacitor	0.1uF	1	MLCC substitute or Jameco / AliExpress for Mylar
C2	Electrolytic Capacitor - Blue Sleeve	4.7uF	1	Mouser/Digikey
C3	Ceramic Disk Capacitor	220pF	1	Mouser/Digikey
C4	Mylar/MLCC Capacitor	.0027uF	1	AliExpress/Mouser
C8	Mylar/MLCC Capacitor	.047uF	1	Jameco, AliExpress, Mouser/Digikey
C9,C10,C11	Electrolytic Capacitor	1uF	3	Mouser/Digikey
C17	Electrolytic Capacitor - Optional based on 5v regulator	1uF	1	Mouser/Digikey
C12,C13	Ceramic Capacitor-0805 SMD, Based on Regulator	0.1-0.33uF	1	Mouser/Digikey, 0805 Package
C5,C6,C7	Ceramic Capacitor-0805 SMD	0.1uF	3	Mouser/Digikey, 0805 Package
C14	Electrolytic Capacitor - Optional, used with -6v BUCK1	220uF	1	Mouser/Digikey, 220uF/10v
C15	Electrolytic Capacitor	10uF	1	Mouser/Digikey
C16	Electrolytic Capacitor - Black Sleeve	10uF	1	Mouser/Digikey
D1, D2, D4, D5, D7, D8, D9	Signal Diode	1N914	7	Mouser/Digikey
D11, D12, D13, D14, D15	Red LED	Ultra Bright Red, 5MM	5	Mouser, Lighthouse LED, AliExpress
D10	Rectifier Diode, SMD	SL1A	1	IN4001 equivalent, SL1A, Any source, SMD, SOD-123 package
L1	EMF Pickup coil	3D Printed	1	32 gauge. 36 AWG Preferred 32g 0.11 per ft @ 120'
L2	Cosmetic Antenna Coil Left Side, Optional EMF connection	Hand Made	1	26 AWG red enameled
L3	Cosmetic Coil Right Side	Hand Made	1	22AWG 0.6438mm 0.0253", Copper Wire 0.65mm
L4	33uH Inductor, SMD 0805	33uH	1	Mouser/Digikey, 33uH 0805 Package
LS1	Speaker 20x30mm, 8 ohm, 1.5 Watt	20x30x0.4mm 1Watt	1	AliExpress. https://www.aliexpress.us/item/3256807204066808.html
Q1	2N3904/CMPT3019 or Equiv, SMD SOT-23	CMPT3019	1	Mouser/Digikey
R1, R19, R7	1/4w Resistor	1M	3	Any source
R26, R5	1/4w Resistor	22k	2	Any source
R2	1/4w Resistor	91k	1	Any source
R3	1/4w Resistor	9.1k	1	Any source
R4	1/4w Resistor	1k	1	Any source
R23, R6, R8	1/4w Resistor	10k	3	Any source
R13	1/8w SMD Resistor, 0805	10k	1	Any source
R11, R12, R14, R20, R27, R9	1/4w Resistor	100k	6	Any source
R10	1/4w Resistor	10M	1	Any source
R15	1/4w Resistor	100	1	Any source
R16	1/8w SMD Resistor, 0805	470k	1	Any source
R22	1/4w Resistor	3.3M	1	Any source
R21	1/4w Resistor	2.2M	1	Any source
R17	1/8w SMD Resistor, 0805	15k	1	Any source
R18	1/4w Resistor	7.5k	1	Any source
R24	1/4w Resistor	47k	1	Any source
R25, R31	1/8w SMD Resistor, 0805	1.8k	2	Any source
R28	1/4w Resistor	1.2k	1	Any source
R30	1/4w Resistor	33	1	Any source
R29	1/4w Resistor	1.5k	1	Any source
RV1,RV2	Variable resistor. 3326/3362/3386 F or P series	100k	2	Mouser Electronics, https://www.mouser.com/ProductDetail/Bourns/3386H-1-104LF?qs=m2uG%2FFdTAPVvro77x9HS0w%3D%3D Jameco https://www.jameco.com/z/3386P-1-104LF-JVP-Jameco-ValuePro-1-2-Watt-3-8-Square-Trimming-Potentiometer-100k-Ohm_43027.html (\$0.99)
RV3	1k/5k ohm, Variable resistor (PT15 Series)	5k	1	PT15NV02-502A
SW1	SW_Coded_EECO_2700 -31/33	EECO 276133M	1	eBay. A Variety of switches are supported.
SW2	SW_DIP_x04, Plano or Rotary S-2151	SW_DIP_x04	1	Digikey or Mouser, https://www.mouser.com/ProductDetail/CTS-Electronic-Components/195-4MS?qs=hDoPxpGr7ldwh3tetBscOg%3D%3D
SW3,SW4,SW5	SW_Push_6x6x5mm SPST	Tactile Switches,6X6	3	https://www.mouser.com/ProductDetail/Nidec-Components/S-2151?qs=XeJtXLUO41Q6vTglJbo%2FGA%3D%3D AliExpress Digikey/Mouser, C&K E201MD1AQE (\$15.46) or E-Switch 100DP1T1B1M6QE (\$4.35) https://www.mouser.com/ProductDetail/CK/E201MD1AQE?qs=c89up6qpALNEJs%2FyQ1km0A%3D%3D https://www.mouser.com/ProductDetail/E-Switch/100DP1T1B1M6QE?qs=wUXugUr1qxY%252BYjsepFRcA%3D%3D https://www.mouser.com/ProductDetail/CK/E101SD1ABE?qs=v2709%2FkrGudytwoweDEvTYA%3D%3D
SW6	SW_SPDT AA Supply E101SD1ABE \$10.32	Toggle Switch	1	7mm MTS-202C3 AliExpress (Chrome casing \$1.18)
U1	TL084	TL084	1	Mouser/Digikey
U2	ATTiny85-20U, SOIC8 SMD	ATTiny85-20U	1	Mouser/Digikey
U3	DF Player PCB	DFR0299	1	AliExpress
U4	5v regulator (LDO), DPAK, SMD	TC1262-5	1	LF50CDT Regulator Minimum 500ma output. Mouser, w/ 9v source
U5	LM3914N	LM3914N	1	TC1262-5.0 Regulator LDO 500ma min, AA source
	Meter Element Decibel Measurement on AC Voltage Range Analog Multimeter Tester for ACDC 1000V500m A/Voltmeter Ammeter Ohmmeter Meter Volt			
VU1	Requires a 3D printed base	MF-110A	1	AliExpress. https://www.aliexpress.us/item/3256807924391371.html
VU1_BASE	3D Printed Base for MF-110 Meter element		1	Requires screws from MF-110A meter
MS-M3	Mechanical screw, Battery Holder	M3 x 6mm	8	AliExpress
MS-8	Mechanical Standoff, Battery Holder	M3-10mm	4	AliExpress
Misc Colored wire	Various wire routes, cosmetic only	24 AWG	1	Jameco
Magnet Wire	26 AWG (.415mm) red enameled wire. 2 layers of wire wrap, cosm	26 AWG	1	AliExpress
SD_CARD	Mico SD Card 1/4GB	1 or 4GB	1	
EMF r2 PCB	PCB		1	
				Approximate part cost \$70.00