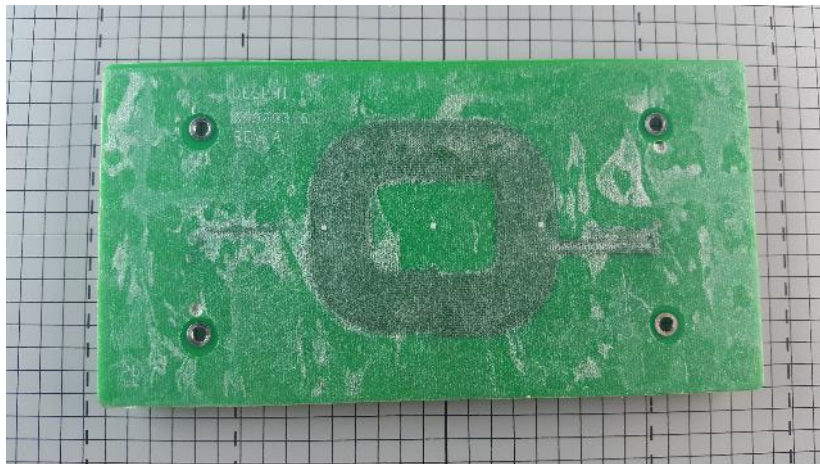


ANTENNA PCB TOP



ANTENNA PCB BOTTOM



Power Transmitter design A32 includes one Primary Coil as defined in Section 2.1.1.1, Shielding as defined in Section 2.1.1.2, and an Interface Surface as defined in Section 2.1.1.3.

### 2.1.1.1 Primary Coil

The Primary Coil consists of at least one PCB coil. Figure 2-2 shows a view of a single Primary Coil. Table 2-1 lists the dimensions of the Primary Coil.

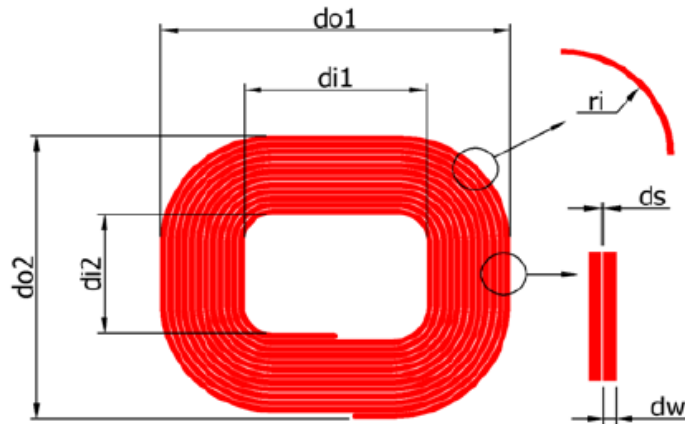


Figure 2-2: Primary Coil of Power Transmitter design A32

Table 2-1: Primary Coil parameters of Power Transmitter design A32

Parameter	Symbol	Value
Outer length	$do1$	$53.4^{\pm 0.7}$ mm
Inner length	$di1$	$27.5^{\pm 0.7}$ mm
Outer width	$do2$	$45.8^{\pm 0.7}$ mm
Inner width	$di2$	$19.5^{\pm 0.75}$ mm
4- layer PCB		
Track width	$d_w$	$0.82^{\pm 0.2}$ mm
Track width plus spacing	$d_w + d_s$	$1.08^{\pm 0.2}$ mm
Corner rounding*	$r_i$	$16.7^{\pm 1.0}$ mm
Number of turns	$N$	$12^{\pm 0.25}$
5...8 layer PCB		
Track width	$d_w$	$0.55^{\pm 0.15}$ mm
Track width plus spacing	$d_w + d_s$	$1.1^{\pm 0.15}$ mm
Corner rounding*	$r_i$	$13.1^{\pm 1.31}$ mm
Number of turns	$N$	$12^{\pm 0.25}$

\*outermost winding only

Power Transmitter design A32 contains at least one Primary Coil. Odd numbered coils are placed alongside each other with a displacement of  $d_{h2}$  between their centers. Even numbered coils are placed

orthogonal to the odd numbered coils with a displacement of  $d_{h1}$  mm between their centers. See Figure 2-3

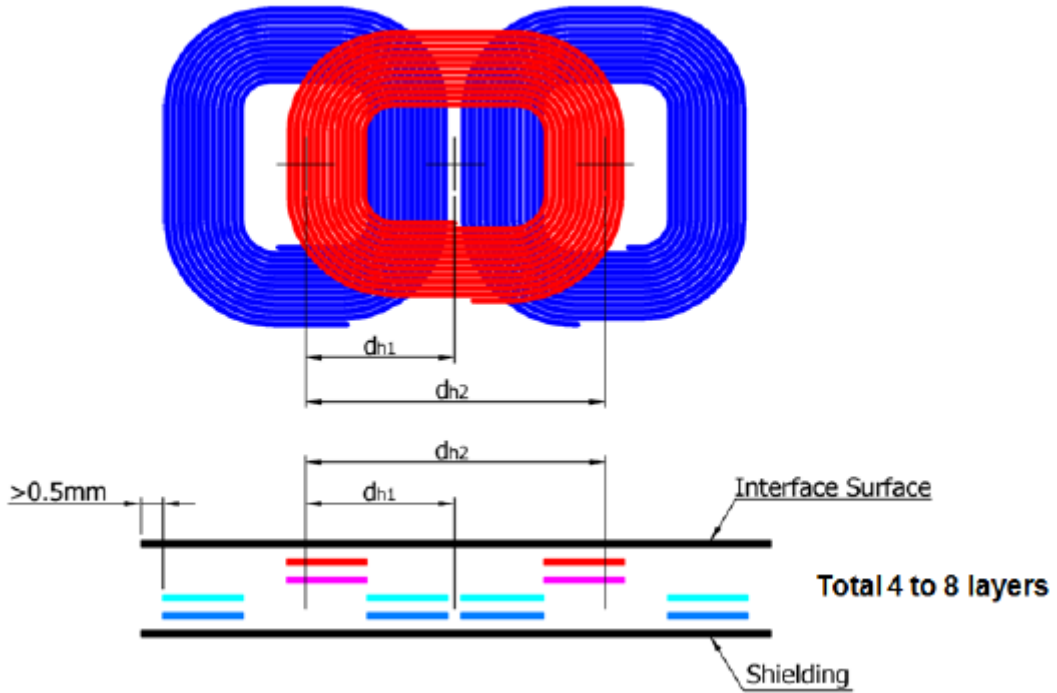


Figure 2-3: Primary Coils of Power Transmitter design A32

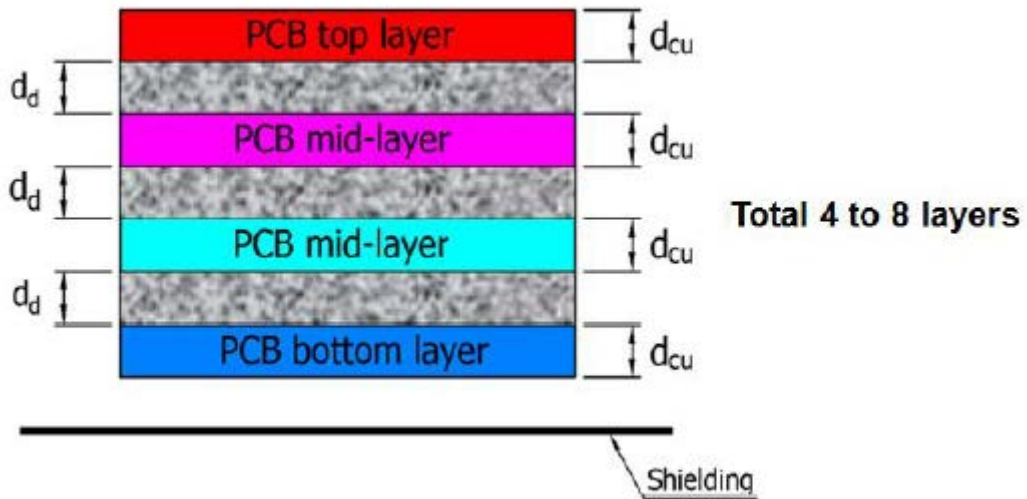


Figure 2-4: Primary Coils of Power Transmitter design A32

**Table 2-2: Primary Coil parameters of Power Transmitter design A32**

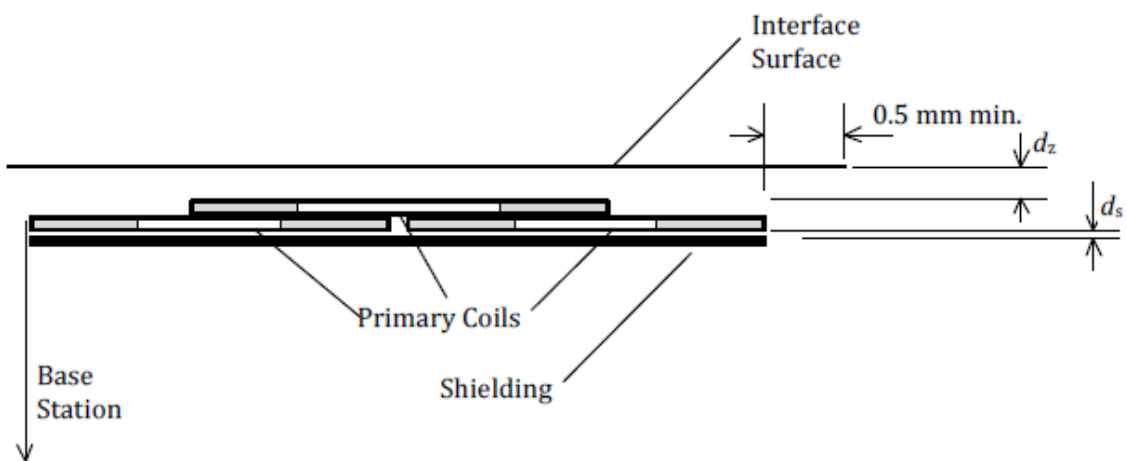
Parameter	Symbol	Value
4- layer PCB		
Center-to-center distance	$d_{h1}$	23.8 $\pm$ 1.0 mm
Center-to-center distance	$d_{h2}$	47.52 $\pm$ 2.0 mm
PCB copper thickness	$d_{Cu}$	0.105 $\pm$ 0.015 mm
Dielectric thickness	$d_d$	0.375 $\pm$ 0.063 mm
5...8 layer PCB		
Center-to-center distance	$d_{h1}$	23.76 $\pm$ 1.5 mm
Center-to-center distance	$d_{h2}$	47.52 $\pm$ 3.0 mm
PCB copper thickness	$d_{Cu}$	0.105 $\pm$ 0.0161 mm
Dielectric thickness	$d_d$	0.125 $\pm$ 0.0254 mm

**2.1.1.2**

**Shielding**

As shown in Figure 2-5: Primary Coil assembly of Power Transmitter design A32 soft-magnetic material protects the Base Station from the magnetic field that is generated in the Primary Coil. The Shielding extends to at least the outer dimensions of the Primary Coils, has a thickness of at least 0.5 mm, and is placed below the Primary Coil at a distance of at most  $d_s = 1.0$  mm. The version 1.2.0 Addendum A32 to the System Description Wireless Power Transfer, Volume I, Part 1, limits the composition of the Shielding to a choice from the following list of materials:

- Ni-Mn-Ferrite Core – any supplier
- Mn-Zn-Ferrite Core – any supplier
- Ni-Zn- Ferrite Core – any supplier



**Figure 2-5: Primary Coil assembly of Power Transmitter design A32**