14[L, M].—K. A. Karpov, *Tablitsy funktsiĭ* $F(z) = \int_0^z e^{x^2} dx$ *v kompleksnoĭ oblasti* (*Tables of the function* $F(z) = \int_0^z e^{x^2} dx$ *in the complex domain*), Izdatel'stvo Akademii Nauk SSSR, Moscow, 1958, 518 p. + 2 inserts, 27 cm. Price 61 rubles.

This is a companion volume to the tables reviewed in *MTAC*, vol. 12, p. 304–305, and completes the tabulation of the error function in the complex plane. The present volume contains 5D or 5S values of the real and imaginary parts of the function

$$F(z) = \int_0^z e^{x^2} dx = u + iv$$

for $z = \rho e^{i\theta}$, $0 \leqq \rho \leqq \rho_0$, $\pi/4 \leqq \theta \leqq \pi/2$ and $\theta = 0$. The quantity ρ_0 depends on θ and decreases from $\rho_0 = 5$ for $\theta = \pi/4$ to $\rho_0 = 3$ for $\theta = \pi/2$. An exception is $\theta = 0$, for which $\rho_0 = 10$. In the introduction, a diagram is given representing the intervals in θ and the value of ρ_0 for each θ, and a table indicates the intervals in ρ in various parts of the volume. As in the earlier volume, the diagram is reproduced on a cardboard inset, which serves also as an index to the numerical tables.

The introduction gives integral representations and series expansions for u and v, graphs of u and v as functions of ρ for selected values of θ, relief diagrams of u and v over the sector of tabulation, a description of the tables and numerical examples showing their use, some useful numerical values, values of cos 2θ, sin 2θ, and values of $(2n + 1)\theta$ in radians for $n = 0(1)5$ and for those values of θ included in the tables. There is also a one-page auxiliary table of $t(1 - t)/4$ for $0 \leqq t \leqq 1$. This table, together with a nomogram for finding $\tilde{\Delta}^2 t(1 - t)/4$, where $\tilde{\Delta}^2$ designates the sum of two consecutive second differences for use in Bessel's interpolation formula, is reproduced also on a cardboard inset.

Using the symmetry properties of $F(z)$, this function can now be evaluated on the real axis and in a sector of half-angle 45° to both sides of the imaginary axis. Between them, Karpov's two volumes contain a very satisfactory tabulation of the error function in the complex plane.

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15[L, M, S].—Y. Nomura & S. Katsura, "Diffraction of electric waves by circular plate and circular hole," Sci. Rep. Ritu, B-(Elect. Comm.) *10*, No. 1, 1958, 43 p.

The problem of the diffraction of a plane electromagnetic wave by an infinitely thin, perfectly conducting, circular disk of radius a, and the problem of the diffraction of such a wave by a circular hole of radius a in a plane conducting screen are discussed. The method of solution involves the expansion of the two-component Hertz vector in terms of hypergeometric polynomials. The solution is valid for all frequencies. However, convergence is poor when $ka = 2\pi a/\lambda$ becomes large. Tables of values are included of the real and imaginary parts of

$$G^m_{n\nu} = (2m + 4\nu + 1) \int_0^\infty \frac{J_{m+2n+\frac{1}{2}}(\xi) J_{m+2\nu+\frac{1}{2}}(\xi)\, d\xi}{\sqrt{\xi^2 - (ka)^2}}$$