

Test Methods and Control  
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Paragraph 8.20.4.3

Special Considerations – Band-Splitting.

Testing to vibration levels which cannot be achieved by the test equipment shall be accomplished by Band-Splitting, and/or time/level trade techniques as follows:

- a. When the test level cannot be achieved, apply Band-Splitting to the spectrum which cannot be tested. The preferred test method for selection of the band separation shall be to start at the lowest test frequency and extend the first Split Band to the highest energy/frequency level attainable. Start Band 2 at the end of Band 1, etc. No more than 4 Bands are allowed. The resultant band selection shall be evaluated to assure reasonability, to avoid splitting at known resonances, etc. Efforts should be made to minimize the number of bands, and to make the actual test bands approximately of equal energy content.
- b. When levels are not attainable by Band-Splitting, impose a time/level trade. Split the spectrum into 4 Bands of equal energy content, and run each at the maximum level attainable by the test equipment. Run the bands for extended time in accordance with the method of calculation which follows:

$$T \text{ Test} = \left( \frac{\text{Grms Specified}}{\text{Grms Attainable}} \right)^Y \times T \text{ Specified}$$

Where:

T Test = New Test Duration (seconds)

Grms Specified = Required Overall Test Level (Grms)

Grms Attainable = Actual Overall Test Level Attainable by  
Test Equipment (Grms)

Y = Exponent Determined by characteristics of Test Article.

T Specified = Required Test Duration Corresponding to  
Full Vibration Levels (seconds)

The value of Y must be chosen to best characterize the construction and materials specific to each test item. This must be a case-by-case evaluation coordinated with the contracting organization and/or his technical representative.

Examples of exponents (Y) and corresponding previous use values are:

Item	Y
Electrical Black Boxes	4.0
Stainless Steel Feed Lines and Bellows	5.3
Hydraulic Actuators	5.3
Electrical Connectors	5.0
Ordnance	5.3