

Tagged-Item Performance Protocol (TIPP)

Tagged-Item Grading: Test Configurations

R1.0 — DEC 18 2014



THE GLOBAL LANGUAGE
OF BUSINESS

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1 DOCUMENT INFORMATION

1.1 DOCUMENT SUMMARY

DOCUMENT ITEM	CURRENT VALUE
DOCUMENT TITLE	Tagged-Item Performance Protocol (TIPP) Tagged-Item Grading: Test Configuration
DATE LAST MODIFIED	9/16/2014
CURRENT DOCUMENT ISSUE	R1.0 Dec 18 2014
STATUS	Final
DOCUMENT DESCRIPTION	Provides the placement for tagged-item when the item is measured using the Tagged-Item Test Methodology

1.2 TIPP DOCUMENT SERIES

This document is part of a series of documents laying out the tagged-item grading system for specifying tagged-item performance between retailers and suppliers. The series include the following four documents:

- The document entitled [*TIPP Tagged-Item Grading: Overview*](#) provides an overview of the tagged-item grading guideline.
- The document entitled [*TIPP Tagged-Item Grading: Grade Definitions*](#) defines the grade specifications.
- The document entitled [*TIPP Tagged-Item Grading: Testing Methodology*](#) presents the test procedure and measurement methods to qualify or establish the grade for a tagged item.
- The document entitled [*TIPP Tagged-Item Grading Testing Configurations*](#) defines the orientation for various types of tagged items (which is critical for repeatable testing using the TIPP procedure). (*This is the current document.*)

1.3 SCOPE

This document specifies the orientation and placement of tagged items when the tagged item is measured to qualify or establish the grade. It is critical for repeatable testing that the tagged items are oriented and positioned the same way when they are measured. This document is an evolving catalogue of test configurations that will accommodate tagged item orientations for future/new or existing product categories.

NOTE: As with all GS1 Standards and solutions, the Tagged-Item Grading System is voluntary, not mandatory. It should be noted that use of the words “must” and “require” throughout this document relate exclusively to technical recommendations for the proper application of the testing protocol to support the integrity of your application.

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2 INTRODUCTION

A tagged item is a retail sales item that contains an RFID¹ tag. The Tagged-Item Performance Protocol (TIPP) Workgroup developed a tagged-item grading system to facilitate the specification of tagged-item performance between retailers and suppliers. Tagged-item grades were developed to specify the RFID performance of a tagged item. The tagged-item test procedure defines a method and criteria for establishing that a tagged item meets a specified grade level. To support test quality, testing configurations were specified in a product catalog that defines the orientation and layout of common retail items.

3 DEFINITION OF VARIABLES

3.1 TEST VARIABLES FROM THE TAGGED-ITEM TEST METHODOLOGY

The orientation and placement of the tagged item is defined relative to the test variables specified in the [TIPP Tagged-Item Grading: Testing Methodology](#). The two test variables are Measurement Antenna and Test Platform Position.

3.2 TAGGED-ITEM VARIABLES

There are three variables identified on the tagged item to define the orientation of the item for testing. The three variables are the front of the item, the top of the item, and the location of the tag as shown in Figure 1. The location of the tag on the tagged item is where the RFID tag is attached to the item.

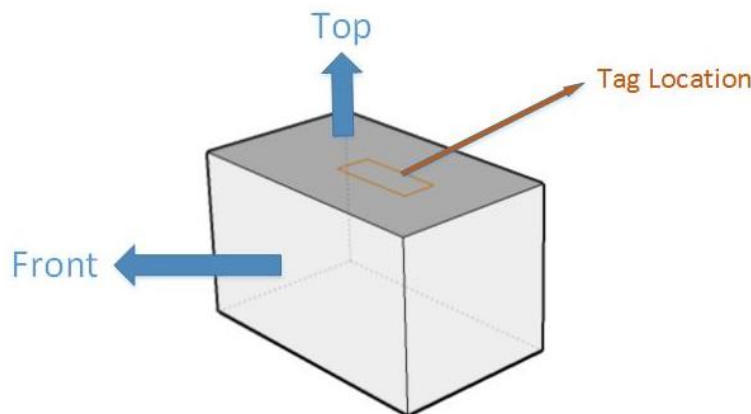


Figure 1. Test Variables from the Tagged-Item Test Methodology

General test orientation of a tagged item is defined in Section 4. For cases where tags are not rigidly fixed to the item (like hangtags), the default resting place of the tag during testing is defined in Section 4.1. For cases with stacking, stacked orientation is defined in Section 4.2. The front and the top variables for different categories of merchandise are defined in Section 5.

¹ RFID = Radio Frequency Identification

4 ORIENTATION AND PLACEMENT OF THE TAGGED-ITEM

During measurements, the tagged item is oriented and placed in such a way that the front of the tagged item faces Antenna 1 when the test platform is at 0 degree position. The top of the item faces Antenna 4. The orientation and placement of the tagged item when the platform is at the 0 degree position is shown in Figure 2 below.

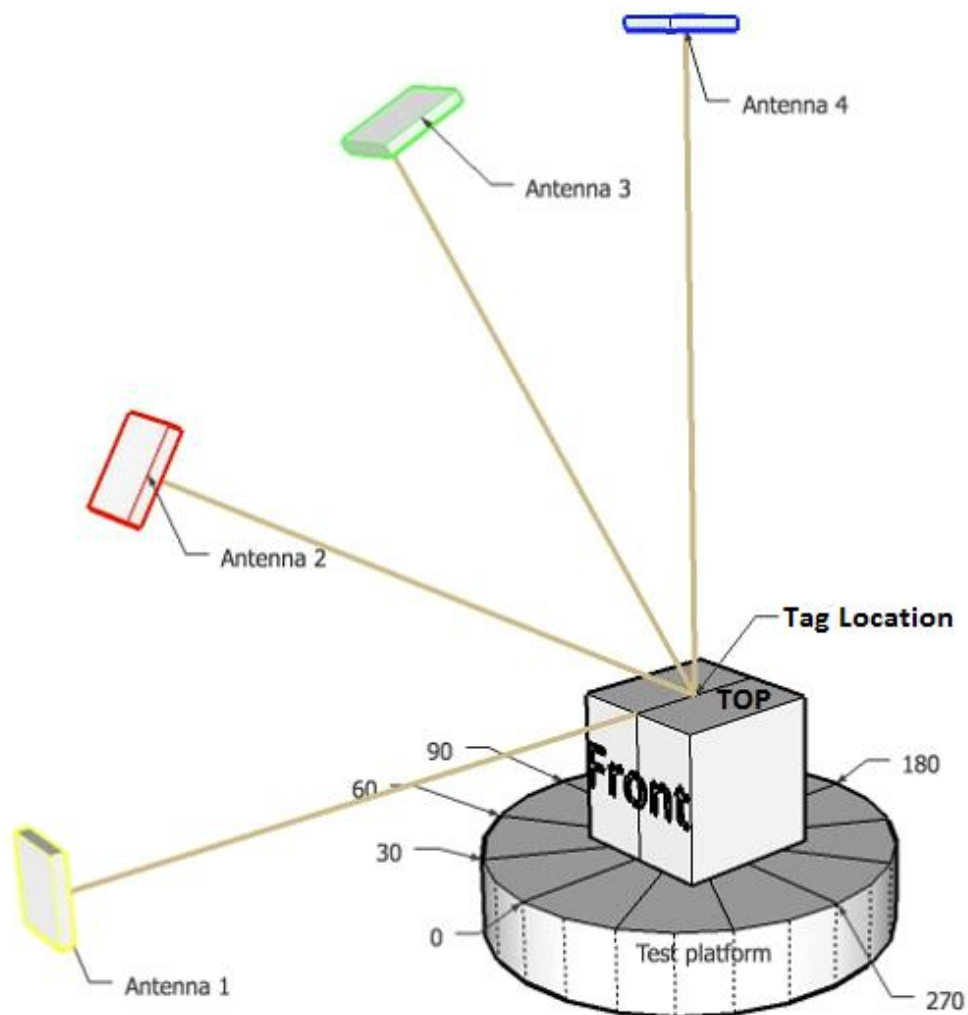


Figure 2. Orientation of the Tagged-Item

The top of the tagged item should face Antenna 4 in all of the test platform positions as shown in Figure 2.

For relatively large items and/or items where the tag placement is significantly offset from the center (e.g., dresses or overalls, with the tag positioned almost towards the bottom), special care is needed to ensure the validity of the test while carrying out the measurements in practice. Large items must be wholly placed on top of the test platform whenever possible. Any adjustments made must not affect the RF performance of the tagged item, as these would invalidate the test results.

4.1 TAG ORIENTATION

The tag on the item **MUST** be positioned at the incident point of all four antennas as shown in Figure 4. In Figure 4, this is shown on the top of the item, but the incident point **MUST** be the tag location regardless of the mounting of the tag on or in the item. This incident point is also the center of rotation of the test platform.

The following additional rules apply for tag orientation:

- If tag is fixed to the item, there are no additional orientation requirements.
- If the tag is loose (e.g., a hangtag) and can vary freely in position with respect to the item when oriented according to Section 5, the tag should be placed either parallel or perpendicular to Antenna 1, and parallel to the turntable and Antenna 4.
 - The parallel or perpendicular position with respect to Antenna 1 should be determined by whichever orientation leads to the higher sensitivity at Antenna 1 in the zero degree position.
- If the tag is partially affixed to the item and has limited motion, the tag should be placed in the most natural position relative to item when oriented according to Section 5.
 - Where ambiguity exists, the orientation should be determined by whichever orientation leads to the higher sensitivity at Antenna 1 in the zero degree position.
- For certain items, the product catalogue may offer more explicit requirements for the loose tag orientation during testing.

4.2 STACKING

Some grades within the [*TIPP Tagged-Item Grading: Grade Definitions*](#) require item stacking for testing. When items are stacked for testing, items are stacked top to bottom with vertical alignment between the stacked items.

Unless otherwise noted in Section 0 of this document, stacked M-grade testing for a tagged item requires only the 2-stack performance thresholds; no 11-stack performance testing is required. Items where 11-stack testing is required are specified below.

5 TAGGED-ITEM POSITION BY CATEGORY OF MERCHANDISE

5.1 SHORTS AND SKIRTS

This category includes items such as shorts, swim trunks, bike shorts, boxer shorts, denim skirts, twill skirts, woven skirts, fleece skirts, and knit skirts with either a constructed, elastic, or drawstring waistband.

When performing M-grade testing, items in this category require 2-stack and 11-stack testing.

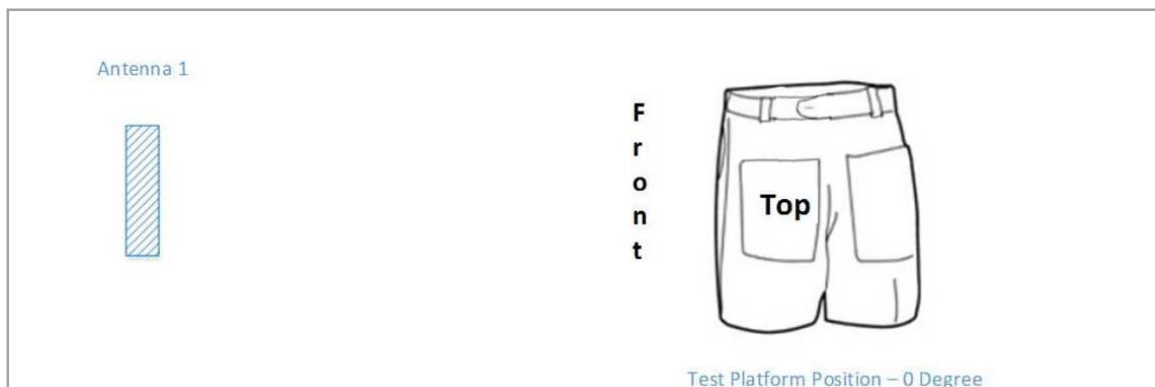


Figure 3. Shorts – Top View



Figure 4. Skirts – Top View

5.2 OVERALLS, SHORTS, AND ROMPERS

This category includes items such as fabrications of bib and sku overalls, shortalls, and rompers.



Figure 5. Overalls, Shorts, and Rompers – Top View

5.3 VESTS, SPORT COATS, BLAZERS, SUITS, TUXEDOS, OUTERWEAR COATS, JACKETS, PONCHOS, ROBES & PARKAS

This category includes items such as vests, sport coats, blazers, two-piece and three-piece suits, tuxedos, trench coats, overcoats, raincoats, ski jackets, leather jackets, bombers, quilted flannel shirts, wind breakers, ponchos, and parkas.



Figure 6. Vests – Top View

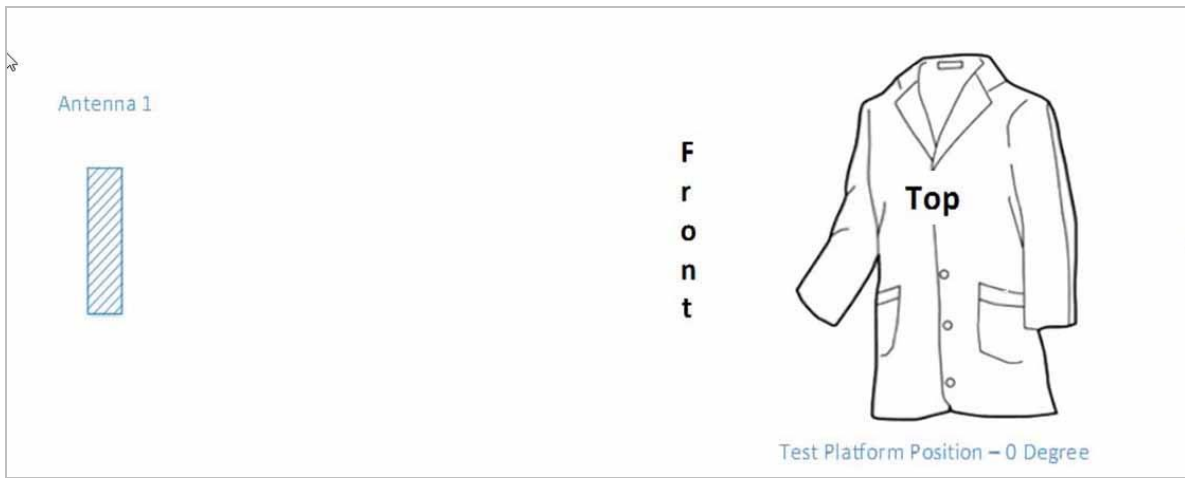


Figure 7. Sport Coats, Blazers, Suits, Tuxedos, Outerwear Coats, Robes and Jackets – Top View

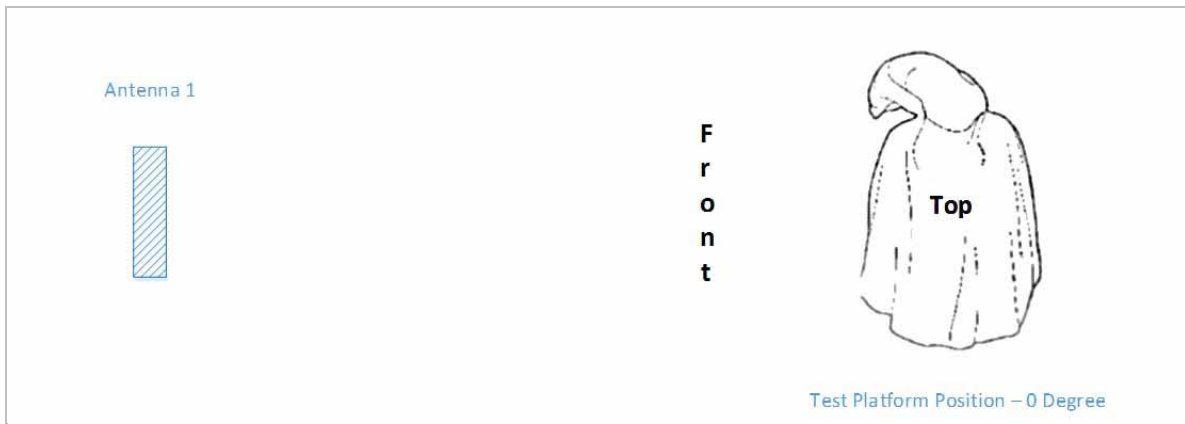


Figure 8. Ponchos and Parkas – Top View

5.4 PANTS, SLACKS, AND JEANS

This category includes items such as denim pants, twill pants, woven pants, fleece pants, knit pants, slacks, and jeans with either a constructed, elastic, or drawstring waistband. The item is folded using the tri-fold method with the tag on the top of the item.

When performing M-grade testing, items in this category require 2-stack and 11-stack testing.

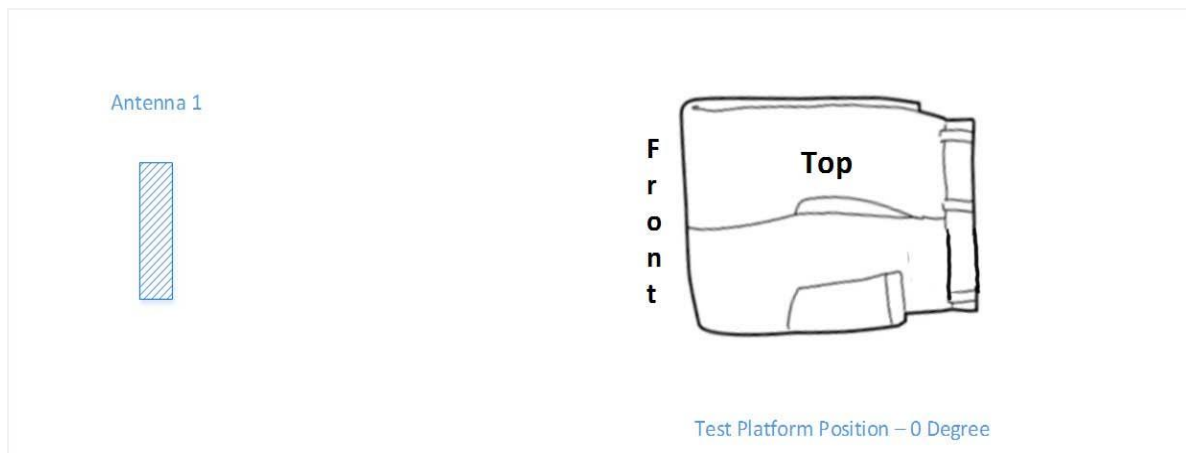


Figure 9. Pants, Slacks, and Jeans – Top View

5.5 DRESSES

This category includes dresses of all lengths. If the dress has an outer jacket, the sleeve of the jacket is considered part of the dress.

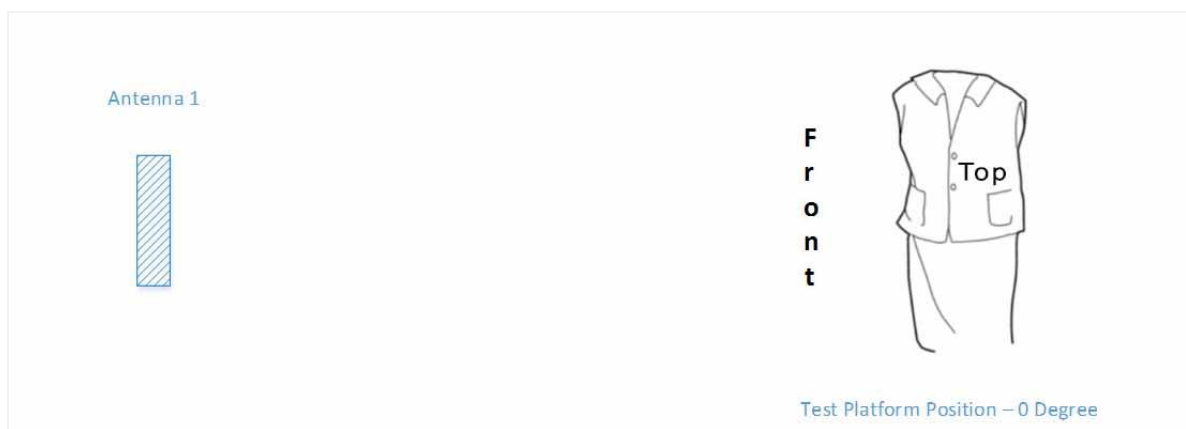


Figure 10. Dress – Top View

5.6 TOPS

This category includes items such as woven and knit shirts, sweaters, turtlenecks, polos, blouses, tank tops, sweater vests, and halter-tops.

When performing M-grade testing, items in this category require 2-stack and 11-stack testing.

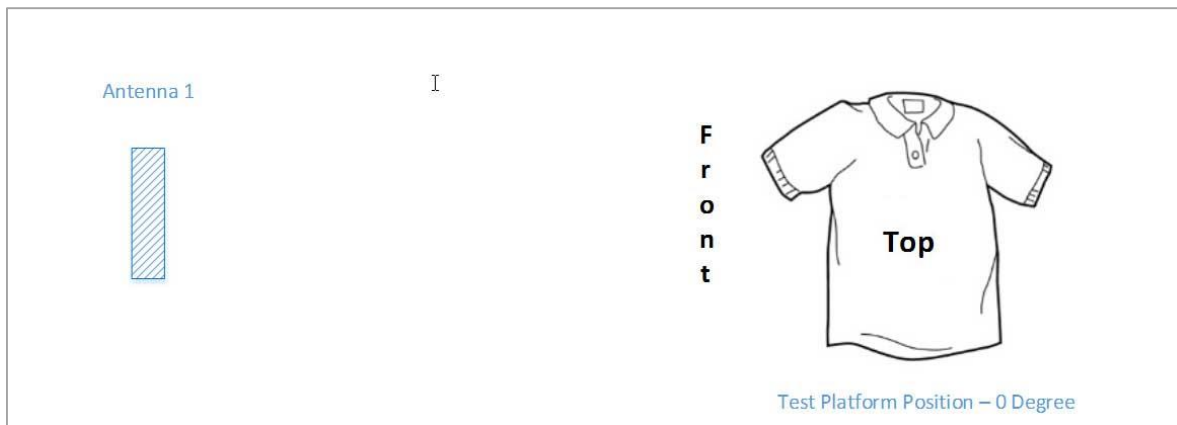


Figure 11. Tops – Top View

5.7 TOPS - FOLDED

This category includes items such as woven and knit shirts, sweaters, turtlenecks, polos, blouses, tank tops, sweater vests, and halter-tops.

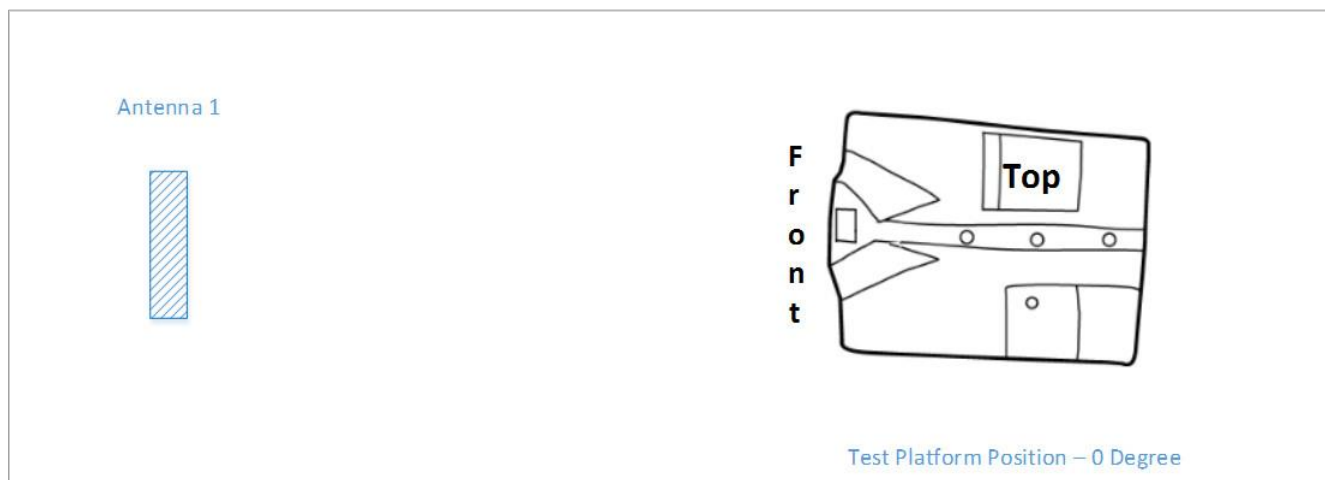


Figure 12. Tops Folded – Top View

5.8 BRAS

This category includes items such as bras.

When performing M-grade testing, items in this category require 2-stack and 11-stack testing.



Figure 13. Bras

5.9 CAMISOLES, TEDDIES, CROP TOPS, SLIPS, SWIMWEAR, BODYWEAR, AND DANCEWEAR

This category includes items such as camisoles, teddies, crop tops, slips, swimwear, bodywear, and dancewear.

When performing M-grade testing, items in this category require 2-stack and 11-stack testing.



Figure 14. Camisoles, Teddies, Crop Tops, Slips, Swimwear, Bodywear, and Dancewear

5.10 PANTIES AND CONTROL GARMENTS

This category includes items such as panties, briefs, and girdles.

When performing M-grade testing, items in this category require 2-stack and 11-stack testing.



Figure 15. Panties and Control Garments

5.11 BANDED APPAREL

This category includes items such as packaged socks

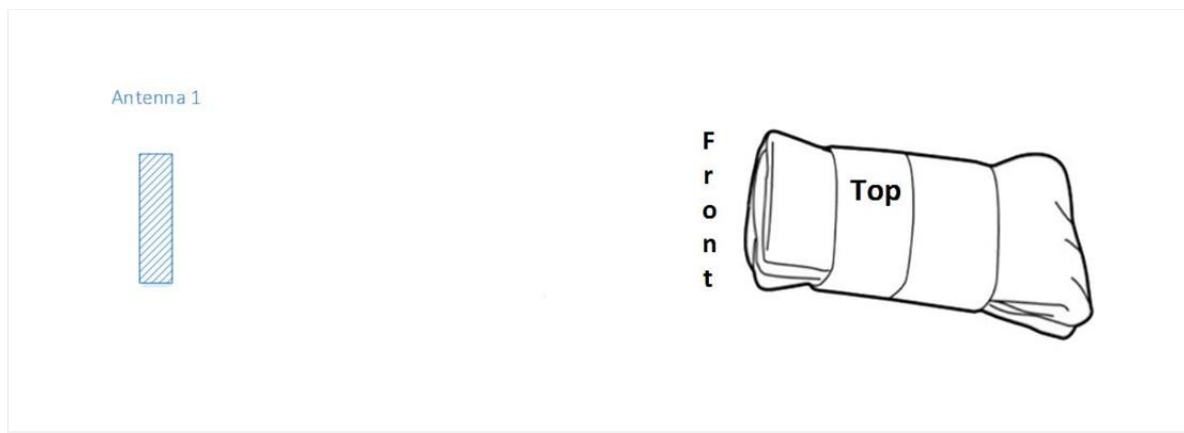


Figure 16. Banded Apparel

5.12 BOXED APPAREL

This category includes apparel packaged in boxes with a flap lid that are to be merchandised with the product, such as shoes, men's underwear, and slippers.



Figure 17. Boxed Apparel

5.13 CARDED APPAREL (FLAP), GLOVES, AND MITTENS

This category includes merchandise that is affixed to a cardboard for display purposes, such as gloves and mittens.

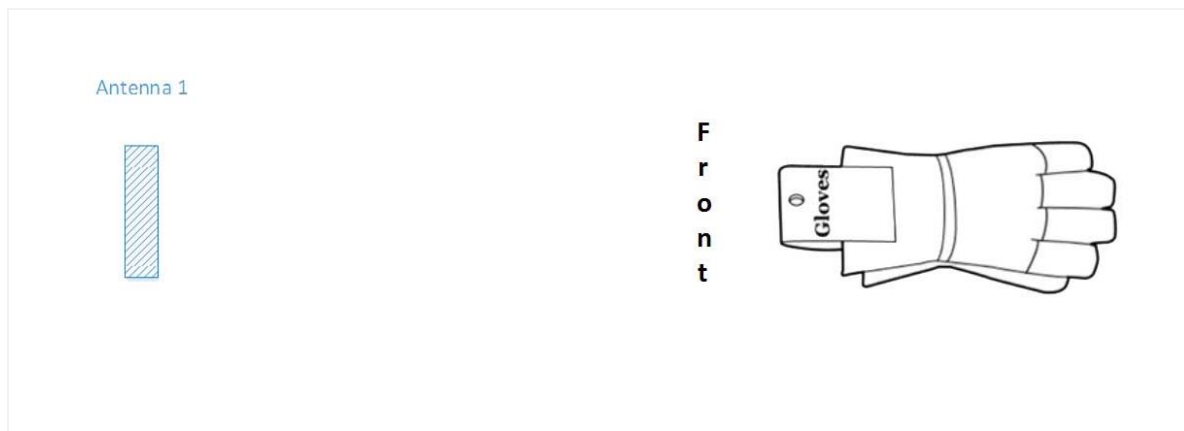


Figure 18. Carded Apparel (Flap), Gloves, and Mittens

5.14 FLAT PACKED APPAREL

This category includes items such as hosiery.

When performing M-grade testing, items in this category require 2-stack and 11-stack testing.

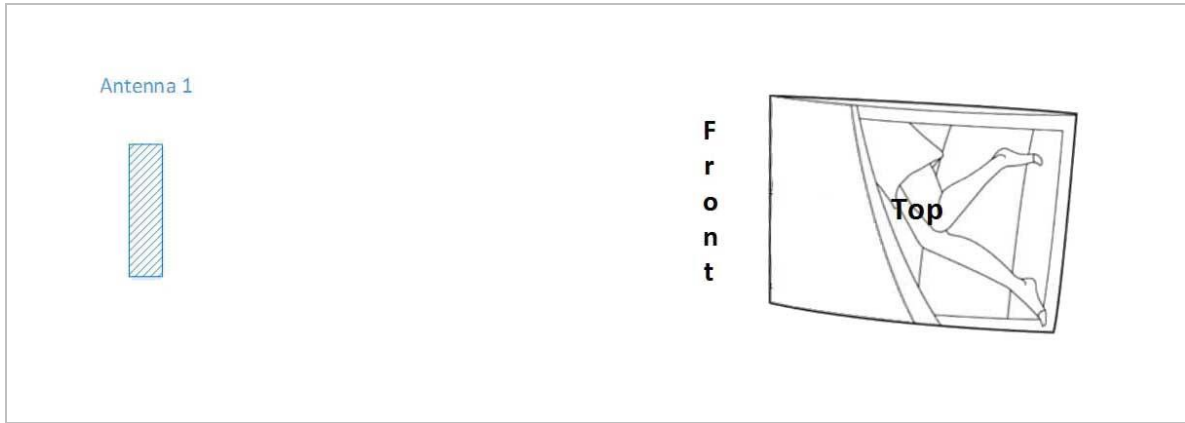


Figure 19. Flat Packed Apparel

5.15 PLASTIC PACKAGED APPAREL

This category includes merchandise wrapped in plastic that may or may not include cardboard inserts, such as packages of underwear or socks

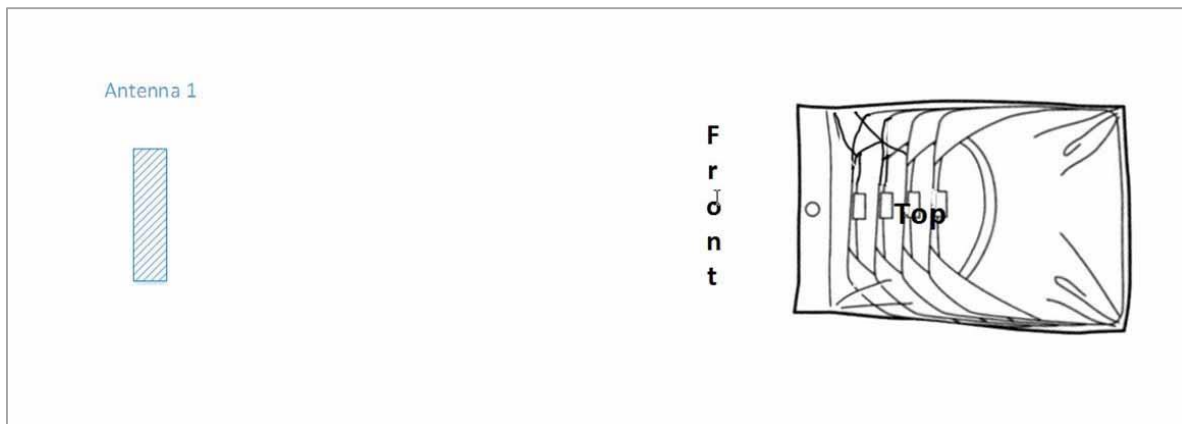


Figure 20. Plastic Packaged Apparel

5.16 BACKPACKS

This category includes items such as backpacks, knapsacks, and fanny packs.



Figure 21. Backpacks

5.17 BELTS

This category includes items such as belts



Figure 22. Belts

5.18 BIBS

This category includes items such as infant bibs.

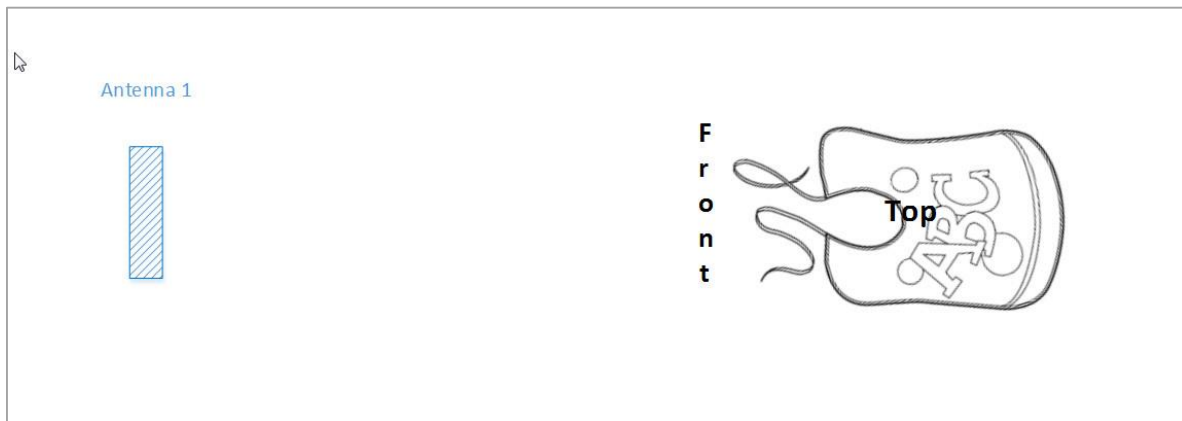


Figure 23. Bibs

5.19 CAPS, VISORS, AND HATS

This category includes items such as baseball caps, berets, visors, knit hats, ski masks, beanies, cowboy hats, straw hats, fedoras, pillbox hats, felt hats, and dressy hats.

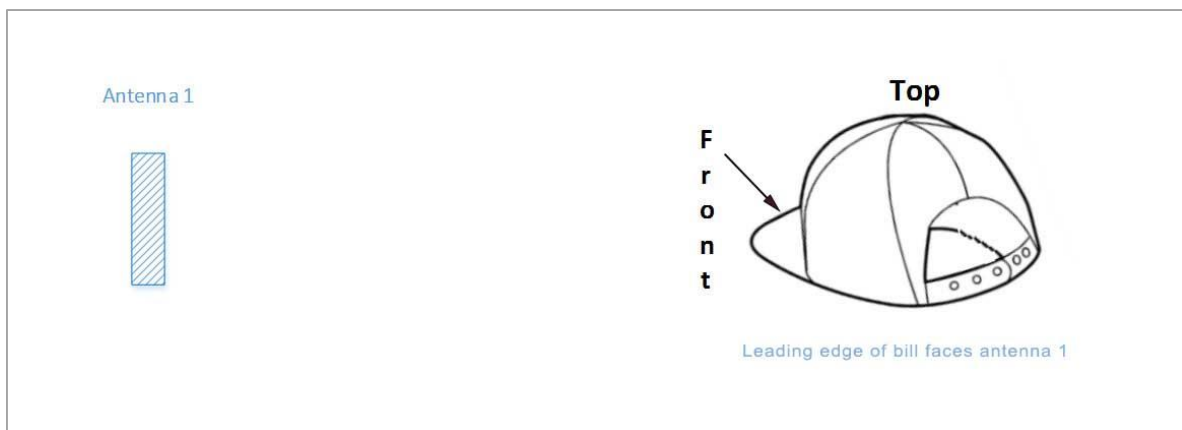


Figure 24. Caps, Visors, and Hats

5.20 NECKWEAR

This category includes items such as unknotted ties, clip-on ties, and bow ties of all fabrication.

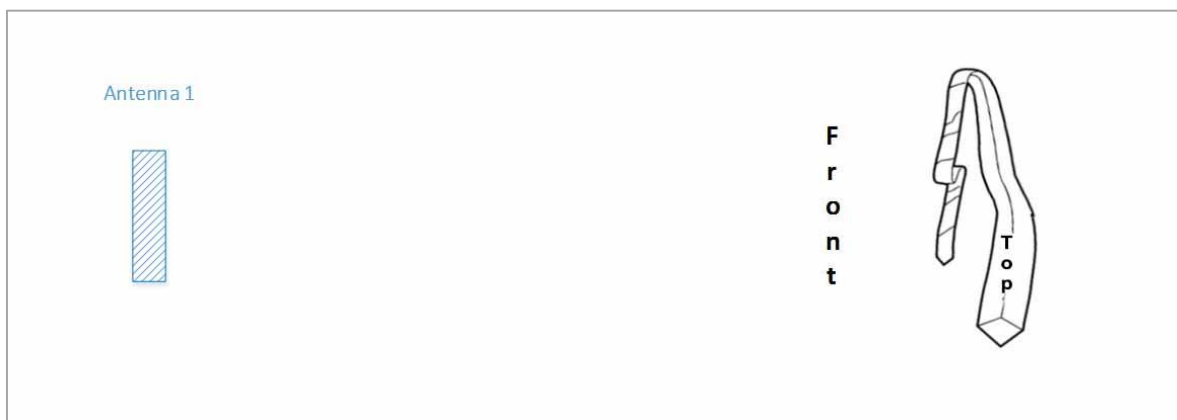


Figure 25. Neckwear

5.21 CUMMERBUNDS

This category includes items such as cummerbunds.



Figure 26. Cummerbunds

5.22 DICKIES AND COLLARS

This category includes items such as dickies and collars.

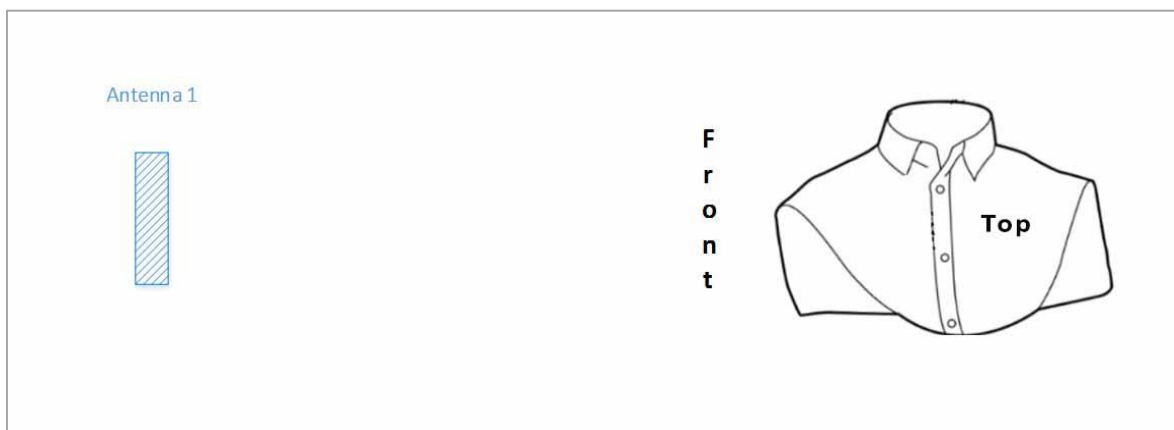


Figure 27. Dickies and Collars

5.23 FOOTWEAR

This category includes items such as sandals, slippers, athletic shoes, or other footwear.

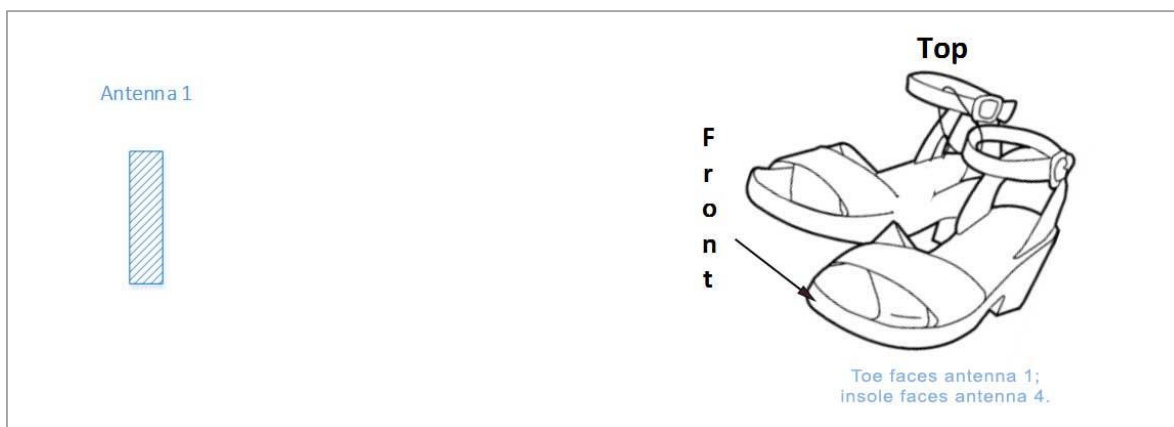


Figure 28. Footwear

5.24 GLASSES

This category includes items such as sunglasses and pre-made readers.



Figure 29. Glasses

5.25 HANDBAGS, PURSES, AND WALLETS

This category includes items such as clutches, coin purses, dop kits, purses, cinch sacks, wallets, billfolds, and tri-folds.

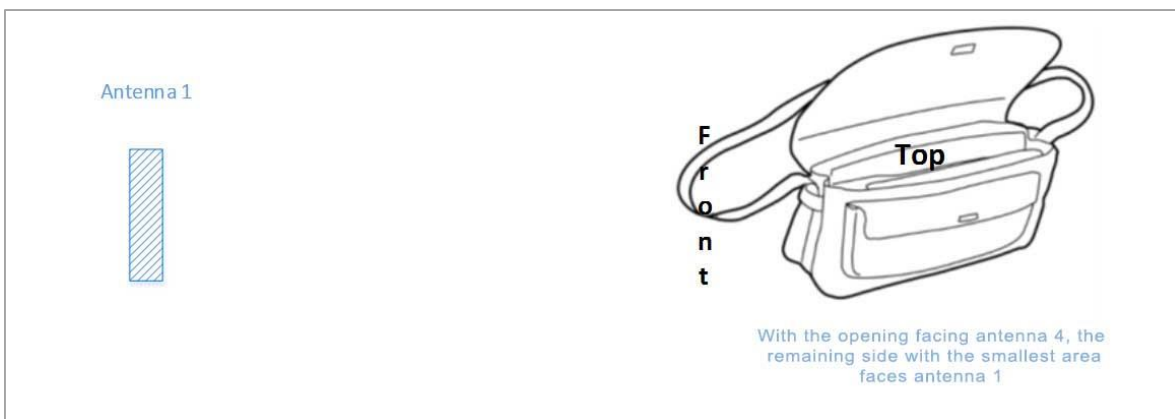


Figure 30. Handbags, Purses, and Wallets

5.26 LUGGAGE AND BRIEFCASES

This category includes items such as briefcases, suitcases, garment bags, and duffle bags.

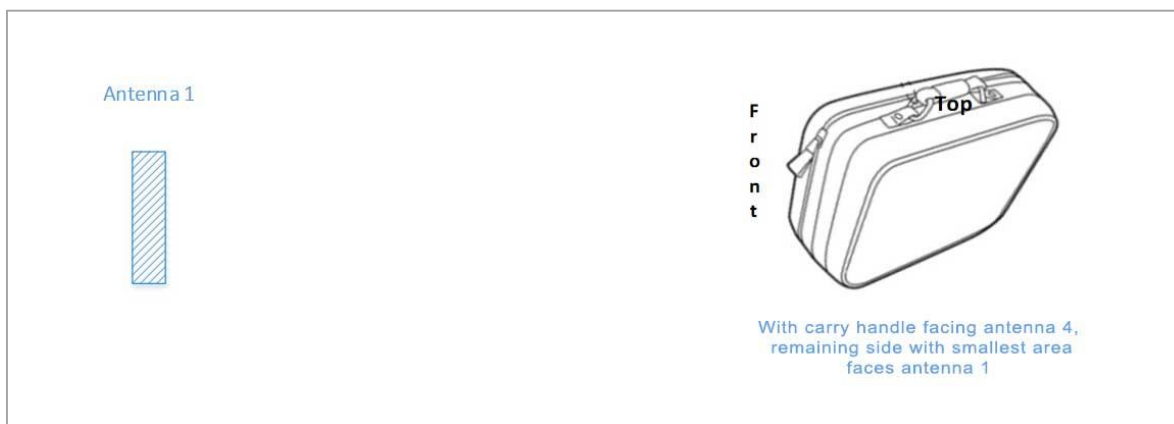


Figure 31. Luggage and Briefcases

5.27 LOOSE WATCHES

This category includes items such as watches and pocket watches.

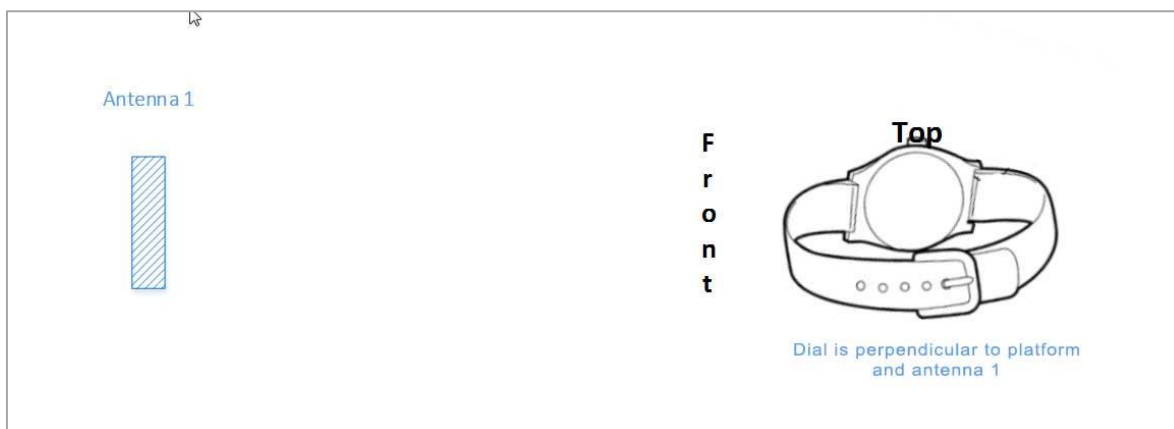


Figure 32. Loose Watches

5.28 WATCHES DISPLAYED IN A BOX OR CASE

This category includes items such as watches and pocket watches.

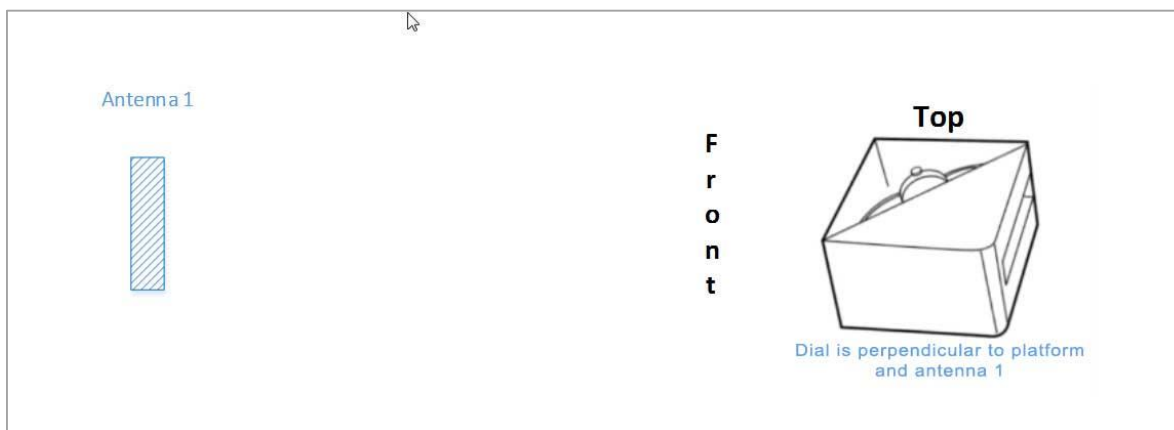


Figure 33. Watches Displayed in a Box or Case

5.29 JEWELRY - CARDED

This category includes items such as earrings, pins, broaches, charms, hair clips, tie tacks, cuff links, and studs.

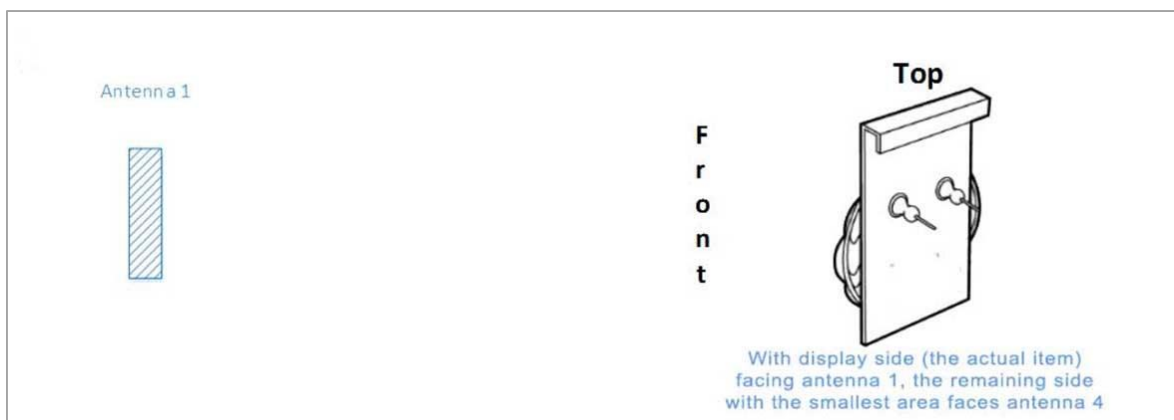


Figure 34. Jewelry – Carded

5.30 JEWELRY - LOOSE

This category includes items such as necklaces, chains, bracelets, bangles, and rings.

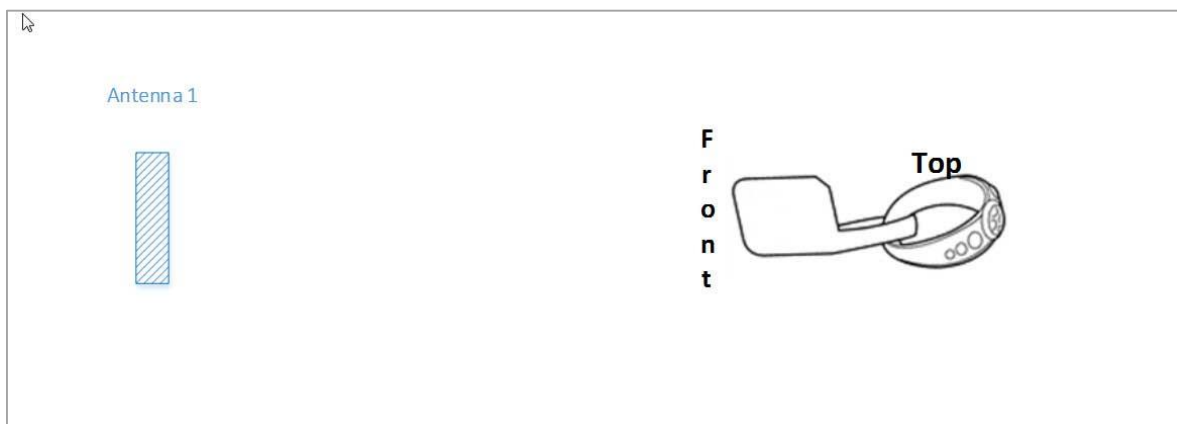


Figure 35. Jewelry – Loose

5.31 KEY CHAINS

This category includes items such as key chains.

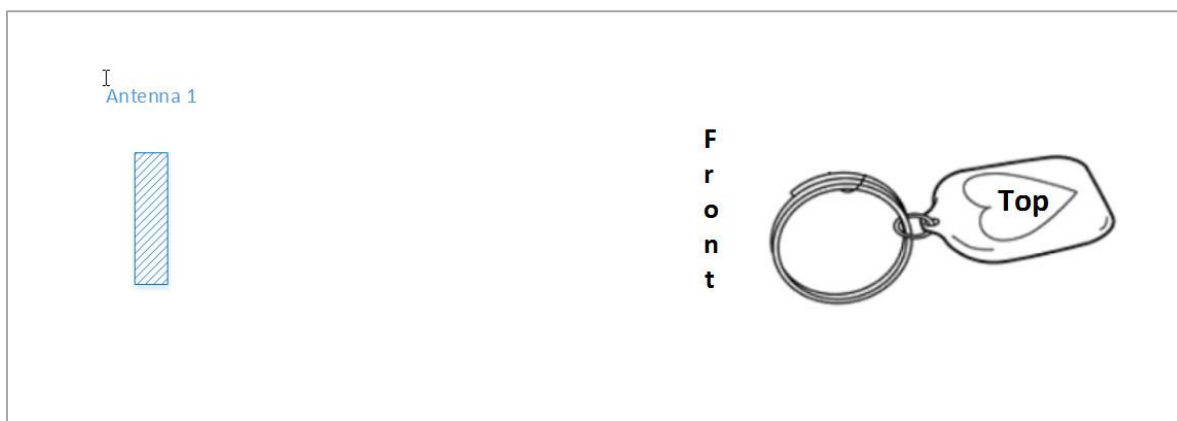


Figure 36. Key Chains

5.32 SCARVES AND SHAWLS

This category includes items such as winter scarves, silk scarves, and shawls.

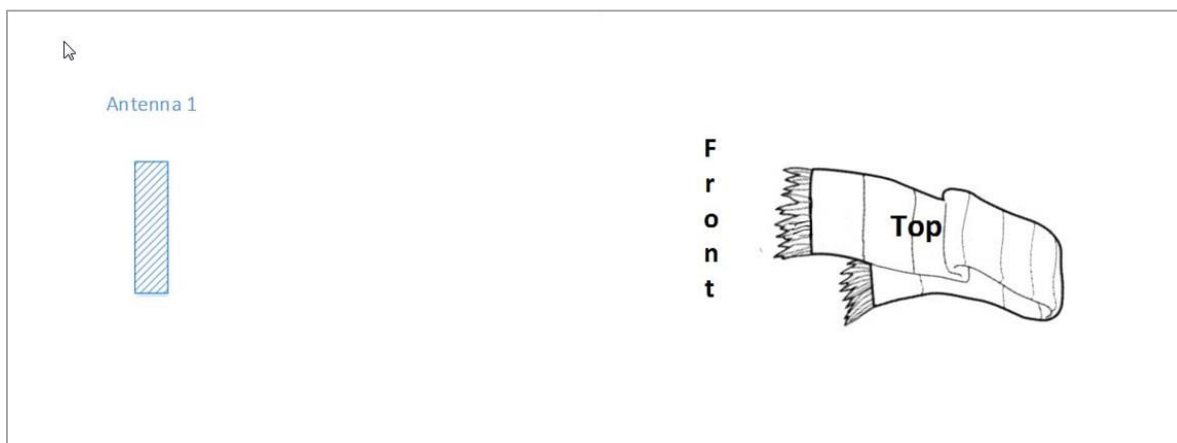


Figure 37. Scarves and Shawls

5.33 SWEATBANDS

This category includes items such as headbands, wrist bands, and ankle bands.

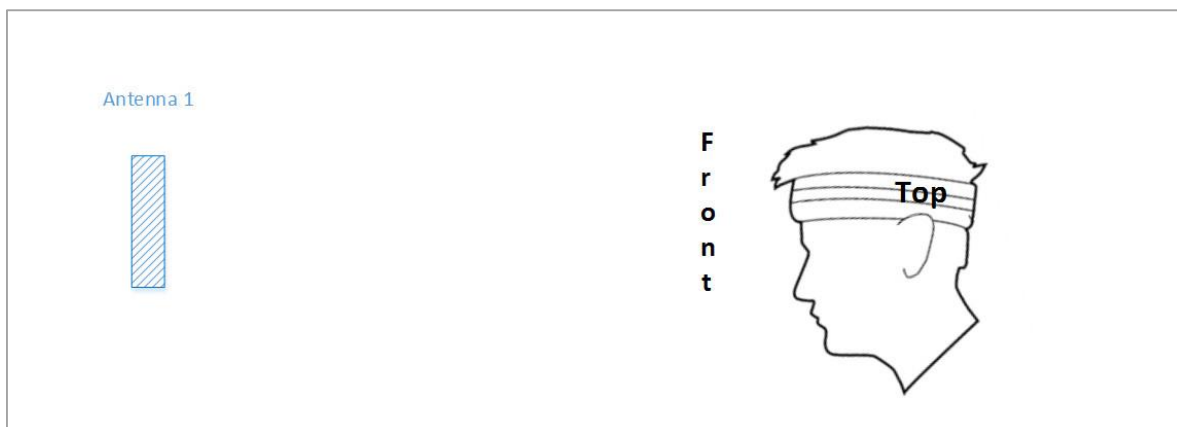


Figure 38. Sweatbands

5.34 SUSPENDERS AND BRACES

This category includes items such as suspenders and braces.

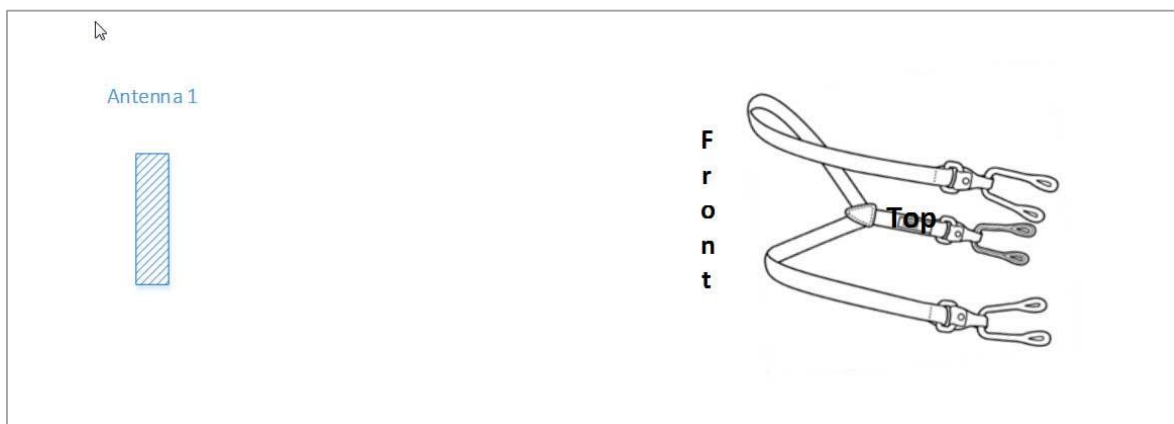


Figure 39. Suspenders and Braces

5.35 UMBRELLAS

This category includes items such as umbrellas.



Figure 40. Umbrellas

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