AUBURN

UNIVERSITY

RFID LAB

TAGGED CATEGORY PERFORMANCE SPECIFICATION

F1

VERSION 0.5

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2 READ SENSITIVITY

The inlay should meet the following read sensitivity (dBm) requirements in the following test configurations through the frequency range. It is noted that the sensitivity is calculated at the tag by calibrating the measured power at the transmitter with the loss/gain during transmission.

2.1 Single Inlay on ARC_TM3

All the inlay samples tested should meet the minimum requirements.

Frequency 902 MHz to 928 MHz in steps of 1 MHz

Position 0 Ant 1	Position 0: Ant 2	Position 0: Ant 3	Position 0: Ant 4
-9	-9	-9	-9
Position 30: Ant 1	Position 30: Ant 2	Position 30: Ant 3	Position 30: Ant 4
NA	NA	NA	NA
Position 60: Ant 1	Position 60: Ant 2	Position 60: Ant 3	Position 60: Ant 4
NA	NA	NA	NA
Position 120: Ant 1	Position 120: Ant 2	Position 120: Ant 3	Position 120: Ant 4
NA	NA	NA	NA
Position 150: Ant 1	Position 150: Ant 2	Position 150: Ant 3	Position 150: Ant 4
NA	NA	NA	NA
Position 180: Ant 1	Position 180: Ant 2	Position180: Ant 3	Position 180: Ant 4
-9	-9	-9	-9
Position 210: Ant 1	Position 210: Ant 2	Position 210: Ant 3	Position 210: Ant 4
NA	NA	NA	NA
Position 240: Ant 1	Position 240: Ant 2	Position 240: Ant 3	Position 240: Ant 4
NA	NA	NA	NA
Position 300: Ant 1	Position 300: Ant 2	Position 300: Ant 3	Position 300: Ant 4
NA	NA	NA	NA
Position 330 Ant 1	Position 330: Ant 2	Position 330: Ant 3	Position 330: Ant 4
NA	NA	NA	NA

2.1 Single Inlay on ARC_TM4

All the inlay samples tested should meet the minimum requirements.

Frequency 902 MHz to 928 MHz in steps of 1 MHz

Position 0 Ant 1	Position 0: Ant 2	Position 0: Ant 3	Position 0: Ant 4
-14	-12.5	-12.5	-14
Position 30: Ant 1	Position 30: Ant 2	Position 30: Ant 3	Position 30: Ant 4
-11	-10	-10	-11
Position 60: Ant 1	Position 60: Ant 2	Position 60: Ant 3	Position 60: Ant 4
NA	NA	NA	NA
Position 120: Ant 1	Position 120: Ant 2	Position 120: Ant 3	Position 120: Ant 4
NA	NA	NA	NA
Position 150: Ant 1	Position 150: Ant 2	Position 150: Ant 3	Position 150: Ant 4
-11	-10	-10	-11
Position 180: Ant 1	Position 180: Ant 2	Position180: Ant 3	Position 180: Ant 4
-14	-12.5	-12.5	-14
Position 210: Ant 1	Position 210: Ant 2	Position 210: Ant 3	Position 210: Ant 4
-11	-10	-10	-11
Position 240: Ant 1	Position 240: Ant 2	Position 240: Ant 3	Position 240: Ant 4
NA	NA	NA	NA
Position 300: Ant 1	Position 300: Ant 2	Position 300: Ant 3	Position 300: Ant 4
NA	NA	NA	NA
Position 330 Ant 1	Position 330: Ant 2	Position 330: Ant 3	Position 330: Ant 4
-11	-10	-10	-11

All the inlay samples tested should meet the minimum requirements.

Frequency 980 MHz

Position 0 Ant 1	Position 0: Ant 2	Position 0: Ant 3	Position 0: Ant 4
-13	NA	NA	-13
Position 30: Ant 1	Position 30: Ant 2	Position 30: Ant 3	Position 30: Ant 4
NA	NA	NA	NA
Position 60: Ant 1	Position 60: Ant 2	Position 60: Ant 3	Position 60: Ant 4
NA	NA	NA	NA
Position 120: Ant 1	Position 120: Ant 2	Position 120: Ant 3	Position 120: Ant 4
NA	NA	NA	NA
Position 150: Ant 1	Position 150: Ant 2	Position 150: Ant 3	Position 150: Ant 4
NA	NA	NA	NA
Position 180: Ant 1	Position 180: Ant 2	Position180: Ant 3	Position 180: Ant 4
-13	NA	NA	-13
Position 210: Ant 1	Position 210: Ant 2	Position 210: Ant 3	Position 210: Ant 4
NA	NA	NA	NA
Position 240: Ant 1	Position 240: Ant 2	Position 240: Ant 3	Position 240: Ant 4
NA	NA	NA	NA
Position 300: Ant 1	Position 300: Ant 2	Position 300: Ant 3	Position 300: Ant 4
NA	NA	NA	NA
Position 330 Ant 1	Position 330: Ant 2	Position 330: Ant 3	Position 330: Ant 4
NA	NA	NA	NA

All the inlay samples tested should meet the maximum requirements.

Frequency 902 MHz to 928 MHz in steps of 1 MHz

Position 0 Ant 1	Position 0: Ant 2	Position 0: Ant 3	Position 0: Ant 4
-17	-17.5	-17.5	-17
Position 30: Ant 1	Position 30: Ant 2	Position 30: Ant 3	Position 30: Ant 4
-11	-10	-10	-11
Position 60: Ant 1	Position 60: Ant 2	Position 60: Ant 3	Position 60: Ant 4
NA	NA	NA	NA
Position 120: Ant 1	Position 120: Ant 2	Position 120: Ant 3	Position 120: Ant 4
NA	NA	NA	NA
Position 150: Ant 1	Position 150: Ant 2	Position 150: Ant 3	Position 150: Ant 4
-11	-10	-10	-11
Position 180: Ant 1	Position 180: Ant 2	Position180: Ant 3	Position 180: Ant 4
-14	-12.5	-12.5	-14
Position 210: Ant 1	Position 210: Ant 2	Position 210: Ant 3	Position 210: Ant 4
-11	-10	-10	-11
Position 240: Ant 1	Position 240: Ant 2	Position 240: Ant 3	Position 240: Ant 4
NA	NA	NA	NA
Position 300: Ant 1	Position 300: Ant 2	Position 300: Ant 3	Position 300: Ant 4
NA	NA	NA	NA
Position 330 Ant 1	Position 330: Ant 2	Position 330: Ant 3	Position 330: Ant 4
-11	-10	-10	-11

3. READ BACKSCATTER

The inlay should meet the following read backscatter (dBm) requirements in the following test configurations through the entire frequency range. The backscatter value in this section is the minimum backscatter that should be observed at the corresponding minimum read sensitivity value in section 2. All the tagged item samples tested should meet the minimum requirements. It is noted that the backscatter is calculated at the tag by calibrating the measured power at the receiver with the loss/gain during transmission

3.1 Single Inlay on ARC_TM4

All the inlay samples tested should meet the minimum requirements.

Frequency 902 MHz to 928 MHz in steps of 1 MHz

Position 0 Ant 1	Position 0: Ant 2	Position 0: Ant 3	Position 0: Ant 4
-19	-19	-18	-19
Position 30: Ant 1	Position 30: Ant 2	Position 30: Ant 3	Position 30: Ant 4
NA	NA	NA	NA
Position 60: Ant 1	Position 60: Ant 2	Position 60: Ant 3	Position 60: Ant 4
NA	NA	NA	NA
Position 120: Ant 1	Position 120: Ant 2	Position 120: Ant 3	Position 120: Ant 4
NA	NA	NA	NA
Position 150: Ant 1	Position 150: Ant 2	Position 150: Ant 3	Position 150: Ant 4
NA	NA	NA	NA
Position 180: Ant 1	Position 180: Ant 2	Position180: Ant 3	Position 180: Ant 4
-19	-19	-18	-19
Position 210: Ant 1	Position 210: Ant 2	Position 210: Ant 3	Position 210: Ant 4
NA	NA	NA	NA
Position 240: Ant 1	Position 240: Ant 2	Position 240: Ant 3	Position 240: Ant 4
NA	NA	NA	NA
Position 300: Ant 1	Position 300: Ant 2	Position 300: Ant 3	Position 300: Ant 4
NA	NA	NA	NA
Position 330 Ant 1	Position 330: Ant 2	Position 330: Ant 3	Position 330: Ant 4
NA	NA	NA	NA

4. ADDITIONAL INLAY QUALITY AND RELIABILITY REQUIREMENTS

Prerequisite	ARC Quality certification of inlay manufacturer
Yield on Delivered Product	100%. All marked and dead tags removed
Max Sensitivity Variation	3 dB Free space 800-1000 MHz
HTHH	85 C 85% RH 504 hours
Temp cycling	-40 C / +85 C 30-minute soak 300 Cycles
Low Temp Storage	-40 C 504 hours
High Temp Storage	85 C 504 hours
Bending	5 N / 10 mm web width 60 m/min 200 cycles 0.3 Mpa Nip pressure
Memory	10-year data retention