Cl **Annex** *SC* **113A.3** *P* **204** *L* **20** # 135

Cohen, Larry Aquantia

Comment Type **E** *Comment Status* **D** *Clamp Test*

Table reference is incorrect

SuggestedRemedy

Change 113A.2 to 113A.1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change 113A.2 to Table 113A-1

Cl **Annex** *SC* **113A.3** *P* **204** *L* **35** # 136

Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Clarification on balun specification. Add allowance for separate differential and common-mode component measurement configurations.

SuggestedRemedy

Proposed new (modified) text:

c) Balun-3 ports, laboratory quality with a 100 W balanced differential input (Port 1), a 50 W unbalanced single-ended output for the differential component (Port 2), and a 50 W unbalanced single-ended output for the common-mode component (Port 3):

Insertion Loss (Port 1 <--> Port 2): < 4 dB (80 MHz-2000 MHz)
Return Loss (Port 1, Zref = 100 W): > 15 dB (80 MHz-2000 MHz)
Common-Mode Rejection (Port 1 <--> Port 2): > 45 dB (80 MHz-1000 MHz), > 40dB at 2000 MHz
Common-Mode Return Loss (Port 1, Zref = 25 W): > 8dB (80 MHz-2000 MHz)

Note 1: The use of two separate differential and common-mode signal component measurement configurations is permissible provided the above specifications are met for each measurement configuration

Note 2: The common-mode reference (termination) impedance may be standard specific. The common-mode return loss requirement does not change, but Zref (common-mode) may be 50 W or 75 W for UTP applications.

Proposed Response *Response Status* **O**

Cl **Annex** *SC* **113A.3** *P* **204** *L* **54** # 137

Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Clarification of signal generator specification.

SuggestedRemedy

Proposed new modified text:

h) Signal generator capable of providing a sine wave signal of 80 MHz to 2000 MHz:

Output harmonic distortion: < -40 dBc
Maximum output power (while maintaining harmonic distortion specification: > 13 dBm
RF Envelope rise/fall time (output on/off transitions): 50 usec to 1000 usec

Note 1: The signal generator blocks shown in Figure 113A-3 and Figure 113A-4 may consist of separate signal generator, output power amplifier, and RF envelope modulator modules connected together.

Proposed Response *Response Status* **O**

Cl **Annex** *SC* **113A.3** *P* **205** *L* **3** # 138

Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Add directional coupler between signal generator and clamp as a measurement port for signal power level, harmonic distortion, and envelope rise/fall time at the clamp input

SuggestedRemedy

Proposed new text for directional coupler:

j) Directional coupler

Mainline Insertion Loss: < 2 dB (80 MHz-2000 MHz)
Coupling Loss: < 20 dB (80 MHz-2000 MHz)
Return Loss (Mainline Ports): > 20 dB (80 MHz-2000 MHz)
Return Loss (Coupling Port): > 15 dB (80 MHz-2000 MHz)

k) Receiver

Proposed Response *Response Status* **O**

Cl **Annex** *SC* **113A.3** *P* **205** *L* **6** # 139

Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Add a directional coupler for use as a measurement port to Figure 113A-3 Cable clamp validation test configuration. This is a better test configuration because there is significant frequency response distortion in the signal path to the other clamp source port when a cable is inserted in the clamp.

SuggestedRemedy

Add a directional coupler beween the signal generator and clamp input as a measurement port to Figure 113A-3 Cable clamp validation test configuration. Connect the signal sensor to the directional coupler port and put a 50 W termination on the other clamp source port. See attached Figure 113A-3 Example.

Important note: Figure 113A-3 Example is not intended to be copied exactly into the standard document. Its main purpose is to show the insertion location for the added directional coupler for modification of the existing figure.

Proposed Response *Response Status* **O**

Cl **Annex** *SC* **133A.3** *P* **205** *L* **21** # 140

Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Modify text for application of a directional coupler in the clamp validation test setup.

SuggestedRemedy

Proposed new modified text:

With the test cable inserted in the cable clamp, a signal generator with a 50 W output impedance is connected to one end of the cable clamp through an intermediate directional coupler, and a 50 W termination is connected to the other end of the cable clamp. Measurement equipment (with a 50 W input impedance) for verification of the test signal power, harmonic distortion, and envelope rise/fall time is connected to the coupled port of the directional coupler. It is assumed that the coupling loss and mainline loss of the directional coupler have been previously determined by measurement or other means, and these loss factors are used to correct all measurements to their proper value.

Proposed Response *Response Status* **O**

Cl **Annex** *SC* **113A.3** *P* **205** *L* **24** # 141

Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Modify text to reflect test frequency sweep range.

SuggestedRemedy

Change 1 MHz to 80 MHz

Proposed Response *Response Status* **O**

Cl **Annex** *SC* **113A.3** *P* **205** *L* **25** # 142

Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Modify text to reflect test frequency sweep range.

SuggestedRemedy

Change 20 MHz to 100 MHz

Proposed Response *Response Status* **O**

Cl **Annex** *SC* **113A.3** *P* **205** *L* **26** # 143

Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Modify text to allow use of an alternate equivalent measurement network configuration in addition to the balun

SuggestedRemedy

Proposed new text:

The cable pairs not connected to the balun (or equivalent measurement network) are terminated in a resistor network.

Proposed Response *Response Status* **O**

Cl **Annex** SC **113A.3** P **205** L **38** # 144
Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Modify text to reflect test frequency sweep range.

SuggestedRemedy

Change 1 MHz to 80 MHz

Proposed Response *Response Status* **O**

Cl **Annex** SC **113A.3** P **205** L **41** # 145
Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Modify Table 113A-2 to reflect test frequency sweep range.

SuggestedRemedy

Proposed changes to Table 113A-2:

Eliminate the top two entries (rows) for the validation requirements (frequency ranges of 1 MHz to 30 MHz and 30 MHz to 80 MHz) in Table 113A-2.

Proposed Response *Response Status* **O**

Cl **Annex** SC **113A.3** P **206** L **3** # 146
Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

In Note 1, modify the text to reflect test frequency sweep range.

SuggestedRemedy

Proposed new modified text:

The signal generator output should be adjusted to the specified signal power (for example 6 dBm for 40GBASE-T) at 100 MHz on the signal sensor. When the frequency is varied from 80 MHz to 2000 MHz, the measured power should not vary more than ±10%.

Proposed Response *Response Status* **O**

Cl **Annex** SC **113A.4** P **206** L **24** # 147
Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Modify text to reflect test frequency sweep range.

SuggestedRemedy

Change 1 MHz to 80 MHz.

Proposed Response *Response Status* **O**

Cl **Annex** SC **113A.4** P **206** L **28** # 148
Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Add text defining the frequency test sweep increment, the dwell time at each frequency, and the carrier envelope rise/fall time at each frequency point in the equipment test procedure.

SuggestedRemedy

Proposed added new text after line 26:

The signal generator output frequency is swept incrementally from 80 MHz to 2000 MHz with a step size that should not exceed 1% of the preceding frequency value while using the signal level during the validation process. In any case, the frequency sweep shall use the same frequency point set used during the validation process. During the transition to the next frequency point, the signal generator output shall be off. When the transition is complete, the carrier envelope shall rise to its prescribed amplitude in no less than 50 usec but no more than 1.0 msec. Before the next frequency transition, the carrier enveloope shall fall to zero amplitude in no less than 50 usec but no more than 1.0 msec. The dwell time at each frequency shall not be less than the time necessary for the EUT to be exercised and to respond, but shall in no case be less than 0.5 seconds.

Proposed Response *Response Status* **O**

Cl **Annex** *SC* **113A.4** *P* **206** *L* **29** # 149

Cohen, Larry Aquantia

Comment Type **T** *Comment Status* **X** *Clamp Test*

Add a directional coupler for use as a measurement port to Figure 113A-4 Cable clamp test configuration. This is a better test configuration because there is significant frequency response distortion in the signal path to the other clamp source port when a cable is inserted in the clamp.

SuggestedRemedy

Add a directional coupler beween the signal generator and clamp input as a measurement port to Figure 113A-4 Cable clamp test configuration. Connect the signal sensor to the directional coupler port and put a 50 W termination on the other clamp source port. See attached Figure 113A-4 Example.

Important note: Figure 113A-4 Example is not intended to be copied exactly into the standard document. Its main purpose is to show the insertion location for the added directional coupler for modification of the existing figure.

Proposed Response *Response Status* **O**

Cl **113A** *SC* **113A.3** *P* **206** *L* **4** # 189

Feyh, German Broadcom Corporation

Comment Type **T** *Comment Status* **X** *Clamp Test*

The cable clamp test is an preliminary test to predict the behavior in the electro-magnetic chamber test. Most industry practioners agree the test suffers from being highly variable in e.g. the exact positioning of the cable in the clamp, the position of the ferrites and the distance of the clamp to MDI. A signal power calibration to 10% aggravates the situation by boosting signal power in regions of varying transfer function. While giving the impression of higher repeatability, for setups that are comparing test results for a longer period of time calibration will result in unpredictable test outcomes.

SuggestedRemedy

Remove text:
"When the frequency is varied from 1 MHz to 2000 MHz, the measured
power should not vary more than ±10 %. If the measured power varies more than ±10%, then a correction factor must be applied at each measurement frequency."

Proposed Response *Response Status* **O**