NOTE:
A RBW OF 9 KHz AND A VBW OF 30 KHz WERE USED.

AC powerline conducted emission measurements may be made at a facility that meets the requirements of this clause. This may include a shielded (screened) room or a radiated emission test site.

5.2.1 Reference groundplane

The reference groundplane for measuring ac powerline conducted emissions is to consist of a floor earthgrounded conducting surface, which may be the metal floor of a shielded test chamber. The reference groundplane is to be at least 2 m by 2 m in size, and shall extend at least 0.5 m beyond the vertical projection (footprint) of the EUT or EUT arrangement. If the EUT normally does not make electrical contact with a groundplane, the reference groundplane shall be covered by insulating materials up to 12 mm thick.

5.2.2 Vertical conducting plane

For measurements of ac powerline conducted emissions on a tabletop device, a vertical conducting plane or screen of at least 2 m by 2 m in size, shall be, if required, located 40 cm to the rear of the EUT. The vertical conducting plane or screen shall be electrically connected to the reference groundplane at intervals not greater than 1 m along its entire length through low impedance connections, e.g., 3 cm-wide metal straps. The metal wall of a screen room will normally satisfy this requirement.

A tabletop device may be measured for ac powerline conducted emissions without a vertical conducting plane while maintaining the 80 cm EUT elevation specified in 6.2.1. However, in case of a dispute, ac powerline conducted emission measurements made on a tabletop device with a vertical, conducting plane in place shall take precedence.

A vertical, conducting plane is not required for ac powerline conducted emissions measurements on a floorstanding device. A vertical, conducting plane shall not be used for any radiated emission measurements.

5.2.3 LISN installation

LISNs may be required for ac powerline conducted emission measurements and may be used for radiated emission measurements. For exceptions, see 5.6.

5.2.3.1 LISN connected to the reference groundplane

Where use of a LISN is required (see Clause 7), it shall be placed on and electrically bonded to the top surface of, or immediately beneath, the reference groundplane and bonded to the groundplane. If LISNs are kept on the test site for radiated emission measurements, it is preferred that they be installed under the reference groundplane with the ac power receptacle flush with the reference groundplane. Otherwise, NSA requirements may not be able to be met.

The impedance at the receptacle end of any cable connected to the EUT end of the LISN (as contrasted to the impedance at the LISN terminals given in Figure 1), with the measuring instrument port of the LISN terminated in 50 Ω, shall be within +30% and –20% of the nominal LISN impedance shown in Figure 1 over the frequency range of the network to be used. See 4.1.2. If the attenuation (insertion loss) between the EUT receptacle and the measuring instrument port on the LISN is more than 0.5 dB, (see Annex E as an example of a method of measurement) it shall be taken into account when calculating the EUT emission levels. The site reference groundplane is the ground reference for the LISN.

Ambient noise may be present on the ac powerlines at some locations and at some frequencies within the frequency range of interest. If the levels are sufficient to cause interference with readings made using an LISN, filtering of the ac power may be required. The filter should be inserted between the ac power supply and the ac input connection to the LISN, preferably as close as possible to the LISN to reduce interference pickup by the leads between the filter and the LISN.

Where an isolation transformer is used between the ac power supply and the LISN, care shall be taken to ensure that this transformer's rating is large enough to not affect the peak current drawn by the EUT (this may require up to ten times the kilovolt-ampere rating of the EUT). If other than air core inductors are used in the LISN, they shall be in a linear permeability range at the peak currents drawn by the EUT.