

BPL (Broadband over Powerline)
Coexistence Certification Test
Overview

Owned by HD-PLC Alliance

CONTRIBUTED BY PANASONIC SYSTEM NETWORKS CO. LTD.

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1. BPL Coexistence Certification Test Overview

1-1 Purpose of Coexistence Certification Test

The Coexistence Certification Test provided by the HD-PLC Alliance targets the Certification Test of the coexistence specification and implementation in accordance with both IEEE1901 coexistence specifications (ISP: Inter System Protocol) and ITU-T G.9972. These two coexistence standards are standardization tasks PAP15 with high priority of SGIP(Smart Grid Interoperability Panel) in research laboratories NIST(National Institute of Standards and Technology) of US Government, and recognition with a common specification is shown. And, NIST recommended the content of assuming the support of all high frequency band PLC in home of this coexistence method to be mandatory. The purpose of this test is to secure the coexistence between the device equipped with the IEEE1901 ISP coexistence method and the device equipped with the ITU-T G.9972 coexistence method.

1-2 Judgment

It is necessary to pass all Test items to pass the Coexistence Certification Test.

2. Coexistence Certification Test Overview

In the environment where Master Device that has the transmitting function of the ISP signal coexists with Test Device, we test if whether Test Device meets coexistence specifications.

Master Device used by this Coexistence Certification Test,

- IEEE1901 Wavelet OFDM Device
- IEEE1901 FFT OFDM Device
- ITU-T G.9960/9961+G.9972 Device
- Access BPL Device

It is necessary to conduct the tests with the four master devices.

Test configuration (It is called “N-Osaca Test Bench”) is shown in Figure 1. However, a use number and connected place of Master Device and Test Device of each Test item change. Please refer to the Coexistence Certification Test specifications for details of the test configuration.

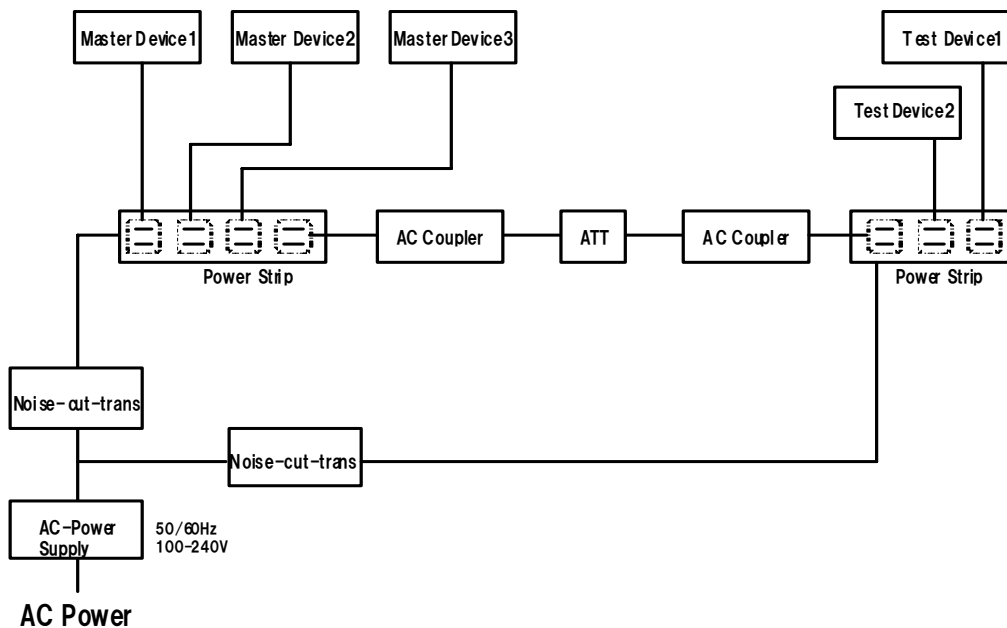


Figure 1. N-Osaca Test Bench

- ※ Master Device1, Master Device 2, Master Device 3 can be set to all of IEEE1901 Wavelet OFDM Device, IEEE1901 FFT OFDM Device, ITU-T G.9960/9961+G.9972 Device, Access BPL Device.

In the Coexistence Certification Test, there are the following Test items. Please refer to the Coexistence Certification Test specifications for details of the Test contents. Please inquire of the HD-PLC Alliance to get it.

1. Transmission Performance of ISP signal

- Check PSD (Power Spectral Density)
- Check detection accuracy of receiving ISP signal
- Positional relationship between zero-cross point and transmitting ISP signal
- Receiving Characteristic (Frequency Scale)
- Receiving Characteristic (Time Scale)
- Receive ISP signal each sync point

2. Start-up procedure

- Start-up procedure (Two different ISP systems)
- Start-up procedure (Three different ISP systems)
- Start-up procedure (Four different ISP systems)
- Interference (Two different ISP systems are communicating)
- Interference (Three different ISP systems are communicating in each system)
- Interference (Four different ISP systems are communicating in each system)
- Start-up procedure (Test Device1 already have been synchronized)
- Start-up procedure (Test Device2 already have been synchronized)
- Coexistence (ACFDM and Test Device1)
- Coexistence (ACFDM and Test Device2)

3. Behavior after start-up procedure

- Coexistence (enter and leave the network)
- Coexistence (Number of detections)

- Coexistence (Receive abnormal phase)
- Coexistence (Connect Test Device1 to another Power Strip)
- Coexistence (Connect Test Device2 to another Power Strip)

4. Resynchronization

- Two different system resynchronization (Test Device transmit resynchronization signal / Count)
- Two different systems resynchronization (Test Device transmit resynchronization signal / Transmission)
- Two different systems resynchronization (Master Device transmit resynchronization signal)
- Two different systems resynchronization (Master Device transmit resynchronization signal / Transmission)
- Two different systems resynchronization (Master Device transmit resynchronization signal / Test Device1)
- Two different systems resynchronization (Master Device transmit resynchronization signal / Test Device2)
- Three different systems resynchronization (Master Device transmit resynchronization signal)
- Four different systems resynchronization (Test Device transmit resynchronization signal)
- Four different systems resynchronization (Test Device2 enters the network. / Connect Master Device1 to another Power Strip)
- Four different systems resynchronization (Test Device2 enters the network. / Connect Master Device1, 2 to another Power Strip)