MTS-063-06-24-UE-S
High Resolution Mesh Network Test System

General Description

Mesh network test equipments allow simultaneous interconnection of different devices or test systems. The test equipment effectively operates as a mesh network with independently variable attenuation on every path. This allows **emulation of a "real-world" mesh network** in the confined space of a production environment. Path loss can be varied independently between any pair of devices and even any pair of ports of the devices – emulating the effects of transmission distance and potential interference, without affecting any other paths.

Product Description

MTS-063-06-24-UE-S High Resolution Mesh Network Test System is a highly accurate, bidirectional, 50 Ohm digitally controlled step attenuator. It provides calibrated attenuation from **50 to 6000 MHz** with an **attenuation resolution of 1 dB**. It also offers a features an **attenuation accuracy less than 1 dB** over 63 dB of control range. The attenuators are easily programmable for fixed attenuation, swept attenuation ramps and fading profiles directly from either Ethernet or USB interfaces. MTS-063-06-24-UE-S allows all devices to communicate to each other in a test environment by **independently varying path loss between any pair of devices** and emulates different signal strengths, transmission distances and potential obstacles. Its low default insertion loss (when the attenuation is set to 0 dB) allows to operate at a desirable dynamic range suitable for low power applications as well as mid- and high-power applications.

Features

- Reliable and repeatable solid state digital attenuation
- Simple control with USB and Ethernet interfaces
- Operates multiple devices directly from a PC or self-powered hub
- Option to create programmable attenuation ramp profiles for long DVT cycles
- Support for 16 separate SMA ports allowing the creation of physical connection between 4 different DUTs each with up to 4 ports
- Support for 24 RF paths in total where each path consists of programmable attenuators over a wide attenuation range up to 63 dB
- Fine attenuation resolution (1 dB)

Applications

- Wi-Fi, GSM, GPS, 3G, 4G, 5G, LTE, Microwave Radio Fading Simulators
- Engineering/Production Test Labs
- Automated Test Equipment (ATE)
- MIMO Test Setups
- BlueTooth, ZigBee Test Setups

For more information
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System Specifications

Table 1 General Specifications

Parameter	Notes/Explanations	Value
Power	Via DC Jack	12V DC, 1.5 A
Environment	Operating Temperature	b/w 0° & 50°
	Relative Humidity	< 95%
	Control	USB & Ethernet
	RF	SMA (f)
Mechanical	Dimensions (cm)	15.58 X 45 X 2.8
	Weight (kg)	2.71

Table 2 RF System Specifications

Parameter	Condition	Value			Unit
		Min.	Typ.	Max.	
Frequency Range	-	50	-	6000	MHz
Impedance	-	-	50	-	Ω
Attenuation Range	-	0	-	63	dB
Attenuation Resolution	-	-	1	-	dB
Attenuation Accuracy	b/w 0.5 &20 dB	-	+/- 0.5	+/-0.75	dB
	b/w 20 &40 dB	-	+/- 0.75	+/- 1.25	dB
	b/w 40 &63 dB	-	+/- 1.25	+/- 1.75	dB
Insertion Loss	< 2.5 GHz	-	17	18	dB
	< 5 GHz	-	19	20	dB
	< 6 GHz	-	21	23	dB
VSWR	-	-	1.5:1	2:1	-
Isolation (In-Out)	-	85	90	-	dB
Isolation (b/w channels)	-	70	75	-	dB
Max. Input Power	-	-	-	+25	dBm
Input IP3	-	50	55	-	dBm
Switching Speed	-	-	180	200	nsec
Supply Voltage	-	11.8	12	12.2	V

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Typical Application

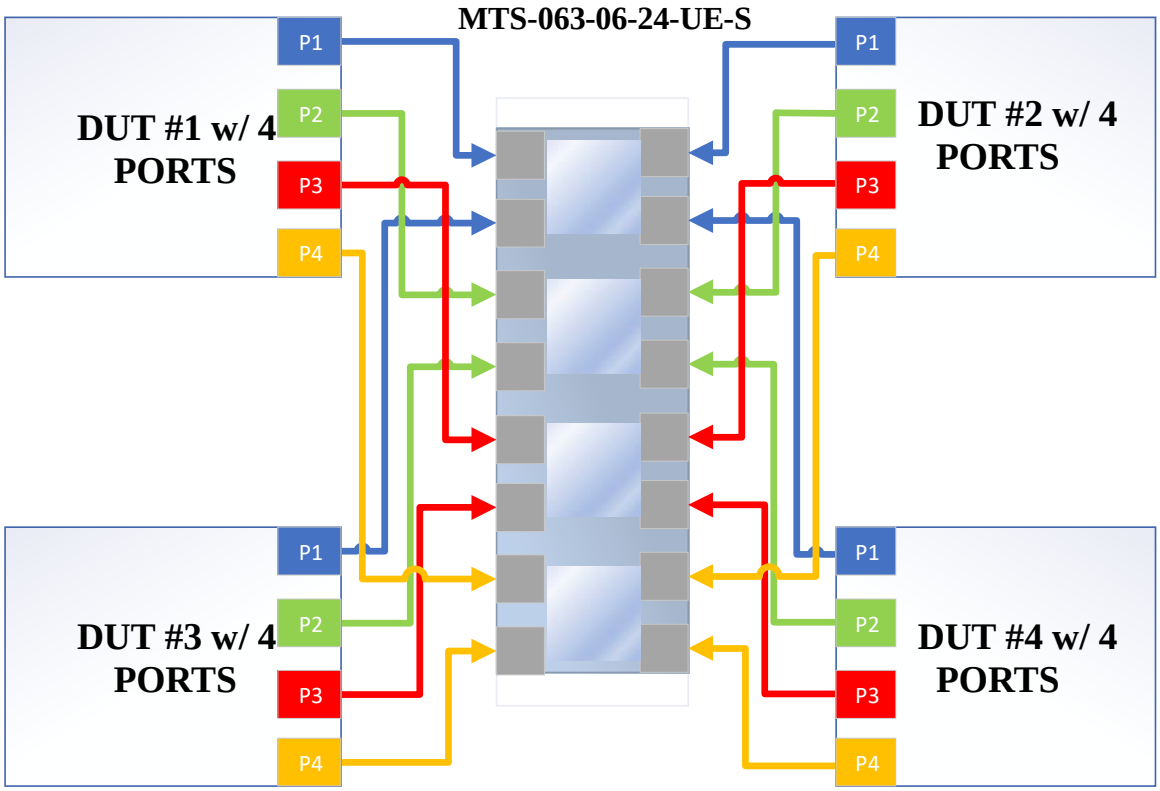

Figure 1 Typical application procedure

Figure 1 illustrates the usage of MTS-063-06-24-UE-S as a Mesh Network Test Instrument. It basically offers possible connections with a variable attenuation value as indicated in the table at page 4. Multi-port (up to four ports) design of MTS-063-06-24-UE-S makes it ideal and unique for mesh network tests of DUTs which have multiple antennas/connectors. It makes possible to test performance of any link that uses a multiplexing technique with multiple antennas/connectors such as; MIMO, beamforming etc.

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Channel Control Table

Table 3 Attenuation control table

Conn. #	Side #1		Att. Value (dB)	Side #2	
1	DUT #1	Port 1	0-63	Port 1	DUT #2
2	DUT #1	Port 1	0-63	Port 1	DUT #3
3	DUT #1	Port 1	0-63	Port 1	DUT #4
4	DUT #2	Port 1	0-63	Port 1	DUT #3
5	DUT #2	Port 1	0-63	Port 1	DUT #4
6	DUT #3	Port 1	0-63	Port 1	DUT #4
7	DUT #1	Port 2	0-63	Port 2	DUT #2
8	DUT #1	Port 2	0-63	Port 2	DUT #3
9	DUT #1	Port 2	0-63	Port 2	DUT #4
10	DUT #2	Port 2	0-63	Port 2	DUT #3
11	DUT #2	Port 2	0-63	Port 2	DUT #4
12	DUT #3	Port 2	0-63	Port 2	DUT #4
13	DUT #1	Port 3	0-63	Port 3	DUT #2
14	DUT #1	Port 3	0-63	Port 3	DUT #3
15	DUT #1	Port 3	0-63	Port 3	DUT #4
16	DUT #2	Port 3	0-63	Port 3	DUT #3
17	DUT #2	Port 3	0-63	Port 3	DUT #4
18	DUT #3	Port 3	0-63	Port 3	DUT #4
19	DUT #1	Port 4	0-63	Port 4	DUT #2
20	DUT #1	Port 4	0-63	Port 4	DUT #3
21	DUT #1	Port 4	0-63	Port 4	DUT #4
22	DUT #2	Port 4	0-63	Port 4	DUT #3
23	DUT #2	Port 4	0-63	Port 4	DUT #4
24	DUT #3	Port 4	0-63	Port 4	DUT #4

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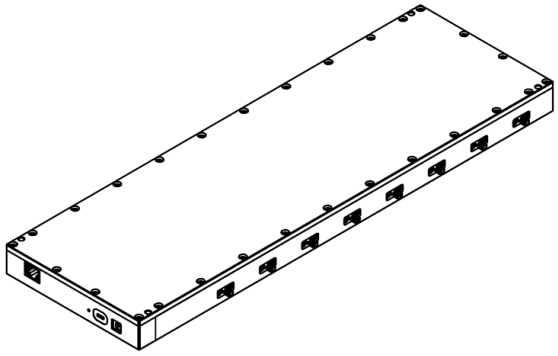
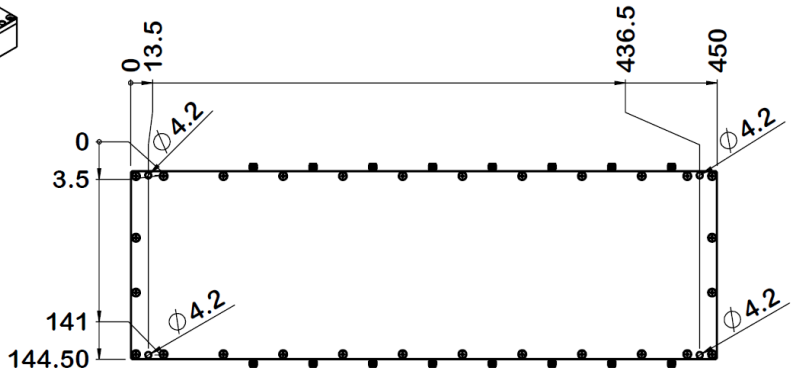
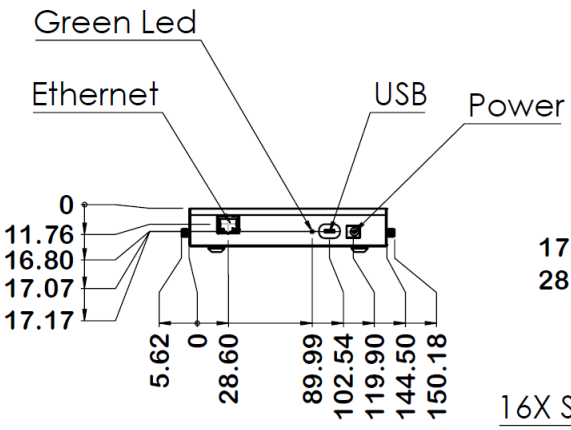
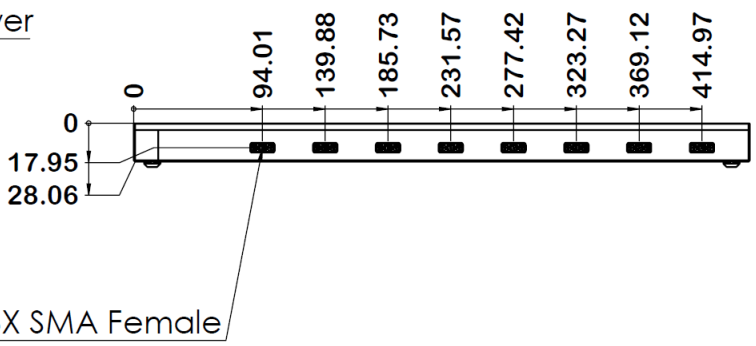
Mechanical Specifications









All dimensions are in millimeters unless otherwise stated

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