



AUBURN

UNIVERSITY

TAGGED CATEGORY PERFORMANCE SPECIFICATION

CATEGORY A

VERSION 1.3

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1. TEST SPECIFICATION

1.1 Test Overview

Equipment	ARC Benchmarking Equipment Document
Test process	ARC Benchmarking Methodology Document
Frequency	902 Mhz to 928 MHz in steps of 1 MHz
Distance between antennas and inlay	Antenna 1: 1.5 meter Antenna 2: 1.5 meter Antenna 3: 1.5 meter Antenna 4: 1.5 meter
Sensitivity at Receiver	-70 dB
Standard test configurations	Single Inlay on Styrofoam Multi Inlay Proximity Test with 2.54cm spacing (Please refer ARC Benchmarking Methodology)
Custom test configurations	Single Inlay on Denim Single Inlay between Two Denim Articles Single Inlay between Ten Denim Articles Multi Inlay Proximity Test with Denim

1.2 Description of Custom Test Configurations

1.2.1 Single Inlay on Denim

The inlay is measured when applied on the pocket flasher on the denim article. The article is placed on the testing platform with the tagged side on the top as shown in Figure 1. The face of the tag will be parallel to the face of antenna 4.

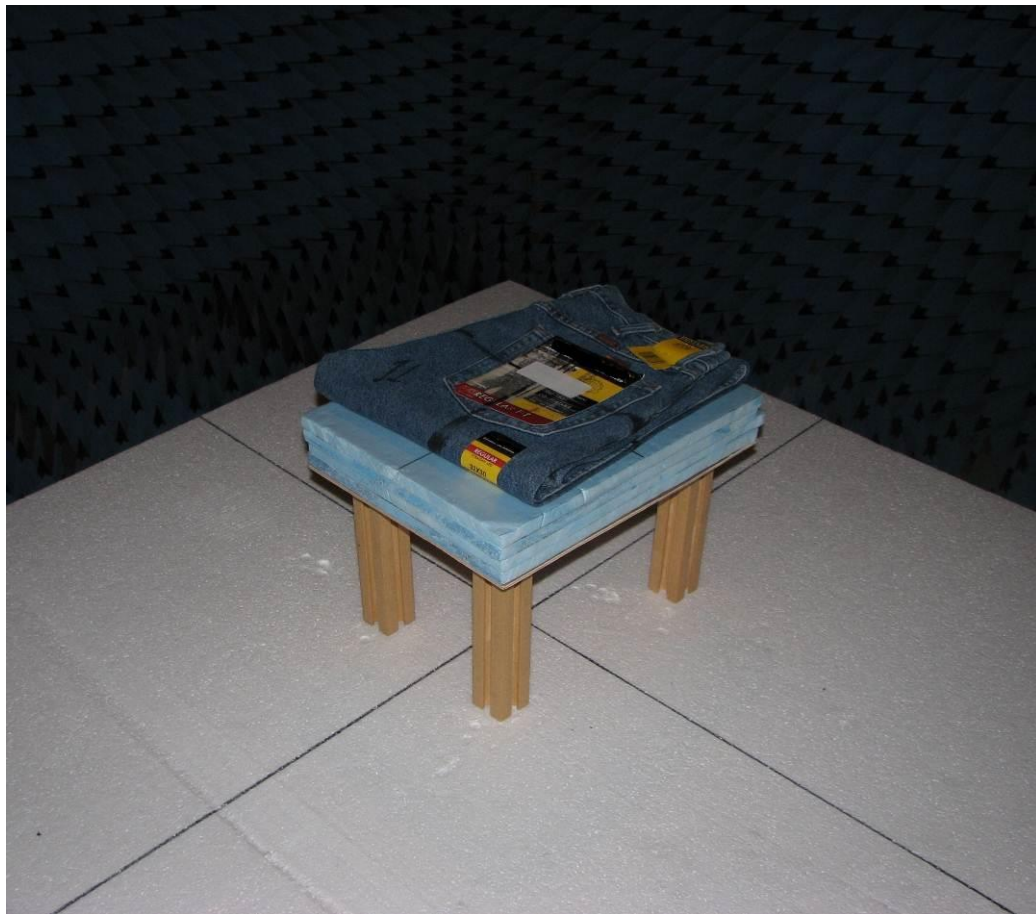


Figure 1: Single Inlay on Denim

1.2.2 Single Inlay between Two Denim Articles

The inlay is measured when applied on the pocket flasher of a denim article with another untagged denim article placed on top of the tagged denim. Both the articles are placed on the testing platform as shown in Figure 2. The tagged denim article is placed on the platform such that the inlay is on the top. The face of the inlay will be parallel to the face of antenna 4.



Figure 2: Single Inlay between Two Denim Articles

1.2.3 Single Inlay between Ten Denim Articles

The inlay is measured when applied on the pocket flasher of a denim article (inlay on top) in the center of a stack of 10 untagged denim articles. The final stack is 11 articles tall. All of the denim articles are placed on the testing platform as shown in Figure 3. The face of the inlay will be parallel to the face of antenna 4.

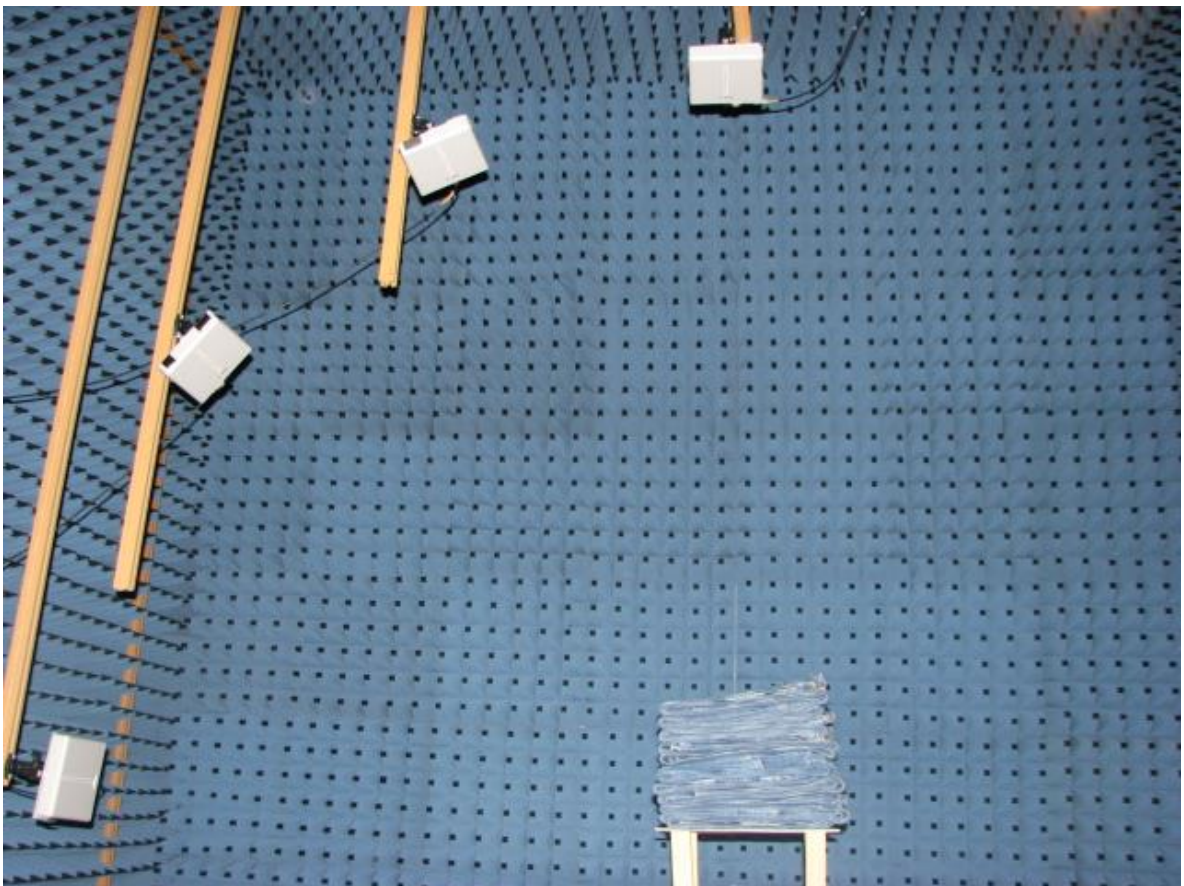


Figure 3: Single Inlay between Ten Denim Articles

1.2.4 Multi Inlay Proximity Test with Denim

The inlay is measured when applied on the pocket flasher of a denim article (inlay on top) in the center of a stack of 10 other tagged denim articles. All the denim articles are tagged with inlays of the same model. The final stack is 11 denim articles tall. All of the articles are placed on the testing platform as shown in Figure 4. The faces of the tags will be parallel to the face of antenna 4.



Figure 4: Multi Inlay Proximity Test with Denim



1.3 Inlay Performance Specification

The inlay should meet the following read sensitivity requirements in the following test configurations through the entire frequency range. All of the inlay samples tested should meet the minimum requirements. It is noted that the sensitivity is calculated at the tag by calibrating the measured power at the transmitter with the loss during transmission. For all the measurements, the sensitivity at the receiver was -80 dBm.



1.3.1 Standard Test - Single Inlay on Styrofoam

Position 0 Ant 1	Position 0: Ant 2	Position 0: Ant 3	Position 0: Ant 4
-7.5	-7.5	-7	-7
Position 30: Ant 1	Position 30: Ant 2	Position 30: Ant 3	Position 30: Ant 4
-6	-6	-5.5	-5.5
Position 60: Ant 1	Position 60: Ant 2	Position 60: Ant 3	Position 60: Ant 4
-1	-1	-1	2
Position 120: Ant 1	Position 120: Ant 2	Position 120: Ant 3	Position 120: Ant 4
-1	-1	-1	2
Position 150: Ant 1	Position 150: Ant 2	Position 150: Ant 3	Position 150: Ant 4
-6	-6	-5.5	-5.5
Position 180: Ant 1	Position 180: Ant 2	Position 180: Ant 3	Position 180: Ant 4
-7.5	-7.5	-7	-7
Position 210: Ant 1	Position 210: Ant 2	Position 210: Ant 3	Position 210: Ant 4
-6	-6	-5.5	-5.5
Position 240: Ant 1	Position 240: Ant 2	Position 240: Ant 3	Position 240: Ant 4
-1	-1	-1	2
Position 300: Ant 1	Position 300: Ant 2	Position 300: Ant 3	Position 300: Ant 4
-1	-1	-1	2
Position 330 Ant 1	Position 330: Ant 2	Position 330: Ant 3	Position 330: Ant 4
-6	-6	-5.5	-5.5



1.3.2 Standard Test - Multi Inlay Proximity Test with 2.54 cm Spacing

Position 0 Ant 1	Position 0: Ant 2	Position 0: Ant 3	Position 0: Ant 4
1	-4	-6	-1
Position 30: Ant 1	Position 30: Ant 2	Position 30: Ant 3	Position 30: Ant 4
5	-2	-4	2
Position 150: Ant 1	Position 150: Ant 2	Position 150: Ant 3	Position 150: Ant 4
5	-2	-4	2
Position 180: Ant 1	Position 180: Ant 2	Position 180: Ant 3	Position 180: Ant 4
1	-4	-6	-1
Position 210: Ant 1	Position 210: Ant 2	Position 210: Ant 3	Position 210: Ant 4
5	-2	-4	2
Position 330 Ant 1	Position 330: Ant 2	Position 330: Ant 3	Position 330: Ant 4
5	-2	-4	2

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1.3.3 Custom Test - Single Inlay on Denim

Position 0 Ant 1	Position 0: Ant 2	Position 0: Ant 3	Position 0: Ant 4
-11	-11	-11	-11
Position 30: Ant 1	Position 30: Ant 2	Position 30: Ant 3	Position 30: Ant 4
-10	-10	-9	-9
Position 60: Ant 1	Position 60: Ant 2	Position 60: Ant 3	Position 60: Ant 4
-4	-4	-3.5	-2
Position 120: Ant 1	Position 120: Ant 2	Position 120: Ant 3	Position 120: Ant 4
-4	-4	-3.5	-2
Position 150: Ant 1	Position 150: Ant 2	Position 150: Ant 3	Position 150: Ant 4
-10	-10	-9	-9
Position 180: Ant 1	Position 180: Ant 2	Position 180: Ant 3	Position 180: Ant 4
-11	-11	-11	-11
Position 210: Ant 1	Position 210: Ant 2	Position 210: Ant 3	Position 210: Ant 4
-10	-10	-9	-9
Position 240: Ant 1	Position 240: Ant 2	Position 240: Ant 3	Position 240: Ant 4
-4	-4	-3.5	-2
Position 300: Ant 1	Position 300: Ant 2	Position 300: Ant 3	Position 300: Ant 4
-4	-4	-3.5	-2
Position 330 Ant 1	Position 330: Ant 2	Position 330: Ant 3	Position 330: Ant 4
-10	-10	-9	-9

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1.3.4 Custom Test - Single Inlay between Two Denim Articles

Position 0 Ant 1	Position 0: Ant 2	Position 0: Ant 3	Position 0: Ant 4
-11	-10.5	-10	-10
Position 30: Ant 1	Position 30: Ant 2	Position 30: Ant 3	Position 30: Ant 4
-9	-9	-8.5	-8
Position 60: Ant 1	Position 60: Ant 2	Position 60: Ant 3	Position 60: Ant 4
-2.5	-2.5	-1	3.5
Position 120: Ant 1	Position 120: Ant 2	Position 120: Ant 3	Position 120: Ant 4
-2.5	-2.5	-1	3.5
Position 150: Ant 1	Position 150: Ant 2	Position 150: Ant 3	Position 150: Ant 4
-9	-9	-8.5	-8
Position 180: Ant 1	Position 180: Ant 2	Position 180: Ant 3	Position 180: Ant 4
-11	-10.5	-10	-10
Position 210: Ant 1	Position 210: Ant 2	Position 210: Ant 3	Position 210: Ant 4
-9	-9	-8.5	-8
Position 240: Ant 1	Position 240: Ant 2	Position 240: Ant 3	Position 240: Ant 4
-2.5	-2.5	-1	3.5
Position 300: Ant 1	Position 300: Ant 2	Position 300: Ant 3	Position 300: Ant 4
-2.5	-2.5	-1	3.5
Position 330 Ant 1	Position 330: Ant 2	Position 330: Ant 3	Position 330: Ant 4
-9	-9	-8.5	-8

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1.3.5 Custom Test - Single Inlay between Ten Denim Articles

Position 0 Ant 1	Position 0: Ant 2	Position 0: Ant 3	Position 0: Ant 4
-10.5	-10.5	-10	-10
Position 30: Ant 1	Position 30: Ant 2	Position 30: Ant 3	Position 30: Ant 4
-8.5	-8.5	-8.5	-8
Position 60: Ant 1	Position 60: Ant 2	Position 60: Ant 3	Position 60: Ant 4
1.5	-1	-1	3.5
Position 120: Ant 1	Position 120: Ant 2	Position 120: Ant 3	Position 120: Ant 4
1.5	-1	-1	3.5
Position 150: Ant 1	Position 150: Ant 2	Position 150: Ant 3	Position 150: Ant 4
-8.5	-8.5	-8.5	-8
Position 180: Ant 1	Position 180: Ant 2	Position 180: Ant 3	Position 180: Ant 4
-10.5	-10.5	-10	-10
Position 210: Ant 1	Position 210: Ant 2	Position 210: Ant 3	Position 210: Ant 4
-8.5	-8.5	-8.5	-8
Position 240: Ant 1	Position 240: Ant 2	Position 240: Ant 3	Position 240: Ant 4
1.5	-1	-1	3.5
Position 300: Ant 1	Position 300: Ant 2	Position 300: Ant 3	Position 300: Ant 4
1.5	-1	-1	3.5
Position 330 Ant 1	Position 330: Ant 2	Position 330: Ant 3	Position 330: Ant 4
-8.5	-8.5	-8.5	-8

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1.3.6 Custom Test - Multi Inlay Proximity Test with Denim

Position 0 Ant 1	Position 0: Ant 2	Position 0: Ant 3	Position 0: Ant 4
-1	-5	-6	-3.5
Position 30: Ant 1	Position 30: Ant 2	Position 30: Ant 3	Position 30: Ant 4
2	-1.5	-3	-3
Position 150: Ant 1	Position 150: Ant 2	Position 150: Ant 3	Position 150: Ant 4
2	-1.5	-3	-3
Position 180: Ant 1	Position 180: Ant 2	Position 180: Ant 3	Position 180: Ant 4
-1	-5	-6	-3.5
Position 210: Ant 1	Position 210: Ant 2	Position 210: Ant 3	Position 210: Ant 4
2	-1.5	-3	-3
Position 330 Ant 1	Position 330: Ant 2	Position 330: Ant 3	Position 330: Ant 4
2	-1.5	-3	-3

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