

Random Vibration and Shock Tests for Coax Fixed Attenuators

DC-27 GHz, 10 dB, 2 Watts, SMA M/F

1. Test Purpose


The random vibration is conducted per MIL-STD-202G, METHOD 214A

for the purpose of determining the ability of our 2W attenuators to withstand the dynamic stress exerted by random vibration experienced in various service field environments.

The mechanical shock test is conducted per MIL-STD-202G, METHOD 213B

for the purpose of determining the suitability our 2W attenuators when subjected to shocks as a result of rough handling, transportation and military operations.

2. DUT Product Information

Product Name	Coaxial Fixed Attenuator	
	DC-27 GHz, 10dB , 2 Watts, SMA M/F	
Specs	DC-27 GHz	
	VSWR 1.3 max, Accuracy 10 ± 0.65 dB	
P/N	RFHB2710SC2	
Qty	5PCS	

3. Test Instrument

No.	Instrument	Model	Calibration
1	Vibration system(including vibration machine)	DL-6000-60	2022.09.14~2023.09.13
2	Shock machine	DC-6000-60/SV-1313	2022.05.02~2023.05.01
3	Shock sensor	122A50	2022.05.16~2023.05.15
4	VNA	Ceyear VNA 3672E	2022.03.08~2023.03.07

4. Test Description

4.1 Pre the tests, perform visual inspection and functional verification. VSWR and attenuation values were measured and recorded.

4.2 Perform random vibration test in accordance with MIL-STD-202G, METHOD 214A. The five pcs of DUT samples were subjected to vibration in X,Y and Z axis with a frequency range 10 -2000 Hz, 0.06 inch double amplitude, 15 minutes per axis.

4.3 Perform mechanical shock test in accordance with MIL-STD-202G, METHOD 213B. The five units were subjected to shock-pulses that were half-sinusoidal, 50g, duration-11 ms. With 3 shocks in each axis.

4.4 Post the tests, perform visual inspection and functional verification. There is no evidence of physic damage to the DUT. VSWR and attenuation values were measured and recorded.



Pic 1 Before the tests



Pic 2 Mounting the DUT in Z axis



Pic 3 Mounting the DUT in X axis



Pic 4 Mounting the DUT in Y axis



Pic 5 After the tests

5. Test Results

Before and after the tests, VSWR and attenuation measurement of the 5pcs RFHB2710SC2 coax fixed attenuators showed minimum change.

RFHB2710SC2 S/N	Max VSWR measurement from 10MHz-27GHz		Attenuation(dB) measurement from 10MHz-27GHz	
	Before Tests	After Tests	Before Tests	After Tests
1	1.15	1.15	9.62dB~10.06dB	9.63dB~10.05dB
2	1.16	1.16	9.79dB~10.21dB	9.78dB~10.18dB
3	1.17	1.17	9.75dB~10.20dB	9.73dB~10.18dB
4	1.16	1.15	9.65dB~10.10dB	9.60dB~10.03dB
5	1.18	1.17	9.80dB~10.18dB	9.80dB~10.18dB