Chapter 5. Specialized Test Procedures

5.1. Scope

The following procedures are used in either verifying the net quantity of contents of retail multiunit packages with individual inner packages of the same commodity that have identically labeled quantities or in verifying retail variety packages with individual inner packages that may differ in labeled weight, measure or volume.

1. The following procedures are used in either verifying the net quantity of contents of retail multiunit packages with individual inner packages of the same commodity that have identically labeled quantities or in verifying retail variety packages with individual inner packages that may differ in labeled weight, measure or volume.

   - Use Section 5.2. "Individual Package Quantity" if a total net quantity of contents is not declared on the label of a multiunit or variety package of food for human consumption or meat or meat products from a USDA official establishment (see explanation in Section 5.2. for specific exemptions to requirement for a total net quantity statement.)

   - Use Section 5.3. "Total Quantity" if a total net quantity of contents is declared on the package.

   Note: If the packages are labeled with additional quantity statements (i.e., dry volume, area, length, width, or thickness), added steps or, when proper, additional Total Quantity MAVs may be required in testing the accuracy of additional quantity statements.

5.2. Individual Package Quantity

This procedure is used only for verifying the total quantity statement of open or transparent-wrapped multiunit packages of foods for human consumption or meat or meat products under the authority of FDA or USDA, respectively. Under USDA-FSIS regulations **(9 CFR 317.2 [h][12])** and FDA regulations **(21 CFR 101.7 Chapter I [s])**, such open multiunit packages that do not obscure the number of individual inner packages or the labeling of each individual inner package (compliant with all other location, type size, and applicable requirements) are not required to bear a total net quantity statement on the outside of the package (see Figure 5-1. Open or Transparent Multiunit Package with Fully Visible Individual Quantity Declarations).

Cereal Net Wt. 100 g (3.5 oz)	Cereal Net Wt. 100 g (3.5 oz)	Cereal Net Wt. 100 g (3.5 oz)	Cereal Net Wt. 100 g (3.5 oz)	Cereal Net Wt. 100 g (3.5 oz)

Figure 5-1. Open or Transparent Multiunit Package with Fully Visible Individual Quantity Declarations

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5.2.1. Test Procedure for Multiunit Packages Exempt from Total Quantity Statement (see Section 5.2.)

1. Follow Section 2.3.1. "Define the Inspection Lot." The inspection lot is defined as the total number of individual inner packages in the multiunit packages (e.g., 120 packages × 12 individual inner packages = Inspection Lot size is 1440). Select "Category A" or "Category B" sampling plan in the inspection (depending on location of test) (see Appendix A. "Tables") and select a random sample (see Section 2.3.4. "Random Sample Selection").

2. Determine an average tare weight according to Section 2.3.5. "Procedures for Determining Tare and Average Tare Weight." Follow Section 2.3.6. "Determine Nominal Gross Weight and Package Errors" to determine package errors.

3. Determine the net quantity of each individual inner package in the sample.

   - If a count declaration is declared on the multiunit packages, verify using Section 4.2. "Packages Labeled by Count" and apply the appropriate MAV using Appendix A. Table 2- 7. MAV for Packages Labeled by Count.

4. If minus package errors are found in the sample, the value of the MAV to be applied is determined by matching the labeled net quantity for the individual inner packages to the applicable quantity range in the appropriate MAV table using Appendix A "Tables".

   Compare the MAV for the labeled quantity to each minus package error in the individual inner packages to determine if any are unreasonable using Section 2.3.7.1. "MAV Requirement". If the number of unreasonable errors exceeds the amount allowed for the sample size (see Appendix A. Tables 2-1. "Sampling Plans for Category A" or Table 2-2. "Sampling Plans for Category B." Column 4), the sample fails. If the sample passes, go to Step 5.

5. Apply Section 2.3.7.2. "Average Requirement." Follow the procedures in Section 2.3.7. "Evaluation for Compliance."

5.3. Total Quantity

Use this procedure to test multiunit packages labeled with a total count and/or total net quantity declaration. This procedure can be used to verify the total net quantity declared on open or closed multiunit packages or multiunit packages with transparent or opaque packaging. If the quantities of the individual inner packages vary (which is allowed in Variety Packages) or, if the quantity of the individual inner packages is not declared, see Section 5.4. "Exceptions".

Before determining the MAV and proceeding with tests of the quantity of contents in any multiunit package, calculate the sum of the labeled quantity statements of all individual inner packages and verify that the labeled Total Quantity Statement reflects the accurate sum. If an error exists between the sum of the labeled quantity statements of individual inner packages and the Total Quantity Statement, the package is not in compliance and shall be deemed in violation of labeling requirements of NIST Handbook 130, Uniform Packaging and Labeling Regulation, requiring an accurate summing and statement of total quantity. Do not test for net quantity determination.

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5.3.1. Test Procedure for Multiunit Packages

1. Follow Section 2.3.1. "Define the Inspection Lot" to define the inspection lot (number of multiunit packages). Use the inspection lot size and select a "Category A" or "Category B" sampling plan (see Appendix A. "Tables") in the inspection plan and select a random sample. (see Section 2.3.2. "Select Sampling Plans" and Section 2.3.4. "Random Sample Selection").

2. For packages labeled by weight, determine the tare weight and nominal gross weight. Follow Section 2.3.5. "Procedures for Determining Tare" through Section 2.3.6. "Determine Nominal Gross Weight and Package Error" to determine package errors in the quantity of the individual inner packages as compared to the total package quantity declaration.

3. Determine the net quantity of each multiunit package and calculate the Total Quantity Package Error for each multiunit package.

   Total Quantity Package Error = Gross Weight – Nominal Gross Weight.

   If applicable, verify the count declaration of the individual inner packages. To determine the MAV for count, use Appendix A. Table 2-7. "MAV for Packages Labeled by Count."

4. If minus Total Quantity package errors are found in the sample, use the MAV for the individual inner package labeled quantity. (see Section 1.2.4.1. "Total Quantity MAV for Multiunit and Variety Packages" and the appropriate MAVs in Appendix A "Tables"). Calculate the Total Quantity MAV to be applied to the total quantity of contents declaration as follows:

   Total Quantity MAV = Number of Individual Inner Packages × MAV for Individual Inner Package Quantity

Note: A Total Quantity MAV is not required when the MAV to be applied is based on a percent of a labeled quantity of a multiunit or variety package.

5. The Total Quantity MAV is compared to each minus Total Quantity Package Error to determine if any errors are unreasonable (See Section 2.3.7.1. "MAV Requirement").

   - If the number of unreasonable errors exceeds the number allowed for the sample size the lot fails. (See Section 2.3.1. "Define the Inspection Lot" and "Appendix A." Tables 2-1 or 2-2, Column 4).

5.4. Exceptions for Multiunit Packages

5.4.1. Multiunit Packages with Only a Total Quantity Declaration

NIST Handbook 130, Uniform Packaging and Labeling Regulation (UPLR), Section 10.4. "Multiunit Packages" states that unlabeled individual packages not intended for individual retail sale are only required to declare a total quantity declaration (see Figure 5-2. Multiunit Package [three packages] with only a Total Quantity Declaration). While not required, UPLR, Section 10.4. "Multiunit Packages" does allow for multiunit packages to include an optional statement for the count of the individual inner packages despite their not being fully labeled or intended for individual retail sale.

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Floor Cleaner	Floor Cleaner NET WEIGHT 15 kg (33 lb)	Floor Cleaner

Figure 5-2. Multiunit Package (three packages) with only a Total Quantity Declaration

5.4.1.1. MAV Application

When a multiunit package label does not include a quantity statement for each individual inner package (e.g., only a total quantity appears) a Total Quantity MAV cannot be applied because the quantities in the individual inner packages are unknown. In this case, the MAV value for the total quantity declaration as listed in the MAV tables (See Appendix A. Tables) is compared to the Total Quantity Package Error to determine if any package errors are unreasonable (see Section 2.3.7.1. "MAV Requirement").

5.4.2. Variety Packages: Non-Uniform Quantity Declarations

UPLR, Section 10.6. "Variety Packages" states that a variety package is required to have total quantity declaration. The commodities may be generically similar; however, they can differ in weight, measure, volume, or style variation (e.g., color, flavor, scent, etc.). When the labeled weight, measure, or count varies, the value of the applicable MAV can also vary.

When variety packages are tested, the procedure used to calculate a Total Quantity MAV requires the summing of the MAV values over the number of inner packages of all types. (An example is shown in Figure 5-3. Variety Package – Four Similar but Different Products with Varying Net Weights).

30 Candy Bar – Variety Pack Total Net Weight 1.33 kg (2.9 lb)	
10 – 55 g (1.9 oz) Peanut Butter Cups	6 – 30 g (1.1 oz) Dark Chocolate Bars
6 – 46 g (1.6 oz) Milk Chocolate Bars with Almonds	8 – 41 g (1.5 oz) Milk Chocolate Bars

Figure 5-3. Variety Package – Four Similar but Different Products with Varying Net Weights

5.5. Test Procedure for Variety Packages Containing Individual Packages with Varying Net Weights

Before determining the MAV and proceeding with tests of the quantity of contents in any variety package, calculate the sum of the labeled quantity statements of all individual inner packages and verify that the labeled Total Quantity Statement reflects the accurate sum. If an error exists between the sum of the labeled quantity statements of all individual inner packages and the Total Quantity Statement, the package is not in compliance and shall be deemed in violation of labeling requirements in the Uniform Packaging and Labeling Regulations in NIST Handbook 130, requiring an accurate summing and statement of total quantity. Do not test for net quantity determination.

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1. When a variety package with individual inner packages with varying net weights is tested, the average tare weight (e.g., packaging from the individual inner packages and the outer package combined) is determined and a nominal gross weight is used to determine the error in the total quantity declaration.

   Note: Example is based on Weight (see Figure 5-3. Variety Package – Four Similar but Different Products with Varying Net Weights)

   Nominal gross weight = average tare weight + labeled weight

   Package error = gross weight – nominal gross weight

   MAVs used in calculating the Total Quantity Package MAV are based on the respective labeled quantities of each product type and are calculated for each product type within the variety package. The calculated MAVs for each of the product types are summed to obtain the Total Quantity MAV (See example shown in Table 1. Steps in Calculating a MAV for a Variety Package).

5.6. MAV Application

A Total Quantity MAV must be applied because the labeled quantities and MAVs of the individual inner packages vary. For example, based on the quantity of the total net weight (as shown in Figure 5-3. Variety Package- Four Similar but Different Products with Varying Net Weights) the MAV for 1.33 kg (2.9 lb) is 42.6 g (0.094 lb) but the "Total Quantity MAV" to be applied is 122.4 g (4.261 oz) (0.27 lb) (See example shown in Table 5-1. Steps in Calculating a MAV for a Variety Package).

Table 5-1. Steps in Calculating a MAV for a Variety Package (Based on Figure 5-3. Variety Package – Four Similar but Different Products with Varying Net Weights)

Product	Number of Inner Packages	Labeled Net Weight (each individual inner package)	MAV for each Individual Inner Package Based on the Labeled Net Quantity (see MAV Table 2-5)	Total MAV
Peanut Butter Cups	10	55 g (1.94 oz)	5.4 g (0.1875 oz)	10 × 5.4 g = 54 g (10 × 0.1875 oz = 1.875 oz)
Dark Chocolate Bars	6	30 g (1.06 oz)	10 % of labeled quantity	6 × (0.1 × 30 g) = 18 g 6 × (0.1 × 1.06 oz) = 0.636 oz
Milk Chocolate Bars	8	41 g (1.45 oz)	3.6 g (0.125 oz)	8 × 3.6 g = 28.8 g (8 × 0.12 oz = 1 oz)
Milk Chocolate Bars with Almonds	6	46 g (1.62 oz)	3.6 g (0.125 oz)	6 × 3.6 g = 21.6 g (6 × 0.125 oz = 0.75 oz)
			Total Quantity MAV	122.4 g (4.261 oz) (0.27 lb)

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