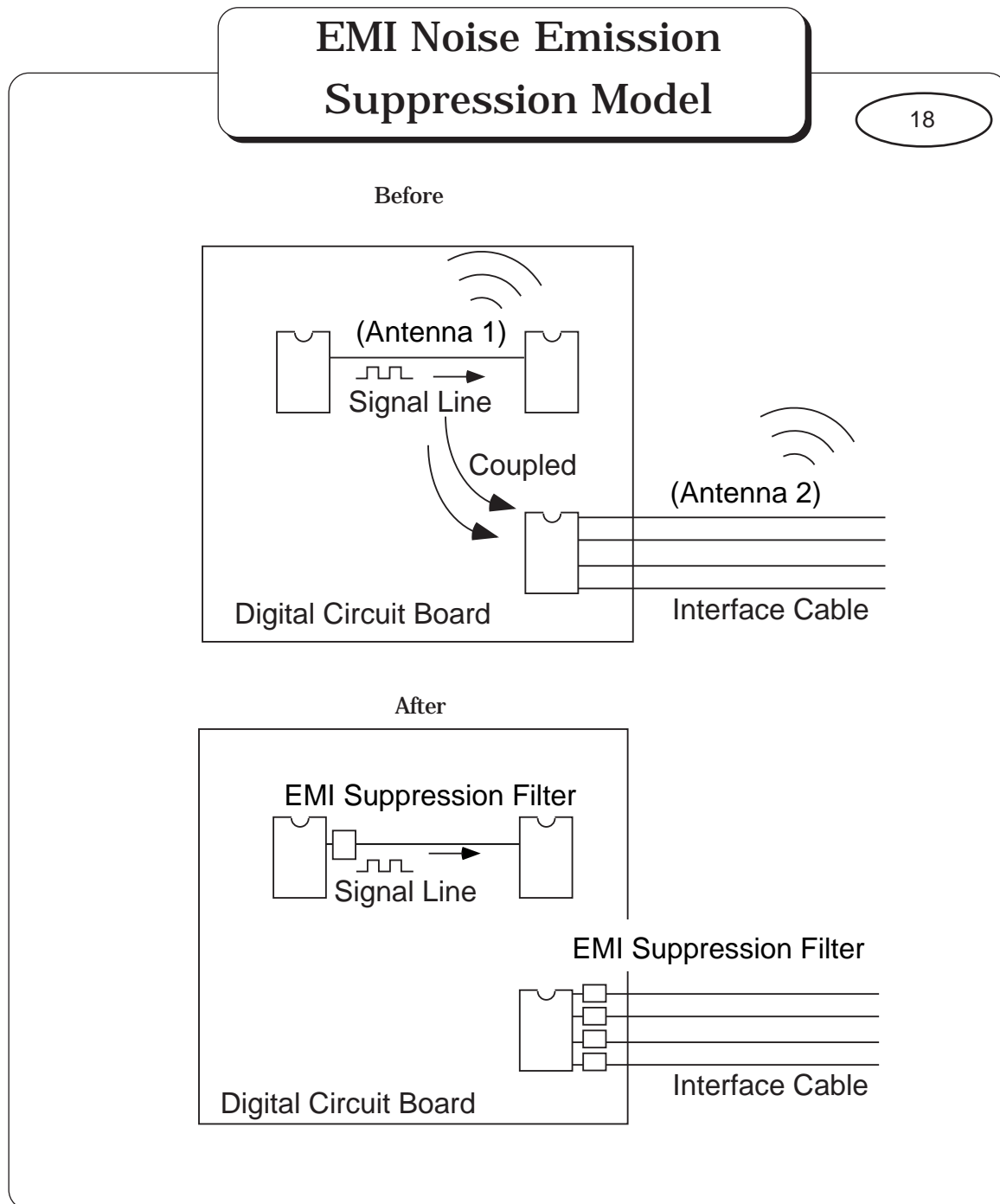


2 Suppressing EMI Noise Emission

2.1 Approaches to Suppressing Emission of EMI Noise



Electronics circuits have several noise sources, and noises from these sources are transferred in complex manner. Effectively providing noise suppression requires thorough understanding of noise sources and conductive paths and then employing the most effective suppression method.

In typical electronics circuits, noise is radiated from both circuit patterns and connecting cables. Two possible approaches to noise suppression are used in such cases:

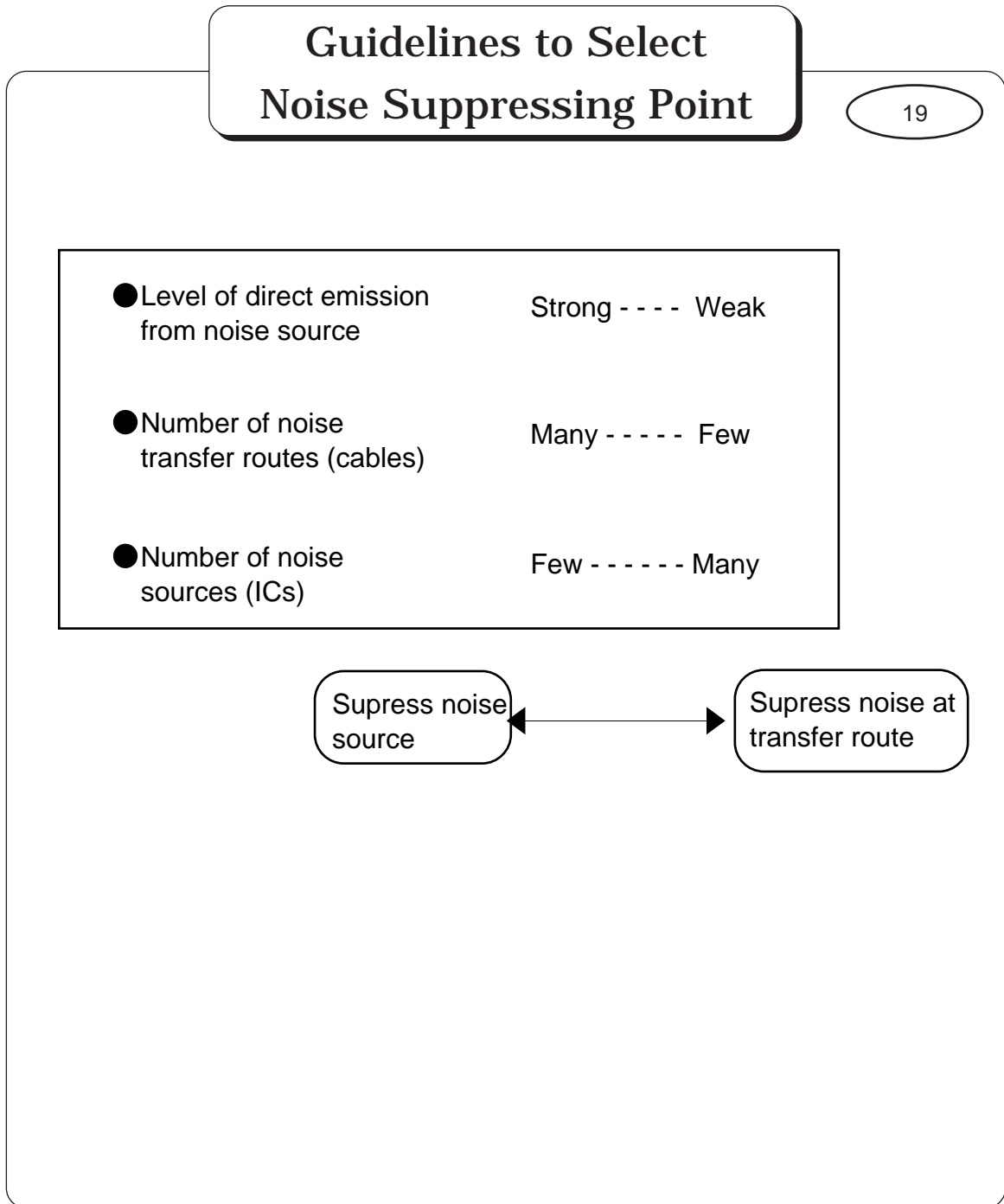
- (1) Suppressing at the source of noise
- (2) Suppressing in the noise transfer route

Which approach offers an easier solution depends on the specific circumstance of each equipment.

[Memo]

2 Suppressing EMI Noise Emission

2.1 Approaches to Suppressing Emission of EMI Noise

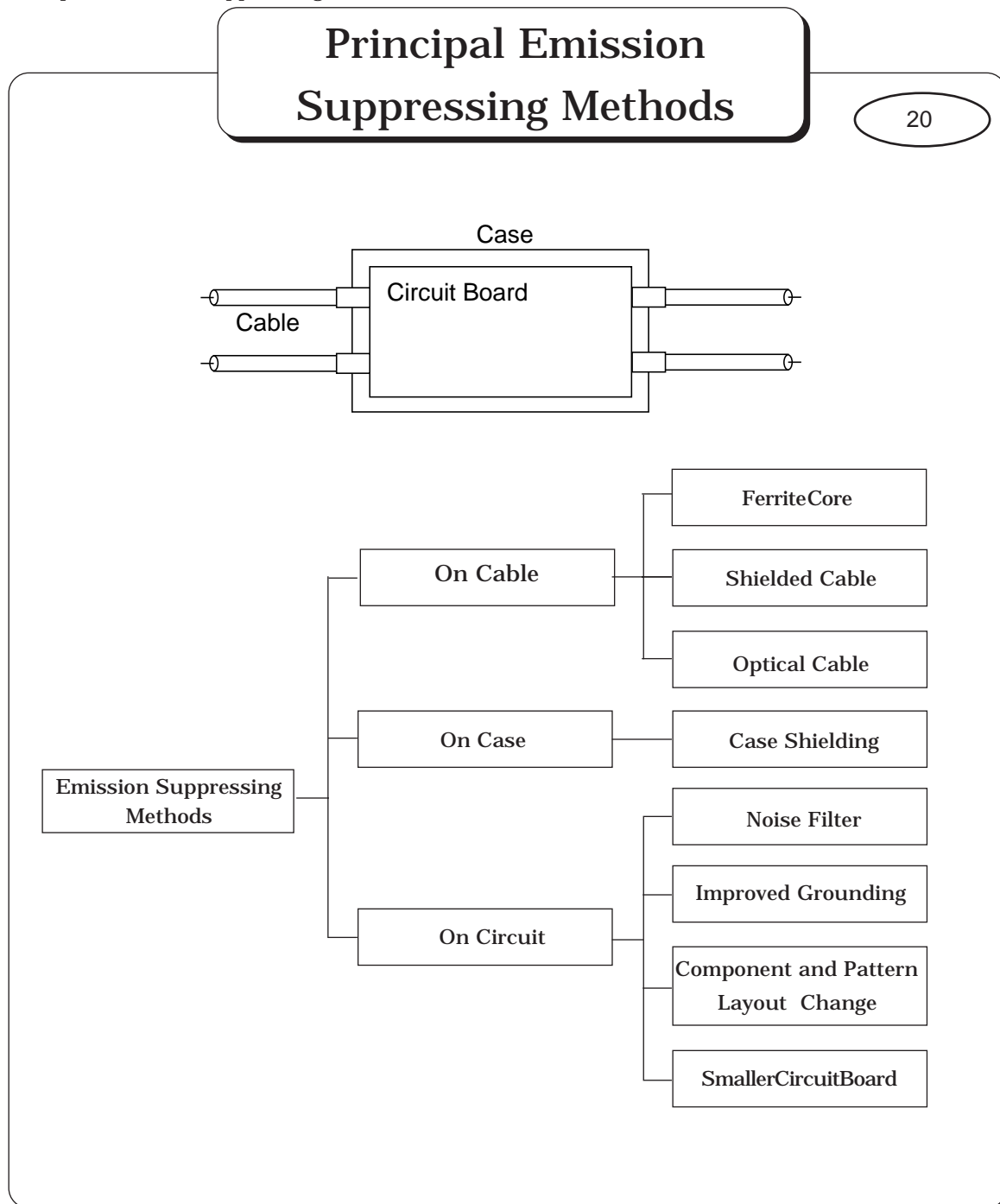


When the noise source can be estimated or when the radiation from the patterns surrounding a specific noise source exceeds the desired noise level, noise suppression is recommended at the noise source. When there are many conductive noise paths, noise suppression at the noise source is also more effective. On the other hand, when there are many noise sources, where the noise source cannot be identified, or when there are only a few conductive noise paths, it is generally more efficient to suppress noise at the conductive noise paths. Depending on the specific circumstance, it may be necessary to suppress noise at both the noise source and conductive noise path.

[Memo]

2 Suppressing EMI Noise Emission

2.2 Principal Emission Suppressing Methods



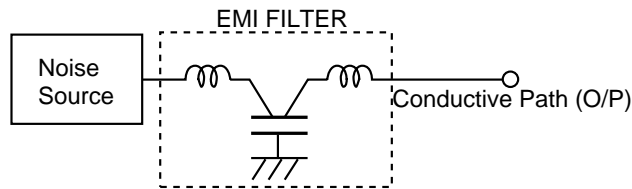
For effective noise emission suppression, it is important to select the right suppression point and correct method. Principal noise emission suppressing methods are summarized above.

[Memo]

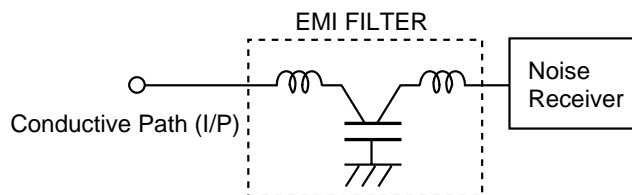
2 Suppressing EMI Noise Emission

2.3 EMI Suppression Filters

Using EMI Suppression Filters



(a) Suppressing Noise Formation



(b) Improving Noise Immunity

When attached to a noise I/P or O/P path, the EMI suppression filter can remove the undesired noise. When the problem is located at the I/P, EMI suppression filters can be attached to the conductive path to remove noise and improve the circuit's noise immunity.

[Memo]

The basic rule of EMI suppression filter application is to locate it near the noise source or the noise receiving unit so that the effectiveness will not be degraded by coupling of the filter's input and output wiring. When applying EMI suppression filters on a cable, the circuit requiring the noise suppression should be considered the noise source or the noise receiving unit and the filter is located at the root of the cable.