

The Consultative Committee for Space Data Systems

# Space Link Services Area Resolution

## 401 (4.1.4) B-1 of Radio Frequency and Modulation Systems

29<sup>th</sup> March 2012

SLS-R-2012-03-001 (401.0-4.1.4)

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- ✦ The Space Link services Area,
- ✦ **CONSIDERING** that the Radio Frequency and Modulation (RFM) WG
  - ✧ detected a drawing error in THE Triangular Distribution in “Figure 4.1.4-1: Probability Density Function”, and
  - ✧ has agreed on the correction to be performed
  
- ✦ **RECOGNIZING**
  - ✧ that the drawing shall be corrected appropriately (as shown separately)

## SLS Resolutions to CESG

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- ✦ RESOLVES to request CESG/CMC to approve the publication of a Technical Corrigendum to Recommendation 4.1.4 of CCSDS 401.0 Blue Book
- ✦ RECOMMENDS that the CESG approve this resolution, and finally
- ✦ REQUESTS that a CESG poll be conducted to accomplish this.

# Existing Figure vs. Correction

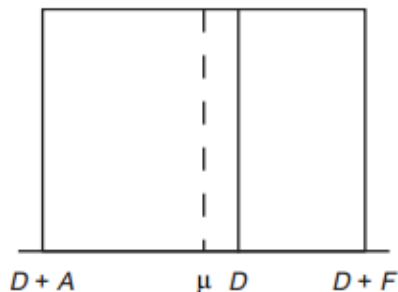
4.1.4

DEFAULT PROBABILITY DENSITY FUNCTIONS FOR LINK COMPUTATION  
IN THE CCSDS TELECOMMUNICATIONS LINK DESIGN CONTROL TABLE  
(Continued)

Uniform

$$\mu = D + (F + A)/2$$

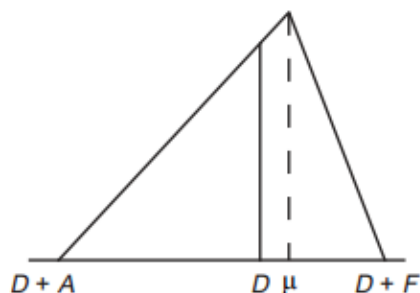
$$\sigma^2 = (F - A)^2/12$$



Triangular

$$\mu = D + (F + A)/3$$

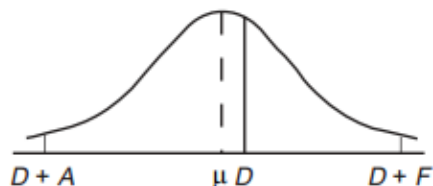
$$\sigma^2 = (F^2 + A^2 - AF)/18$$



Truncated  
Gaussian

$$\mu = D + (F + A)/2$$

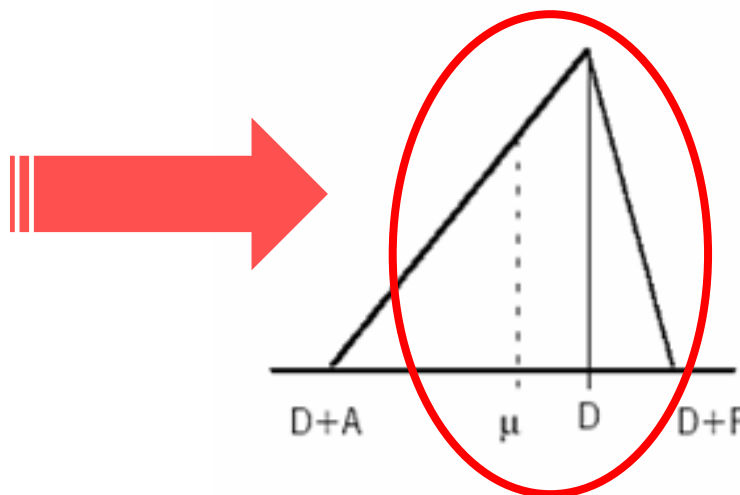
$$\sigma^2 = (F - A)^2/36$$



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Figure 4.1.4-1: Probability Density Functions

- Only triangular shape is affected as shown by red circle.

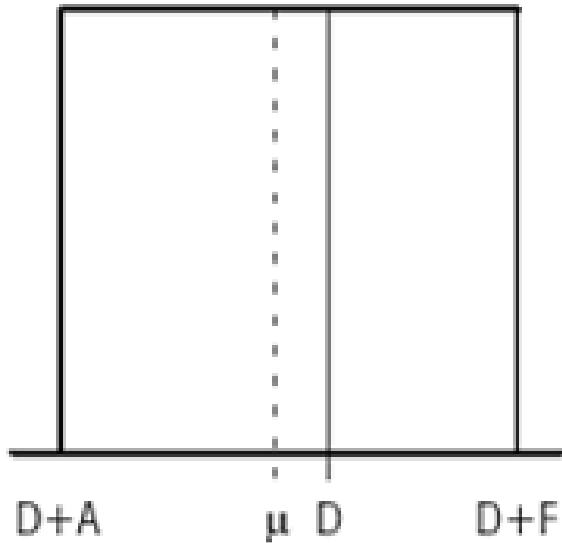


$$\mu = D + (F + A)/3$$

$$\sigma^2 = (F^2 + A^2 - AF)/18$$

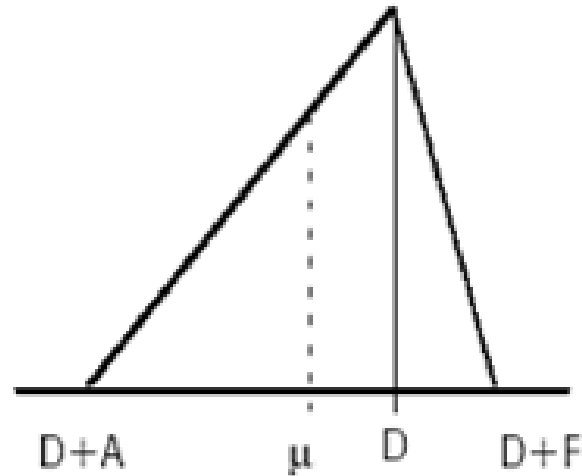
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## (Possible) New Figure



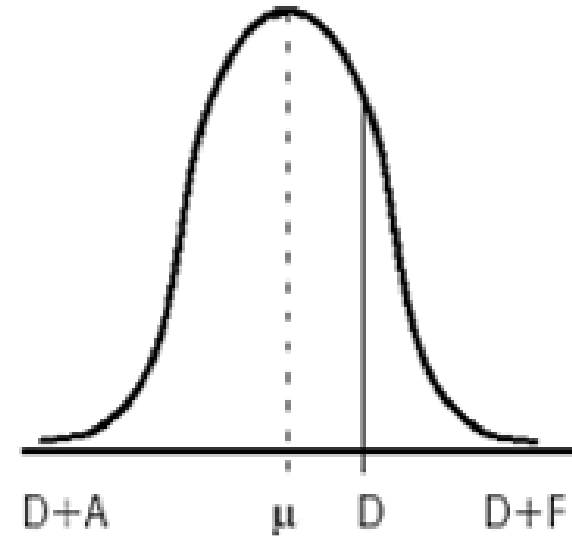
$$\mu = D + (F + A)/2$$

$$\sigma^2 = (F - A)^2/12$$



$$\mu = D + (F + A)/3$$

$$\sigma^2 = (F^2 + A^2 - AF)/18$$



$$\mu = D + (F + A)/2$$

$$\sigma^2 = (F - A)^2/36$$