

Contents

1	A Bit of Theory to Start	1
1.1	Loop Antennas in General	1
1.1.1	Electrically Large Antennas	3
1.1.2	Electrically Small Antennas	5
1.1.3	Ferrite Core Antennas	5
1.2	Electrically Small Loop Antennas	5
1.2.1	Near Field Around MLA	13
1.2.2	Defining Safe Distances	16
1.2.3	Cardiac Pacemakers and Their EMC	23
1.3	Principal Parts of an MLA	28
1.3.1	Main Loop	29
1.3.2	Capacitor	30
1.3.3	MLA Coupling Circuits	33
1.4	Antenna Calculation	40
1.4.1	Antenna Parameter Description	40
1.4.2	Example of MLA calculation	45
1.4.3	Online MLA Calculator	49
2	Magnetic Loop Antennas in Practice	51
2.1	f-MLA versus r-MLA	59
2.2	Genesis of MLA-160	62
2.3	Genesis of MLA-M	67
2.3.1	Genesis of MLA-4B and MLA-6B	73
2.3.2	Genesis of MLA-M V.6	77
2.3.3	MLA-M (RX 160)	80
2.4	Genesis of MLA-T	83
2.5	Genesis of MLA-ER	90
2.5.1	MLA-ER Matching Evolution	98

2.5.2	MLA-CB Genesis and version MLA-ER(CB)	105
2.5.3	MLA-ER/II	107
2.6	Genesis of MLA-W	110
2.7	Genesis of MLA-Non Circular Shapes	115
2.7.1	Genesis of MLA-B, MLA-C, MLA-V, MLA-R	116
2.7.2	Genesis of MLA-C	118
2.7.3	Genesis of MLA-V	138
2.7.4	MLA-UNI	152
3	Reports and Experience with MLA	157
4	Photo Gallery	187
5	Data Sheets	199
6	Manuals of MLA	209
7	Utility Models and Industrial Designs	229