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CERTAIN NEW RESULTS OF THE S-GENERALIZED GAUSS HYPERGEOMETRIC FUNCTION TRANSFORM

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Dedicated to Prof. A.M. Mathai on his 80^{th} ***birth anniversary***

Abstract: The aim of the present paper is to further study the S-generalized Gauss hypergeometric function transform recently introduced by Srivastava, Jain and Bansal [11]. In the course of our study, we establish image of Fox H-function in the S-Generalized Gauss hypergeometric function transform and obtain the images of five useful and important cases of Fox H-function (Generalized Bessel function, Gauss Hypergeometric function, Generalized Mittag-Leffler Function, Krätzel Function and Lorenzo Hartley G-function) under the S-generalized Gauss hypergeometric function transform.

Keywords: S-Generalized Gauss hypergeometric function, Fox H-Function, Complex integral representation, Integral transform.

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1. Introduction and Definitions

S-Generalized Gauss Hypergeometric Function

The S-generalized Gauss hypergeometric function $F_p^{(\alpha,\beta;\tau,\mu)}(a,b;c;z)$ was introduced and investigated by Srivastava et al. [5, p. 350, Eq. (1.12)]. It is represented in the following manner:

$$F_p^{(\alpha,\beta;\tau,\mu)}(a,b;c;z)=\sum_{n=0}^{\infty}(a)_n\frac{B_p^{(\alpha,\beta;\tau,\mu)}(b+n,c-b)}{B(b,c-b)}\frac{z^n}{n!}\qquad(|z|<1)\qquad(1.1)$$

provided that, $(\Re(p)\geq 0;\ \min\{\Re(\alpha),\Re(\beta),\Re(\tau),\Re(\mu)\}>0;\ \Re(c)>\Re(b)>0)$