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GENERALIZED CONDITIONAL YEH-WIENER INTEGRAL

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ABSTRACT. In this paper, we introduce the generalized conditional Yeh-Wiener integral which includes the conditional Yeh-Wiener integral and the modified conditional Yeh-Wiener integral. We also show that some of the results in the conditional Yeh-Wiener integral and the modified conditional Yeh-Wiener integral can be obtained as corollaries of our result. We also treat the generalized conditional Yeh-Wiener integral for the functional containing a generalized quasi-polyhedric function.

1. Introduction. Kitagawa [**5**] introduced the Wiener space of functions of two variables which is the collection of the continuous functions $x(s,t)$ on the unit square $[0,1]\times[0,1]$ satisfying $x(s,t)=0$ for $st=0$, and he treated the integration on this space. Yeh [**7**] treated the integration of this space for more general functions and made a firm logical foundation of this space. We call this space a Yeh-Wiener space and the integral a Yeh-Wiener integral.

In [**8, 9**], Yeh introduced the conditional expectation and the conditional Wiener integral. He also evaluated conditional Wiener integrals for a real-valued conditioning function using the inversion formulae. Chang and the first author [**4**] treated the conditional Wiener integral for vector-valued conditioning function. Park and Skoug [**6**] introduced a simple formula for the conditional Yeh-Wiener integral which is very useful in evaluating the conditional Yeh-Wiener integrals.

Recently the first author [**1**] introduced the modified conditional Yeh-Wiener integral and evaluated it for various functionals. In [**6**], Park and Skoug treated the conditional Yeh-Wiener integral for the functional on a set of continuous functions which are defined only on a rectangular region Ω. But in [**1**], the first author considered the set

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