

16. *References:*

H. W. BERTINI, M. P. GUTHRIE, and O. W. HERMANN, "Instructions for the Operation of Codes Associated with MECC-3, a Preliminary Version of an Intranuclear-Cascade Calculation for Nuclear Reactions," ORNL-4564, Oak Ridge National Laboratory (1971).

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VIXEN

1. Name of Program: VIXEN.
2. Computer for Which Program is Designed: CDC-6600. The code also executes on the CDC-7600 and IBM-360 computers.
3. Nature of the Problem Solved: Checks are made on the ENDF photon production files (12-15) for format syntax, consistency, and physical realism. Some typical checks made are (a) comparing the photon energies and their corresponding nuclear level energies, (b) checking total photon energy released against reaction energetics, and (c) verifying the normalization of the continuous photon energy probability distributions. Quantities useful to the cross-section evaluators and reviewers are also printed on the output listing. One such quantity is the total photon energy released at each tabulated neutron energy. Suspected errors are flagged on the output listing.
4. Method of Solution: Most operations are Boolean (logical tests).
5. Restrictions on the Complexity of the Problem: The total number of discrete-energy photons plus photon continua is restricted to be <500.
6. Typical Running Times: 1 min (CDC-6600); 13 sec (CDC-7600).
7. Unusual Features of the Program: None.
8. Related and Auxiliary Programs: VIXEN replaces an earlier code, PHOXE. VIXEN input is independent of other codes, but all ENDF data should be checked for syntax errors by the CHECKER code before being processed by VIXEN.
9. Status: In use on CDC-6600, CDC-7600, and IBM-360.
10. Machine Requirements: Two scratch files (disk, drum, extended core storage, or tapes) in addition to three system input/output units (card reader, magnetic tape unit, and printer).
11. Programming Language Used: FORTRAN IV, with only three IF(EOF)*i,j* statements (end-of-file checks) peculiar to the CDC-6600 and CDC-7600 systems.
12. Operating System or Monitor Under Which Program is Executed: CDC-6600 Scope 3.1.2 (locally modified to LASL 3.05).
13. Other Programming or Operation Information or Restrictions: None.
14. Material Available: A code package identified as PSR-30/VIXEN is available from the Radiation Shielding Information Center at Oak Ridge National Laboratory. The package contains (a) a FORTRAN deck, (b) a sample problem (an ENDF evaluation for silicon) input and output, and (c) an INDEX (cross reference) listing of the code. A report¹ describing the code is available.
15. *Acknowledgment:* This work was performed under the auspices of the U. S. Atomic Energy Commission.
16. *References:*
 - ¹DONALD J. DUDZIAK and JOHNNY M. ROMERO, "VIXEN, a Physical Consistency Checking Code for Photon Production Data in Revised ENDF Format," LA-4739 (ENDF-155), Los Alamos Scientific Laboratory (1971).
 - DONALD J. DUDZIAK, Ed., "ENDF Formats and Procedures for Photon Production and Interaction Data," LA-4549 (ENDF-102, Rev., Vol. II), Los Alamos Scientific Laboratory (1971).

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