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DATE: September 25, 1975



ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

SUBJECT: FOREIGN AIR CARRIERS—SECURITY PROGRAMS AND OTHER REQUIREMENTS — FEDERAL AVIATION REGULATION PART 129; AMENDMENT 129-5

1. PURPOSE.

To provide guidance to foreign air carriers concerning the requirements of Federal Aviation Regulations (FARs), Part 129, Sections 129.25 and 129.27.

2. BACKGROUND.

Worldwide criminal and terrorist activities directed against the international aviation community have in recent years risen steadily in frequency of occurrence and in intensity of violence. The United States Congress enacted Public Law 93-366, which was signed into law by the President on August 5, 1974. Title II of the law, entitled "Air Transportation Security Act of 1974," directs the Administrator of the Federal Aviation Administration (FAA) to prescribe or continue in effect reasonable regulations requiring that all passengers and all property, intended to be carried in the aircraft cabin in air transportation or intrastate air transportation, be screened by weapon detecting procedures or facilities employed or operated by employees or agents of the air carrier, intrastate air carrier or foreign air carrier, prior to boarding the aircraft for such transportation. The Administrator of FAA has prescribed appropriate Federal Aviation Regulations (FARs) in this regard with respect to United States air carriers and pursuant to the Federal Aviation Act of 1958 as amended has found it necessary to amend FAR Part 129

to include civil aviation security requirements for foreign air carriers landing or taking off large aircraft in the United States in scheduled passenger operations.

3. DEFINITIONS.

Terms used in this circular are defined as follows:

a. *Administrator.* "Administrator" means the Administrator of the Federal Aviation Administration, or any person to whom he has delegated his authority in the matter concerned.

b. *Foreign Air Carrier.* Any person, not a citizen of the United States, who undertakes, directly or indirectly, or by lease or any other arrangement, to engage in foreign air transportation.

c. *Foreign Air Transportation.* The carriage by aircraft of persons or property as a common carrier for compensation or hire, or the carriage of mail by aircraft, in commerce between a place in the United States and any place outside of the United States, whether that commerce moves wholly by aircraft or partly by aircraft and partly by other forms of transportation.

d. *Foreign Air Carriers Covered by FAR Part 129, Sections 129.25 and 129.27.* Any foreign air carrier who lands or takes off large aircraft in the United States in scheduled passenger operations.

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e. *Large Aircraft.* Aircraft of more than 12,500 pounds (5670 Kg) maximum certificated takeoff weight.

f. *Carry-on Baggage.* All articles in the possession of passengers which are accessible to them in flight.

g. *Checked or Hold Baggage.* All baggage other than carry-on.

h. *Law Enforcement Officer.* An armed person who:

- (1) is authorized to carry and use firearms;
- (2) is vested with a police power of arrest under appropriate authority of the locale in which the screening activity is located;
- (3) is identifiable by uniform, badge, or other indicia of authority; and
- (4) is assigned the duty of providing law enforcement support for preboard screening.

i. *United States.* The several States, the District of Columbia, and the several Territories and possessions of the United States including the territorial waters and overlying airspace thereof.

j. *Weapon or Dangerous Article.* The following guidelines are furnished in making an effective determination of what property in possession of a passenger should be considered as a weapon or dangerous article.

(1) *Firearm.* Any weapon from which a shot may be fired by the force of any explosion, including starter pistols, compressed air or BB guns, and flare pistols.

(2) *Knives.* Sabres, swords, hunting knives, and such other cutting instruments which are considered dangerous.

(3) *Bludgeons.* Blackjacks, billy clubs, or similar instruments.

(4) *Explosives/Ammunition.* Types of explosives, ammunition, incendiaries, and fireworks whether commercially manufactured or homemade or any combination of components to produce same.

(5) *Explosive/Incendiary Devices.* Any combination of explosives, incendiaries, or other components which can result in an explosion or fire which is hazardous to the aircraft; generally spoken of as a "bomb."

(6) *Gases and Chemical Agents.* Tear gas, mace, and similar chemicals and gases whether in pistol, canister, or other container.

(7) *Other Dangerous Articles.* Ice picks, straight razors, elongated scissors, and the like, even though not commonly thought of as dangerous weapons, but which would be dangerous whenever possession supports a reasonable presumption that it could be used as a weapon. Also, any questionable device or object to include toy or dummy weapons or grenades, should be treated as a dangerous article.

4. REQUIREMENTS.

a. FAR Part 129, Section 129.25 requires foreign air carriers landing or taking off a large aircraft in the United States in scheduled passenger operations to:

(1) Use a security program that requires that all passengers and all property intended to be carried in the aircraft cabin are screened by weapon detecting procedures or facilities prior to boarding. The security program should be designed to:

(a) prevent or deter the carriage aboard its aircraft of any explosive or incendiary device or weapon in carry-on baggage, or on or about the persons of passengers through screening by weapon detecting procedures or facilities, except as provided in FAR Part 129, Section 129.27;

(b) prevent or deter unauthorized access to its aircraft;

(c) assure that baggage is accepted by a responsible agent or representative of the foreign air carrier; and

(d) prevent cargo and checked baggage from being loaded aboard its aircraft unless handled in accordance with the foreign air carrier's security procedures.

(2) Upon receipt of a bomb or air piracy threat against a specific aircraft or flight, the following actions are to be taken:

(a) if the aircraft is on the ground when a bomb threat is received and the next scheduled flight of the aircraft is to or from a place in the United States, the foreign air carrier assures that the pilot in command is

Amendment 121-117**Requirements for Use of X-Ray Devices****Adopted: February 26, 1975****Effective: April 4, 1975**

(Published in 40 F.R. 10173, March 5, 1975)

The purpose of this amendment to Part 121 of the Federal Aviation Regulations is to prescribe requirements governing the use of X-ray devices to inspect carry-on baggage and other items in accordance with approved security programs required by § 121.538.

Interested persons have been afforded an opportunity to participate in the making of this amendment by a Notice of Proposed Rule Making (Notice 74-22) published in the Federal Register on June 21, 1974 (30 F.R. 22275). Due consideration has been given to all comments presented in response to the Notice.

Most of the comments received were in accord with the proposal, but certain of them recommended several changes to the proposed amendment.

The Notice proposed to require, for FAA approval of an X-ray system to be used for the inspection of carry-on baggage, that the system meet those standards prescribed by the Food and Drug Administration (FDA) in 21 CFR, 1020.40, regardless of the date the system was manufactured. However, upon further consideration of the proposal, in light of comments received, the agency has concluded that the rule as adopted should be consistent with the regulations of the FDA. Accordingly, the proposal has been changed in this amendment to require a showing of compliance with the provisions of 21 CFR, 1020.40 for those X-ray systems manufactured on or after April 25, 1974. For systems manufactured prior to April 25, 1974, the proposal has been changed to require a showing that it complies with either (1) the FDA guidelines as published in the Federal Register of August 8, 1973 (38 F.R. 21442) or (2) the provisions in 21 CFR 1020.40.

In paragraph (a)(4) two examples of the kind of personnel dosimeter acceptable for use have been added parenthetically for purposes of clarification. In addition, that paragraph has been changed from the proposal to provide for the evaluation of dosimeters at the end of each calendar month, rather than every 30 days, in response to comments which suggested such a change for administrative reasons.

The proposal has also been changed by adding in paragraph (b) of this amendment a requirement for a radiation survey to be made of each X-ray system within the 6 calendar months preceding its use in order to ensure that it is performing safely. In addition, the proposal to require a radiation survey to be made each time an X-ray system is moved to a new location has been revised (paragraph (c) of this amendment) to provide for an exception to the survey requirement, when it is shown to the satisfaction of the Administrator that the particular system is so designed as to be capable of being moved without altering its performance.

The FAA considers reasonable and appropriate the proposal (paragraph (e) of this amendment) to require a sign to be posted in a conspicuous place which notifies passengers that carry-on baggage and items are being inspected by an X-ray system and advises them to remove X-ray, and scientific film from their carry-on baggage and other items before inspection. Consistent with the intent of the proposal, and in response to comments received, a provision has been added to paragraph (e) to ensure that all carry-on photographic equipment and film packages are physically inspected without exposure to an X-ray system, if the passenger requests such an inspection.

The FAA believes the use of X-ray systems facilitates the security inspection of passenger carry-on baggage and serves to discourage potential hijackers from attempting to smuggle weapons and other dangerous articles aboard aircraft. The FDA guidelines and standards provide performance requirements for radiation attenuation, safety interlock systems, warning devices, and instructions. These criteria should be sufficient to prevent harmful radiation emissions due to unsafe design or system malfunction.

The FDA regulations require a means that ensures the presence of an operator in a position which permits surveillance of the ports and doors during generation of X-ray

radiation. The FAA believes this requirement will provide adequate protection against any person climbing on the baggage conveyor belt and being exposed to radiation from the X-ray system.

In addition, the FAA believes this amendment will ensure adequate monitoring of X-ray systems, since it requires each system to meet FDA performance criteria, requires a radiation survey of each system at least every 6 months, and requires each operator of a system to wear a personnel dosimeter.

As pointed out in the Notice, any person who knows of the use of an X-ray system by a Part 121 certificate holder to inspect carry-on baggage or items that does not comply with that certificate holder's security program, as approved under § 121.538, or comply with the provisions of § 121.538a, may report the matter to any FAA regional or district office. The FAA will investigate each alleged violation reported and take appropriate administrative or enforcement action in accordance with the procedures set forth in 14 CFR Part 13. If deemed appropriate, the FAA may request advice and assistance from the Food and Drug Administration or any other government agency in the conduct of its investigation.

(Sections 313(a), 601, and 604 of the Federal Aviation Act of 1958; 49 U.S.C. 1854(a), 1421, and 1424. Section 6(c) of the Department of Transportation Act; 49 U.S.C. 1655(c)).

In consideration of the foregoing, and for the reasons stated in Notice 74-22, Part 121 of the Federal Aviation Regulations is amended effective April 4, 1975, by adding after § 121.538 a new § 121.538a.

§ 121.538a Use of X-ray system.

[(a) No certificate holder may use an X-ray system to inspect carry-on baggage or items unless specifically authorized under an approved security program required by § 121.538 or use such a system contrary to its approved security program. The Administrator authorizes a certificate holder to use an X-ray system for inspecting carry-on baggage or items, under an approved security program, if the certificate holder shows that—

[(1) For a system manufactured prior to April 25, 1974, it meets either the guidelines issued by the Food and Drug Administration (FDA), Department of Health, Education, and Welfare and published in the Federal Register (38 F.R. 21442, August 8, 1973); or the performance standards for cabinet X-ray systems designed primarily for the inspection of carry-on baggage issued by the FDA and published in 21 CFR 1020.40 (39 F.R. 12985, April 10, 1974);

[(2) For a system manufactured after April 24, 1974, it meets the standards for cabinet X-ray systems designed primarily for the inspection of carry-on baggage issued by the FDA and published in 21 CFR 1020.40 (39 F.R. 12985, April 10, 1974);

[(3) A program for initial and recurrent training of operators of the system has been established, which includes training in radiation safety, the efficient use of X-ray systems, and the identification of weapons and other dangerous articles;

[(4) Procedures have been established to ensure that each operator of the system will be provided with a personnel dosimeter (such as a film badge or thermo luminescent dosimeter), each dosimeter used will be evaluated at the end of each calendar month, and records of operator duty time and the results of dosimeter evaluations will be maintained by the certificate holder; and

[(5) The system has the capability of distinguishing an insulated 24-gauge, solid copper wire.

[(b) No certificate holder may use an X-ray system, unless within the preceding 6 calendar months a radiation survey has been conducted which shows that the system meets the applicable performance standards in 21 CFR 1020.40 or guidelines published by the Food and Drug Administration in the Federal Register of August 8, 1973 (38 F.R. 21442).

[(c) No certificate holder may use an X-ray system after the system is initially installed or after it has been moved from one location to

another, unless a radiation survey is conducted which shows that the system meets the applicable performance standards in 21 CFR 1020.40 or guidelines published by the Food and Drug Administration in the Federal Register of August 8, 1973 (38 F.R. 21442); except that a radiation survey is not required for an X-ray system that is moved to another location, if the certificate holder shows that the system is so designed that it can be moved without altering its performance.

[(d) No certificate holder may use an X-ray system that is not in full compliance with any defect notice or modification order issued for that system by the Food and Drug Administration, Department of Health, Education, and Welfare, unless that Administration has advised the FAA that the defect or failure to comply is

not such as to create a significant risk or injury, including genetic injury, to any person.

[(e) No certificate holder may use an X-ray system to inspect carry-on baggage or items, unless a sign is posted in a conspicuous place which notifies passengers that such items are being inspected by an X-ray system and advises them to remove all X-ray and scientific film from their carry-on baggage and items before inspection. If the X-ray system exposes any carry-on baggage or item to more than one milliroentgen during the inspection, the certificate holder shall post a sign which advises passengers to remove film of all kinds from their carry-on baggage and items before inspection. If requested by a passenger, his photographic equipment and film packages shall be physically inspected without exposure to an X-ray system.]

FAA REGIONAL OFFICE LOCATIONS AND GEOGRAPHICAL AREAS OF RESPONSIBILITY

1. NEW ENGLAND REGION.

a. *Regional Office.* Burlington, Massachusetts

b. *Geographical Areas of Responsibility.* States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut, and that portion of the Atlantic Ocean in which domestic offshore control is exercised by Air Traffic Control (ATC) facilities of the New England Region.

2. EASTERN REGION.

a. *Regional Office.* Jamaica, New York

b. *Geographical Areas of Responsibility.* States of New York, New Jersey, Delaware, Pennsylvania, Maryland, Virginia, West Virginia, the District of Columbia, and that portion of the Atlantic Ocean in which domestic offshore control is exercised by ATC facilities of the Eastern Region.

3. GREAT LAKES REGION.

a. *Regional Office.* Des Plaines, Illinois

b. *Geographical Areas of Responsibility.* States of Ohio, Indiana, Illinois, Michigan, Wisconsin, and Minnesota.

4. SOUTHERN REGION.

a. *Regional Office.* Atlanta, Georgia

b. *Geographical Areas of Responsibility.* States of Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, and Mississippi, the Caribbean area, South America, Central America (excluding Mexico), Panama, the Canal Zone, and that portion of the Gulf of Mexico and Atlantic Ocean in which domestic offshore control is exercised by ATC facilities of the Southern Region.

5. SOUTHWEST REGION.

a. *Regional Office.* Fort Worth, Texas

b. *Geographical Areas of Responsibility.* States of Arkansas, Louisiana, Texas, Oklahoma, New Mexico, and Mexico and that portion of the

Gulf of Mexico covering the Oceanic Control Area and the domestic offshore control area under control of facilities located in the Southwest Region.

6. CENTRAL REGION.

a. *Regional Office.* Kansas City, Missouri

b. *Geographical Areas of Responsibility.* States of Iowa, Missouri, Nebraska, and Kansas.

7. ROCKY MOUNTAIN REGION.

a. *Regional Office.* Denver, Colorado

b. *Geographical Areas of Responsibility.* States of North Dakota, South Dakota, Montana, Wyoming, Utah, and Colorado.

8. NORTHWEST REGION.

a. *Regional Office.* Seattle, Washington

b. *Geographical Areas of Responsibility.* States of Washington, Oregon, and Idaho, the oceanic area within the Oakland Flight Information region that is north of a line drawn from the intersection of the southern boundary of Oregon and the coastline to the northeast corner of the Honolulu Flight Information region and Canada west of 100° West longitude.

9. WESTERN REGION.

a. *Regional Office.* Los Angeles, California.

b. *Geographical Areas of Responsibility.* States of California, Nevada, and Arizona, the oceanic area within the Oakland Flight Information region, except for the area north of a line drawn from the intersection of the southern boundary of Oregon and the coastline to the northeast corner of the Honolulu Flight Information region.

10. ALASKAN REGION.

a. *Regional Office.* Anchorage, Alaska.

b. *Geographical Areas of Responsibility.* State of Alaska, the oceanic area within the Anchorage Flight Information region, including the Arctic

offshore area (control 1485) and the Arctic control traffic area flight identification region.

11. PACIFIC-ASIA REGION.

a. *Regional Office.* Honolulu, Hawaii

b. *Geographical Areas of Responsibility.* Pacific Ocean area west of the continental United States (excluding the Oakland and Anchorage Flight Information regions) and east of Bangladesh and India, including the State of Hawaii, Wake Island, Guam, the Trust Territory of the Pacific, the area of Micronesia, Japan, North Korea, South Korea, the People's Republic of China, Hong Kong, Nationalist China (Taiwan), Republic of the Philippines, North Vietnam, South Vietnam, Laos, Cambodia, Thailand,

Burma, Malaysia, Singapore, Indonesia, the area of Melanesia, Australia, Antarctica, New Zealand, and the dependent territories and independent nations of Polynesia including Tonga, Fiji, Tahiti, and Samoa.

12. EUROPE, AFRICA, AND MIDDLE EAST REGION.

a. *Regional Office.* Brussels, Belgium.

b. *Geographical Areas of Responsibility.* Europe, Africa, and Middle East, including the Soviet Union and all countries that are both south of the People's Republic of China and west of Burma, and that part of Canada which is east of 100° West longitude.

advised to submit the aircraft immediately for a security inspection and that an inspection of the aircraft is conducted before the next flight; or

(b) if the aircraft is in flight to a place in the United States when a bomb threat is received, the foreign air carrier assures that the pilot in command is immediately advised to take the emergency action he considers necessary under the circumstances and that a security inspection of the aircraft is conducted immediately after the next landing; and

(c) if information is received of a bomb threat or air piracy threat against an aircraft engaged in an operation specified in subparagraph (a) and (b) of this paragraph, the foreign air carrier assures that notification of the threat is given to the appropriate authorities of the state in whose territory the aircraft is located, or if the aircraft is in flight, the appropriate authorities of the state in whose territory the aircraft is to land.

(3) Part 129, Section 129.27 requires that no person while on board an aircraft being operated by a foreign air carrier in the United States may carry a deadly or dangerous weapon unless:

(a) they are officials or employees of the state of registry of the aircraft who are authorized by that country to carry arms; or

(b) they are crewmembers or others authorized by the foreign air carrier to carry arms.

(Note: The authority outlined above in paragraph 4a(3)(a) and (b) does not imply authorization to carry such weapon in violation of weapons control laws, statutes, regulations, and policies in effect within the local political subdivision wherein the airport being used by the air carrier is located.)

5. FOREIGN AIR CARRIER SECURITY PROGRAM CONTENT.

As indicated by the Preamble to the new Part 129 security rule, it is expected that the security programs for the individual foreign air carriers will be developed in conjunction with their respective governments. The following material

contains recommendations and information that will be useful as guidance in the development and implementation of those programs:

a. *Predeparture Passenger and Carry-on Baggage Screening Procedures.*

(1) The procedures, facilities and methods used for the screening of all passengers, and the examination of all carry-on baggage should be described. For example, one method of screening is the use of weapons detecting devices in lieu of physical search. The screening and examination facilities should be conducted by authorized and designated personnel who are aware that their function is to prevent weapons, incendiary or explosive devices, or dangerous articles from being brought aboard the aircraft. Carry-on baggage may be inspected using X-ray equipment.

(2) All detection and inspection equipment utilized should be continuously maintained in operationally effective condition. U.S. standards for X-ray baggage inspection devices are contained in FAR 121.538a (see Appendix 1), applicable to U.S. air carriers.

(3) Any cabinet X-ray system used in air transportation security in the United States must meet performance standards contained in Title 21—Food and Drugs, Part 1020.40, Cabinet X-ray Systems, published in Federal Register VOL 39, No. 70, April 10, 1974. (See Appendix 4.)

(4) Passenger screening weapons detection devices should be continuously maintained in operationally effective condition and be able to detect firearms and dangerous articles carried on or about the person being screened. Test procedures used by the FAA to insure effective operation are available to foreign air carriers upon request.

(5) *Law Enforcement Support.* As law enforcement support is an integral part of any passenger screening system, foreign air carrier security programs should provide for the presence of at least one armed law enforcement officer at the final passenger screening point prior to and throughout the screening process. At United States airports, foreign air carriers should request this law enforcement support from airport operators who provide this sup-

port, generally on a reimbursable basis, pursuant to FAR Part 107, Section 107.4.

(a) Passenger screening constitutes a major cornerstone in the defense against the potential hijacker. The presence of one or more law enforcement officers at the screening point strengthens this defense and enhances its deterrent value. Moreover, this law enforcement support provides an immediate and effective response capability to thwart, or otherwise deal with, hijack attempts as well as other criminal and terrorist acts. Also, in view of the potential for violent confrontation presented by the passenger screening process, the presence of law enforcement officers provides essential protection for passengers and others present in the area of screening points.

(b) In May 1974, the International Air Transport Association (IATA) Executive Committee adopted an "eight-point" security program which had been recommended by the IATA Security Advisory Committee. The first Standard is as follows: "A uniformed armed law enforcement officer should be assigned to screening areas as backup to, and separate from, the guards conducting the search." On April 2 and 3, 1975, the Security Advisory Committee reaffirmed the need for an armed law enforcement officer at the screening point. This minimum security standard was approved by the IATA Executive Committee in May 1975.

(c) As a result of the comments received from the many Contracting States and other interested International Organizations, the Council of International Civil Aviation Organization (ICAO), on March 22, 1974, adopted Annex 17 to the Convention on International Civil Aviation, "Safeguarding International Civil Aviation Against Acts of Unlawful Interference." This Annex became applicable on February 27, 1975. With respect to the Standard calling for the establishment of security programs and related supporting facilities, Annex 17 notes that law enforcement assistance is included among such supporting facilities.

b. *Methods to Prevent Unauthorized Access to Aircraft.* FAR Part 129, Section 129.25(b)

(2) requires that security programs used be designed to assure that carriers prevent or deter unauthorized access to aircraft. The security program, for maximum effectiveness, should identify and describe the methods, facilities and procedures used to prevent unauthorized access to all unattended and attended aircraft, indicating the personnel responsible and their responsibilities. The program should specify the measures required to control access to both unattended and attended aircraft.

(1) Unattended aircraft are vulnerable to the potential hijacker or saboteur. One method of preventing unauthorized access is to ensure that external doors are secured and that stairs and loading bridges are removed from the aircraft. Any stairs that must remain in the vicinity of aircraft should be immobilized to prevent their use as a means of access by unauthorized persons. Because of the difficulties involved in sealing the aircraft entirely due to the many open access areas (undercarriage wells, engine access panels, engine intakes, etc.), qualified personnel should inspect such areas after an aircraft has been left unattended.

(2) Equipping jet-way doors with self-locking devices and keeping the doors locked when not in use is one way of preventing unauthorized access to aircraft. Other measures include establishing positive control of all doors leading to the air side; instructing employees to challenge unidentified individuals; and prohibiting the movement of unauthorized vehicles.

(3) The following basic safeguards by air carrier/airport operators will assist in overall protection of unattended and attended aircraft:

- (a) Proper illumination
- (b) Guards
- (c) Frequent, irregularly timed patrols
- (d) Pedestrian and vehicular access controls
- (e) Observation of aircraft and ramp areas by assigned personnel
- (f) Natural and artificial barriers

(g) Electronic surveillance or intrusion detection devices

c. *Checked Baggage and Cargo Security Procedures.* FAR Part 129, Section 25(b)(3) and (4), requires that security programs used be designed to assure that baggage is accepted by a responsible agent or authorized representative of the foreign air carrier. The security program shall be designed to prevent cargo and checked baggage from being loaded aboard aircraft unless handled in accordance with the carrier's security procedures. The purpose of these measures is to prevent the introduction of explosives or incendiary devices aboard aircraft.

(1) Checked baggage security procedures should ensure that representatives or agents authorized to accept checked baggage are thorough familiar with the approved baggage security procedures. Access controls should be established to prevent tampering with, or adding to, baggage already checked. The risk of sabotage may be reduced by measures assuring that passengers and their baggage are on the same flight. Other security safeguards should provide for securing of baggage rooms and transfer areas as well as the protection and control of baggage checks. Personnel and vehicular identification, locked baggage carts, guards, security cages, surveillance equipment, and security lighting are some additional protective measures which should be considered in developing comprehensive checked baggage security programs.

(2) The following measures and procedures should be considered in formulating cargo security procedures to prevent the introduction of explosive, incendiary, or other sabotage devices in cargo. Some of these procedures may also contribute to carrier efforts to reduce cargo theft and pilferage losses.

(a) Under normal conditions shipments by well known, established and regular customers may be accepted without further detailed inspection. In the case of private individuals or occasional shipments, inspection requirements should be more stringent and include positive identification of the shipper and/or shipment inspection. The latter requirement may be particularly ap-

plicable to small parcel expedite shipment operations. The most stringent inspection procedures should be established for suspect shipments or for all unidentified shipments under high level threat conditions. The use of X-ray, barometric pressurization, and other explosive detection techniques, as well as delay of suspect cargo for at least 24 hours, should also be considered.

(b) Security measures should also be provided for cargo warehouses, ramp areas, and cargo at plane-side to prevent tampering with, or introduction of, unauthorized items into accepted cargo. Personnel identification systems, fencing, guard forces, security lighting, security cages, surveillance equipment, and anti-intrusion devices are other measures to be considered to assure the security of cargo.

d. *Emergency Security Procedures.* Security programs should also include contingency plans and procedures for emergency or high level threat conditions. Additional or alternate pre-departure screening and inspection procedures should be considered for application in the event of specific hijack or sabotage threats, screening equipment failure, or other emergencies. Other measures to be considered include checking identification of all passengers, physical examination of all carry-on baggage and passengers, and personal searches of all passengers, in addition to any electronic inspection.

6. BOMB THREAT SECURITY PROCEDURES.

Upon receipt of a bomb threat, considered by the carrier to be against a specific aircraft or flight, a pre-flight or post-flight security inspection shall be conducted, in accordance with FAR Part 129, Section 129.25(d). The FAA has recommended search procedures which can be obtained by interested air carriers. The FAA believes it essential to immediately notify the pilot in command when threats against specific aircraft are received.

7. NOTIFICATION OF FAA CONCERNING BOMB THREATS OR AIR PIRACY THREATS.

With regard to the requirements of FAR Part 129, Section 129.25(d) as it pertains to aircraft

in the United States or scheduled next to land in the United States, foreign air carriers should immediately report bomb and air piracy threats against specific aircraft to the most convenient FAA air traffic control or security facility. Reports should include, as appropriate, the following information as it becomes available:

Basic Information (Applicable to both air piracy and bomb threats)

- a. Name of air carrier.
- b. Flight number.
- c. Nature of incident.
- d. Type of aircraft.
- e. Point of origin.
- f. Point of last departure.
- g. Scheduled next stop.
- h. Scheduled final destination.
- i. Passenger screening details.
- j. Number of passengers and crew.

Air Piracy Threats

- k. Where hijacker(s) boarded.
- l. Type ticket used by the hijacker(s), where purchased, method of payment, (cash, check, etc.).
- m. Identification and/or description of hijacker(s).
- n. Description of weapons.
- o. Demands of hijacker(s).
- p. Measures used/considered to terminate hijacking and regain control of the aircraft.

Bomb Threats

- q. Exact text of bomb threat.
- r. Whether or not pilot in command has been notified of the bomb threat.
- s. Emergency action.

8. SECURITY PROGRAM INFORMATION REQUESTS.

In accordance with FAR Part 129, Section 129.25(c), the Administrator may request foreign air carriers to provide information with

respect to their security programs. The information may consist of a copy of the carrier's complete security program. As a minimum, the information furnished should include those elements and supplementary measures and activities adopted to implement the provisions of FAR 129, Section 129.25. The information should be provided in English, if possible, and submitted as soon as possible following the request. Any information furnished upon request of the FAA will not be provided to any individual or office outside the United States Federal Government without prior approval of the foreign air carrier concerned, unless otherwise required by law.

9. SECURITY PROGRAM IMPLEMENTATION.

The FAA will periodically meet and exchange technical data with foreign air carriers and observe implementation and effectiveness of carrier security procedures at stations that are included in the security program required by FAR Amendment 129.5.

10. ADMINISTRATION.

The primary focal point for the administration of foreign air carrier security programs and the requirements of Sections 129.25 and 129.27, including the compliance and enforcement thereof, is the Director, Civil Aviation Security Service, Federal Aviation Administration, 800 Independence Avenue, S.W., Washington, D.C. 20591. Additional guidance and support may be received from appropriate regional offices as shown in Appendix 2.

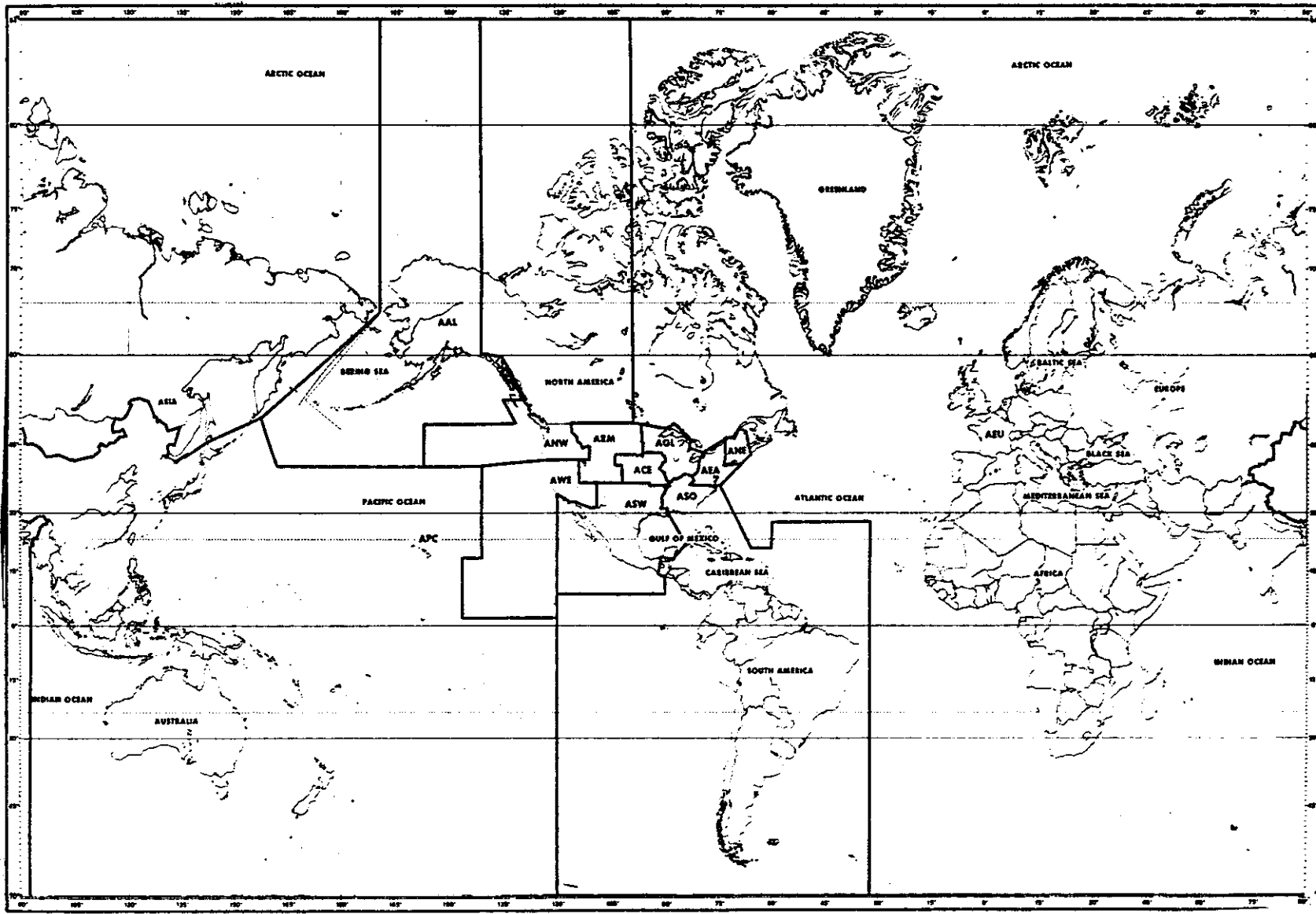
11. FAA ORGANIZATION.

The FAA regional geographical areas of responsibility as they pertain to FAR 129, Sections 129.25 and 129.27, are delineated in Appendix 2. Also enclosed is a map of the 48 contiguous states which depicts FAA regional boundaries within the U.S.

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Director, Civil Aviation Security Service

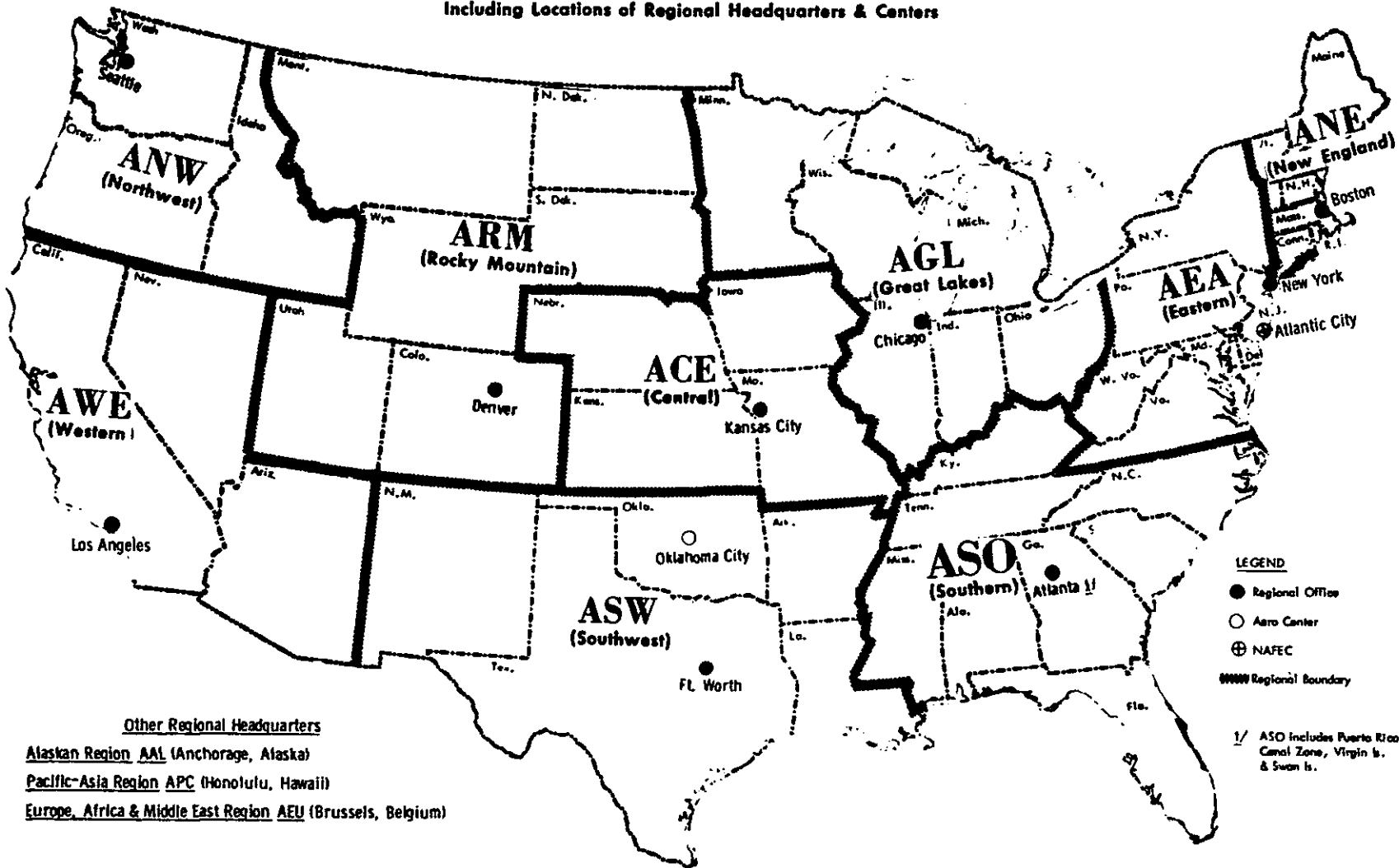
INTERNATIONAL JURISDICTIONS OF FAA REGIONS

9/25/75



FAA REGIONAL BOUNDARIES

Including Locations of Regional Headquarters & Centers



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the external surface. One comment questioned whether internal line voltage and/or service adjustments would be varied to produce maximum exposure or if just those adjustments used for normal operations would be varied.

The Commissioner advises that, for field compliance purposes only, the normal operating adjustments are to be varied to determine compliance with paragraph (c) (1) (ii). The effect of service adjustments will be evaluated in connection with approval of quality control and testing procedures.

5. Two comments were received concerning the exposure limit in paragraph (c) (1) (i) suggesting that it be lowered. A primary reason given for a limit lower than 0.5 mR in one hour was that it was well within the state-of-the-art of x-ray system manufacturers. One suggestion was for an exposure limit of 0.25 mR in one hour and another was for 0.1 mR in one hour.

The exposure limit of 0.5 mR in one hour was established so that under usual conditions of work load and occupancy the resulting personnel exposures will be well below limits for nonoccupationally exposed persons as recommended by the International Commission on Radiological Protection, the National Council on Radiation Protection and Measurements, the Federal Radiation Council, and most State governments. The limit is in agreement with that advised by the American National Standards Institute (ANSI Z54.1-1963) and is consistent with the state-of-the-art in manufacturing technology and field measurement techniques. Furthermore, the exposure limit of 0.5 mR in one hour, in practice, will result in systems designed to emit at a much lower level to account for production variations. However, since it is recognized that ionizing radiation bioeffects are cumulative, the need, technical feasibility, and practicality of lowering the exposure limit will be periodically reviewed by the Commissioner, and it will be lowered through amendment of the standard if sufficient basis is established therefor.

6. One comment stated that it appears to be an unnecessary design complication to require in paragraph (c) (4) (iii) that the functioning of every interlock necessitate use of the control required in paragraph (c) (6) (ii), and the functioning of the "disconnect" door interlock, required by paragraph (c) (4) (i), ought not to necessitate use of the control. The comment suggested that the second required door interlock could activate the control.

The provisions of the standard require that after interlock function use of the control would be necessary to resume x-ray production. This is necessary to preclude the use of interlocks as on-off mechanisms. This consideration applies to all required interlocks. If the second door interlock were to fail, the door could be used as an on-off mechanism if the "disconnect" door interlock were not required to activate the control specified in paragraph (c) (6) (ii).

7. One comment suggested that the States be notified when a manufacturer obtains a variance from the standard.

A notice of proposed rule making concerning variances from performance standards was published in the *FEDERAL REGISTER* of October 24, 1973 (38 FR 29340), which stated in the preamble that, where applicable, State radiation control authorities would be notified of applications for variances as well as actions taken.

8. Another comment stated that any required changes in baggage inspection systems as a result of Federal regulations would make the equipment ineffective in detecting contraband. In addition, the comment stated that the equipment currently in use by the respondent meets applicable State regulations, with personnel exposures far below recommended levels.

It has been demonstrated that X-ray baggage inspection systems can comply with the standard and, at the same time, meet the FAA criteria for detection of contraband. The provisions of the standard were designed to assure adequate radiation protection when using any system. The fact that one particular system results in low personnel exposures does not invalidate the need for a general radiation protection standard.

9. The suggestion was made that the early effective date for the standard, as it applies to baggage inspection systems, i.e., 15 days after the date of publication of the final regulation, would cause suspension of manufacture of such systems. It was suggested that at least 90 days be allowed before the standard becomes effective.

On or before November 12, 1973, manufacturers of baggage x-ray equipment were notified that failure to adhere to the radiation safety recommendations (guidelines), published in the *FEDERAL REGISTER* of August 8, 1973 (38 FR 21442), could be the basis for defect actions pursuant to 21 CFR Parts 1003 and 1004. The guidelines impose very similar provisions to those of the cabinet x-ray standard; thus, manufacturers have been aware of the radiation safeguards needed in their equipment for a considerable period of time. A meeting was held between representatives of the manufacturers and the Bureau of Radiological Health on October 24, 1973, to discuss these requirements. There was general agreement that the provisions could be met. A notice published in the *FEDERAL REGISTER* of January 16, 1974 (39 FR 2010), further informed all interested persons of the need to comply with the guidelines until such time as the standard becomes effective.

The Commissioner has determined that x-ray baggage systems manufactured prior to the early effective date for such systems as prescribed in § 1020.40(a), and which fail to comply with either (1) the guidelines as published in the *FEDERAL REGISTER* of August 8, 1973 (38 FR 21442), or (2) the provisions of § 1020.40, shall be considered defective pursuant to section 359(e) of the act and shall be subject to the provisions of § 1003.11.

10. An inquiry was made to the Bureau of Radiological Health as to whether the standard would apply to x-ray gauges, as used in industrial applications for thickness monitoring in production line operations.

The standard would apply to x-ray gauges which are electronic devices and which conform to the definition of "cabinet x-ray system" in § 1020(b)(3). Many x-ray gauges used for thickness monitoring in production line operations would not be of a type covered by the standard.

The possible environmental consequences of this regulatory performance standard have been carefully considered, pursuant to the provisions of § 6.1(b), and it has been determined that the action will have neither a marginal nor a significant impact upon the environment. Based upon this determination, it has been concluded that an environmental impact statement pursuant to sec. 102(2)(c) of the National Environmental Policy Act is not required. A copy of the environmental analysis report is available for public review in the Office of the Hearing Clerk, Rm. 6-86, 5600 Fishers Lane, Rockville, MD 20852.

Section 358(c) of the act provides that a standard shall become effective not sooner than one year after date of promulgation unless the Secretary finds, for good cause shown, that an earlier effective date is in the public interest. The Administrative Procedure Act (5 U.S.C. 553(d)) provides that a regulation shall become effective not less than 30 days after publication unless otherwise provided by the agency for good cause shown. The final regulation states that the cabinet x-ray standard shall become effective one year after publication, except that x-ray baggage inspection systems manufactured or assembled beginning 15 days after publication shall meet the requirements of the new standard. The Commissioner finds that a relatively short effective date for the x-ray baggage inspection system is necessary to assure protection of the public health, by reducing unnecessary human exposure to ionizing radiation. The Commissioner has concluded that 15 days will provide sufficient time for such manufacturers to meet the certification requirements of § 1010.2 for new systems being manufactured and assembled. The Commissioner also believes that the requirements of the public health do not permit any longer effective date.

Therefore, pursuant to the Public Health Service Act, as amended by the Radiation Control for Health and Safety Act of 1968 (sec. 358, 82 Stat. 1177-1179; 42 U.S.C. 263f), and under authority delegated to the Commissioner of Food and Drugs (21 CFR 2.120), 21 CFR Part 1020 is amended by adding the following new section:

§ 1020.40 Cabinet x-ray systems.

(a) *Applicability.* The provisions of this section are applicable to cabinet x-ray systems manufactured or assembled on or after April 10, 1975, except that

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Title 21—Food and Drugs
CHAPTER I—FOOD AND DRUG ADMINISTRATION, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
SUBCHAPTER J—RADIOLOGICAL HEALTH
PART 1020—PERFORMANCE STANDARDS FOR IONIZING RADIATION EMITTING PRODUCTS

Cabinet X-Ray Systems

In the **FEDERAL REGISTER** of October 10, 1973 (38 FR 28011), the Commissioner of Food and Drugs published a proposed performance standard for cabinet x-ray systems under Part 278—Regulations for the Administration and Enforcement of the Radiation Control for Health and Safety Act of 1968. Pursuant to recodification in the **FEDERAL REGISTER** of October 15, 1973 (38 FR 28623), these regulations are now under Subchapter J—Radiological Health.

The proposed standard would be applicable to all cabinet x-ray systems, including x-ray systems used for inspection of carry-on baggage at airline terminals and similar facilities, manufactured or assembled on or after a date that is one year following the date of **FEDERAL REGISTER** publication of the final regulation. The provisions of this section would not be applicable to systems which are designed exclusively for microscopic examination of material, e.g., x-ray diffraction, spectroscopic, and electron microscope equipment, or to systems for intentional exposure of humans to x-rays.

Interested persons were given until December 10, 1973, to file written comments with the Hearing Clerk regarding this proposal.

On January 16, 1974, the Commissioner of Food and Drugs published in the **FEDERAL REGISTER** (39 FR 2010) revisions to the proposed standard. One revision provided an earlier effective date, 15 days after date of publication of the final regulation in the **FEDERAL REGISTER**,

for the cabinet x-ray standard as applied to x-ray systems designed for the inspection of carry-on baggage. The other revision was to amend the standard as it applies to x-ray systems designed for inspection of carry-on baggage to require that such devices have a means to insure operator presence at the control area in a position which permits surveillance of the ports and doors during generation of x radiation. The bases for these revisions were discussed in the preamble to these amendments.

Interested persons were given until February 19, 1974, to file written comments with the Hearing Clerk.

Fifteen letters commenting on the proposed standard were received, five of which generally supported all or part of the proposal. Seven letters indicated no general approval or disapproval, while the remaining three letters expressed significant opposition to the proposal in its published form.

1. Several comments related to the interpretation of specified provisions, or indicated misunderstanding of the intent of the proposed standard.

In response to these comments, the final regulation has been revised to reflect more clearly the intent of the standard without substantially altering its requirements.

2. One area of concern identified in the comments was that pulsed x-ray systems (pulse duration much less than one-half second) would not be able to comply with several of the requirements in the standard.

Since such systems pose no special radiation risks in normal use, the affected provisions have been revised to clarify how they would apply to pulsed systems. The affected paragraph is (c) (6) (iii) and (iv), (7) (iv), and (10).

3. A comment stated that the use of "disconnect" interlocks required by paragraph (c) (4) (i) is unwise since the switching of high-voltage lines is a poor engineering practice likely to result in interlock breakdown and resultant electrical hazard.

The use of "disconnect" interlocks as prescribed in the proposed paragraph (c) (4) (i) is considered good engineering practice when used as a back-up device, and is common to other types of electrical equipment. In response to the comment, however, paragraph (c) (4) (i) has been clarified to provide that one but not both of the required interlocks provide a disconnection of the energy supply circuit to the high voltage generator. Good engineering design would insure that the "disconnect" interlock does not switch the energy supply circuit to the high voltage generator except in the case of failure of the remainder of the safety circuits and if the operator fails to turn off the x-ray system prior to opening the door.

4. Paragraph (c) (1) (ii) requires that compliance with the exposure limit of paragraph (c) (1) (i) be measured with the system operated at conditions which result in maximum x-ray exposure at

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the provisions as applied to x-ray systems designed primarily for the inspection of carry-on baggage are applicable to such systems manufactured or assembled on or after April 25, 1974. The provisions of this section are not applicable to systems which are designed exclusively for microscopic examination of material, e.g., x-ray diffraction, spectroscopic, and electron microscope equipment or to systems for intentional exposure of humans to x-rays.

(b) *Definitions.* As used in this section the following definitions apply:

(1) "Access panel" means any barrier or panel which is designed to be removed or opened for maintenance or service purposes, requires tools to open, and permits access to the interior of the cabinet.

(2) "Aperture" means any opening in the outside surface of the cabinet, other than a port, which remains open during generation of x radiation.

(3) "Cabinet x-ray system" means an x-ray system with the x-ray tube installed in an enclosure (hereinafter termed "cabinet") which, independently of existing architectural structures except the floor on which it may be placed, is intended to contain at least that portion of a material being irradiated, provide radiation attenuation, and exclude personnel from its interior during generation of x radiation. Included are all x-ray systems designed primarily for the inspection of carry-on baggage at airline, railroad, and bus terminals, and in similar facilities. An x-ray tube used within a shielded part of a building, or x-ray equipment which may temporarily or occasionally incorporate portable shielding is not considered a cabinet x-ray system.

(4) "Door" means any barrier which is designed to be movable or opened for routine operation purposes, does not generally require tools to open, and permits access to the interior of the cabinet. For the purposes of paragraph (c) (4) (i) of this section, inflexible hardware rigidly affixed to the door shall be considered part of the door.

(5) "Exposure" means the quotient of dQ by dm where dQ is the absolute value of the total charge of the ions of one sign produced in air when all the electrons (negatrons and positrons) liberated by photons in a volume element of air having mass dm are completely stopped in air.

(6) "External surface" means the outside surface of the cabinet x-ray system, including the high-voltage generator, doors, access panels, latches, control knobs, and other permanently mounted hardware and including the plane across any aperture or port.

(7) "Floor" means the underside external surface of the cabinet.

(8) "Ground fault" means an accidental electrical grounding of an electrical conductor.

(9) "Port" means any opening in the outside surface of the cabinet which is designed to remain open, during generation of x rays, for the purpose of con-

veying material to be irradiated into and out of the cabinet, or for partial insertion for irradiation of an object whose dimensions do not permit complete insertion into the cabinet.

(10) "Primary beam" means the x radiation emitted directly from the target and passing through the window of the x-ray tube.

(11) "Safety interlock" means a device which is intended to prevent the generation of x radiation when access by any part of the human body to the interior of the cabinet x-ray system through a door or access panel is possible.

(12) "X-ray system" means an assemblage of components for the controlled generation of x rays.

(13) "X-ray tube" means any electron tube which is designed for the conversion of electrical energy into x-ray energy.

(c) *Requirements.*—(1) *Emission limit.* (i) Radiation emitted from the cabinet x-ray system shall not exceed an exposure of 0.5 milliroentgen in one hour at any point five centimeters outside the external surface.

(ii) Compliance with the exposure limit in paragraph (c) (1) (i) of this section shall be determined by measurements averaged over a cross-sectional area of ten square centimeters with no linear dimension greater than 5 centimeters, with the cabinet x-ray system operated at those combinations of x-ray tube potential, current, beam orientation, and conditions of scatter radiation which produce the maximum x-ray exposure at the external surface, and with the door(s) and access panel(s) fully closed as well as fixed at any other position(s) which will allow the generation of x radiation.

(2) *Floors.* A cabinet x-ray system shall have a permanent floor. Any support surface to which a cabinet x-ray system is permanently affixed may be deemed the floor of the system.

(3) *Ports and apertures.* (i) The insertion of any part of the human body through any port into the primary beam shall not be possible.

(ii) The insertion of any part of the human body through any aperture shall not be possible.

(4) *Safety interlocks.* (i) Each door of a cabinet x-ray system shall have a minimum of two safety interlocks. One, but not both of the required interlocks shall be such that door opening results in physical disconnection of the energy supply circuit to the high-voltage generator, and such disconnection shall not be dependent upon any moving part other than the door.

(ii) Each access panel shall have at least one safety interlock.

(iii) Following interruption of x-ray generation by the functioning of any safety interlock, use of a control provided in accordance with paragraph (c) (6) (ii) of this section shall be necessary for resumption of x-ray generation.

(iv) Failure of any single component of the cabinet x-ray system shall not

cause failure of more than one required safety interlock.

(5) *Ground fault.* A ground fault shall not result in the generation of x-rays.

(6) *Controls and indicators for all cabinet x-ray systems.* For all systems to which this section is applicable there shall be provided:

(i) A key-actuated control to insure that x-ray generation is not possible with the key removed.

(ii) A control or controls to initiate and terminate the generation of x rays other than by functioning of a safety interlock or the main power control.

(iii) Two independent means which indicate when and only when x rays are being generated, unless the x-ray generation period is less than one-half second, in which case the indicators shall be activated for one-half second, and which are discernible from any point at which initiation of x-ray generation is possible. Failure of a single component of the cabinet x-ray system shall not cause failure of both indicators to perform their intended function. One, but not both, of the indicators required by this subdivision may be a milliammeter labeled to indicate x-ray tube current. All other indicators shall be legibly labeled "X RAY ON".

(iv) Additional means other than milliammeters which indicate when and only when x rays are being generated, unless the x-ray generation period is less than one-half second in which case the indicators shall be activated for one-half second, as needed to insure that at least one indicator is visible from each door, access panel, and port, and is legibly labeled "X RAY ON".

(7) *Additional controls and indicators for cabinet x-ray systems designed to admit humans.* For cabinet x-ray systems designed to admit humans there shall also be provided:

(i) A control within the cabinet for preventing and terminating x-ray generation, which cannot be reset, overridden or bypassed from the outside of the cabinet.

(ii) No means by which x-ray generation can be initiated from within the cabinet.

(iii) Audible and visible warning signals within the cabinet which are actuated for at least 10 seconds immediately prior to the first initiation of x-ray generation after closing any door designed to admit humans. Failure of any single component of the cabinet x-ray system shall not cause failure of both the audible and visible warning signals.

(iv) A visible warning signal within the cabinet which remains actuated when and only when x rays are being generated, unless the x-ray generation period is less than one-half second in which case the indicators shall be activated for one-half second.

(v) Signs indicating the meaning of the warning signals provided pursuant to paragraphs (c) (7) (iii) and (iv) of this section and containing instructions

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for the use of the control provided pursuant to paragraph (c) (7) (i) of this section. These signs shall be legible, accessible to view, and illuminated when the main power control is in the "on" position.

(8) *Warning labels.* (i) There shall be permanently affixed or inscribed on the cabinet x-ray system at the location of any controls which can be used to initiate x-ray generation, a clearly legible and visible label bearing the statement:

CAUTION: X RAYS PRODUCED WHEN ENERGIZED

(ii) There shall be permanently affixed or inscribed on the cabinet x-ray system adjacent to each port a clearly legible and visible label bearing the statement:

CAUTION: DO NOT INSERT ANY PART OF THE BODY WHEN SYSTEM IS ENERGIZED—X-RAY HAZARD

(9) *Instructions.* (i) Manufacturers of cabinet x-ray systems shall provide for purchasers, and to others upon request at a cost not to exceed the cost of preparation and distribution, manuals and instructions which shall include at least the following technical and safety information: Potential, current, and duty cycle ratings of the x-ray generation equipment; adequate instructions concerning any radiological safety procedures and precautions which may be necessary because of unique features of the system; and a schedule of maintenance necessary to keep the system in compliance with this section.

(ii) Manufacturers of cabinet x-ray systems which are intended to be assembled or installed by the purchaser shall provide instructions for assembly, installation, adjustment and testing of the cabinet x-ray system adequate to assure that the system is in compliance with applicable provisions of this section when assembled, installed, adjusted and tested as directed.

(10) *Additional requirements for x-ray baggage inspection systems.* X-ray systems designed primarily for the inspection of carry-on baggage at airline, railroad, and bus terminals, and at similar facilities, shall be provided with means, pursuant to subdivisions (i) and (ii) of this subparagraph, to insure operator presence at the control area in a position which permits surveillance of the ports and doors during generation of x radiation.

(i) During an exposure or preset succession of exposures of one-half second or greater duration, the means provided shall enable the operator to terminate the exposure or preset succession of exposures at any time.

(ii) During an exposure or preset succession of exposures of less than one-half second duration, the means provided may allow completion of the exposure in progress but shall enable the operator to prevent additional exposures.

(d) *Modification of a certified system.* The modification of a cabinet x-ray system, previously certified pursuant to § 1010.2 by any person engaged in the business of manufacturing, assembling or modifying cabinet x-ray systems shall be construed as manufacturing under the act if the modification affects any aspect of the system's performance for which this section has an applicable requirement. The manufacturer who performs such modification shall recertify and re-identify the system in accordance with the provisions of §§ 1010.2 and 1010.3 of this chapter.

Effective date. This order shall become effective on April 10, 1975 except that the provisions as applied to x-ray systems designed primarily for the inspection of carry-on baggage shall become effective on April 25, 1974.

(Sec. 358, 82 Stat. 1177-1179; 42 U.S.C. 263f.)

Dated: April 6, 1974.

SHERWIN GARDNER,
Deputy Commissioner of
Food and Drugs.

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