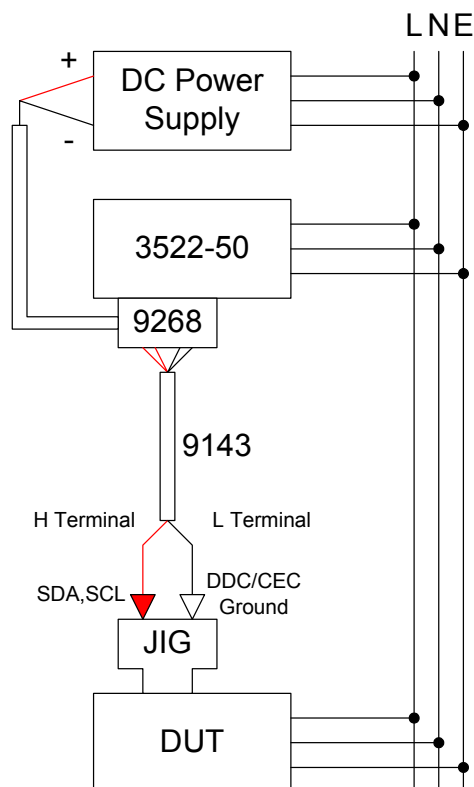


HDMI Compliance Test Specification Version 1.1 Application Note

I. Connection method specified by Version 1.1 and important points to note

See figure on right for an example of how to make proper connections. Depending on the actual test conditions, and how the DUT is grounded, certain portions of the diagram may have to be adjusted accordingly. To assure accurate testing, please pay attention to the following 3 points.



Point 1: How to measure when the DUT is grounded

When the DUT is grounded, in principle, accurate measurements cannot be conducted. Because the HDMI terminal's DDC/CEC ground pin is grounded internally via the DUT, even if the DUT is not grounded, the neutral and earth may be connected to the earth. In either case, this will prevent the LCR meter from providing accurate measurement results. In light of this situation, there are two alternatives:

1. Do not ground the DUT

Disconnect the DUT from the ground to create a floating condition. In this case, the LCR meter and power supply bias are grounded. To disconnect the DUT from the ground, if the system is connected to the power supply via a 3-prong plug, change the power supply connection to a 2-prong plug.

2. Disconnect the ground from the LCR meter and bias power supply

Maintain the ground connection on the DUT, but float the LCR meter and power supply bias by changing the electrical socket from a 3-prong to a 2-prong plug. This will create different grounding characteristics between the DUT and LCR meter, so that when viewed from the ground level of the LCR meter, the DUT appears to be floating. However, because the LCR meter is now no longer grounded, voltage will be generated on the instrument's chassis. In this situation, the danger of being electrocuted by touching the LCR meter will be very high.

Point 2: How to minimize effects from external noise

External noise will cause unstable measurement values to appear on the LCR meter. In particular, if the DDC/CEC ground pin is earthed, noise from the ground will be mixed into the signals to aggravate the instability. One effective countermeasure is to switch the connection of the H and L terminals of the LCR meter. Normally, the L terminal of the LCR meter is connected to the DUT's grounded side. However, based on the auto-balanced bridge method used by the LCR meter to conduct measurements, the H terminal is less vulnerable to noise compared to the L terminal. As such, to minimize the noise from the ground, using the H terminal on the DUT's grounded side is recommended. Switching the connections will cause the power supply bias's polarity to reverse; as such, the connection at the power supply bias should also be switched accordingly.

Point 3: Margin of error on the DC Voltage Bias

As the impedance of the DUT decreases, it may become more technically difficult to accurately apply the set voltage from the power supply bias. For example, if the pull-up resistance in the DUT is approximately 10k Ω , a margin of error will result in the DC Voltage bias. If the DUT is not applied with the proper bias voltage, the measurement results will vary greatly. One countermeasure is to use the newly developed Model 9268-01 DC Bias Unit. This new DC Bias Unit has been developed specifically for use on HDMI testing by minimizing the margin of error on the bias voltage. However, please note that while the maximum bias voltage on Model 9268 is $\pm 40V$, Model 9268-01 offers only a maximum of $\pm 4V$. Careful attention must be paid not to input a voltage exceeding this level.

II. Connection Diagram encompassing all of the above countermeasures and alternatives

