

# XceedID Corporation

## TEST REPORT FOR

**Enrollment Reader  
Model: MT20**

**Tested To The Following Standards:**

**FCC Part 15 Subpart C Section(s)  
15.207, 15.209, and 15.225**

**Report No.: 96065-10**

**Date of issue: October 28, 2014**



This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

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## ADMINISTRATIVE INFORMATION

### Test Report Information

**REPORT PREPARED FOR:**

XceedID Corporation  
500 Golden Ridge Road  
Bldg #1 Suite 160  
Golden, CO 80401

Representative: Bryan Hoff  
Customer Reference Number: 4043899

**DATE OF EQUIPMENT RECEIPT:****DATE(S) OF TESTING:****REPORT PREPARED BY:**

Morgan Tramontin  
CKC Laboratories, Inc.  
5046 Sierra Pines Drive  
Mariposa, CA 95338

Project Number: 96065

September 23, 2014

September 24 - 27, 2014

### Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.

A handwritten signature in black ink that reads "Steve Behm".

**Steve Behm**  
**Director of Quality Assurance & Engineering Services**  
**CKC Laboratories, Inc.**

## Test Facility Information



Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):  
CKC Laboratories, Inc.  
5046 Sierra Pines Drive  
Mariposa, CA 95338

## Software Versions

| CKC Laboratories Proprietary Software | Version |
|---------------------------------------|---------|
| EMITest Emissions                     | 5.00.14 |
| Immunity                              | 5.00.07 |

## Site Registration & Accreditation Information

| Location   | CB #   | TAIWAN         | CANADA  | FCC    | JAPAN  |
|------------|--------|----------------|---------|--------|--------|
| Mariposa A | US0103 | SL2-IN-E-1147R | 3082A-2 | 90477  | A-0136 |
| Mariposa D | US0103 | SL2-IN-E-1147R | 3082A-1 | 784962 | A-0136 |

## SUMMARY OF RESULTS

### Standard / Specification: FCC Part 15 Subpart C

| Test Procedure/Method | Description                                   | Modifications* | Results |
|-----------------------|-----------------------------------------------|----------------|---------|
| 15.207 / ANSI C63.4   | Conducted Emissions                           | NA             | Pass    |
| 15.209                | Field Strength of Radiated Spurious Emissions | NA             | Pass    |
| 15.209(a)             | Fundamental Field Strength                    | NA             | Pass    |
| 15.215(c)             | Occupied Bandwidth                            | NA             | Pass    |
| 15.225(a)             | Fundamental Field Strength                    | NA             | Pass    |
| 15.225(b)(c)          | Emission Mask                                 | NA             | Pass    |
| 15.225(d)             | Field Strength of Spurious Emissions          | NA             | Pass    |
| 15.225(e)             | Frequency Stability                           | NA             | Pass    |

## Modifications\*/Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

| Summary of Conditions                                                                                   |
|---------------------------------------------------------------------------------------------------------|
| The Enrollment Reader employs two separate transmitters. One is at 13.56MHz and the other is at 125kHz. |
| No modifications were made during testing.                                                              |

**\*Modifications listed above must be incorporated into all production units.**

## **EQUIPMENT UNDER TEST (EUT)**

### **EQUIPMENT UNDER TEST**

#### **Enrollment Reader**

Manuf: XceedID

Model: MT20

Serial: 0001

### **PERIPHERAL DEVICES**

The EUT was tested with the following peripheral device(s):

#### **AC Adaptor**

Manuf: Lenovo

Model: 42T4422

Serial: 11S42T4422Z1ZF3D01T2L3

#### **Laptop Computer**

Manuf: Lenovo

Model: SL410

Serial: LR-ZZW25

## FCC PART 15 SUBPART C

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) CFR 47 Section 15 Subpart C requirements for Intentional Radiators.

### 15.207 AC Conducted Emissions

#### Test Data

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

|                |                                  |            |                |
|----------------|----------------------------------|------------|----------------|
| Customer:      | <b>Allegion</b>                  | Date:      | 9/27/2014      |
| Specification: | <b>15.207 AC Mains - Average</b> | Time:      | 12:06:18       |
| Work Order #:  | <b>96065</b>                     | Sequence#: | 2              |
| Test Type:     | <b>Conducted Emissions</b>       | Tested By: | Eddie Mariscal |
| Equipment:     | <b>Enrollment Reader</b>         |            | 120V 60Hz      |
| Manufacturer:  | XceedID                          |            |                |
| Model:         | MT20                             |            |                |
| S/N:           | 0001                             |            |                |

#### Test Equipment:

| ID | Asset #  | Description          | Model               | Calibration Date | Cal Due Date |
|----|----------|----------------------|---------------------|------------------|--------------|
|    | AN02668  | Spectrum Analyzer    | E4446A              | 8/4/2014         | 8/4/2015     |
| T1 | AN02609  | High Pass Filter     | HE9615-150K-50-720B | 3/25/2014        | 3/25/2016    |
| T2 | ANMACOND | Cable                |                     | 8/26/2014        | 8/26/2016    |
| T3 | ANP02221 | Attenuator           | PE7010-10           | 6/25/2013        | 6/25/2015    |
| T4 | AN00374  | 50uH LISN-Black (dB) | 8028-TS-50-BNC      | 3/15/2014        | 3/15/2015    |
|    | AN00374  | 50uH LISN-White (dB) | 8028-TS-50-BNC      | 3/15/2014        | 3/15/2015    |

#### Equipment Under Test (\* = EUT):

| Function           | Manufacturer | Model # | S/N  |
|--------------------|--------------|---------|------|
| Enrollment Reader* | XceedID      | MT20    | 0001 |

#### Support Devices:

| Function        | Manufacturer | Model # | S/N                        |
|-----------------|--------------|---------|----------------------------|
| AC Adaptor      | Lenovo       | 42T4422 | 11S42T4422Z1ZF3D01T2<br>L3 |
| Laptop Computer | Lenovo       | SL410   | LR-ZZW25                   |

**Test Conditions / Notes:**

The EUT is placed atop a wooden, non-conductive table of height 80cm. EUT is connected to support laptop via EUT's USB cable. A card is presented to the EUT during testing in order to allow the EUT to constantly transmit. The AC mains port of the support laptop was tested.

The EUT is transmitting at 125kHz.

The EUT is powered by +5VDC via USB cable.

Frequency Range of Interest: 0.15-30MHz

RBW = 9kHz; VBW > RBW

Atmospheric Conditions:

Temperature: 21°C

Relative Humidity: 56%

Atmospheric Pressure: 97.8kPa

Ext Attn: 0 dB

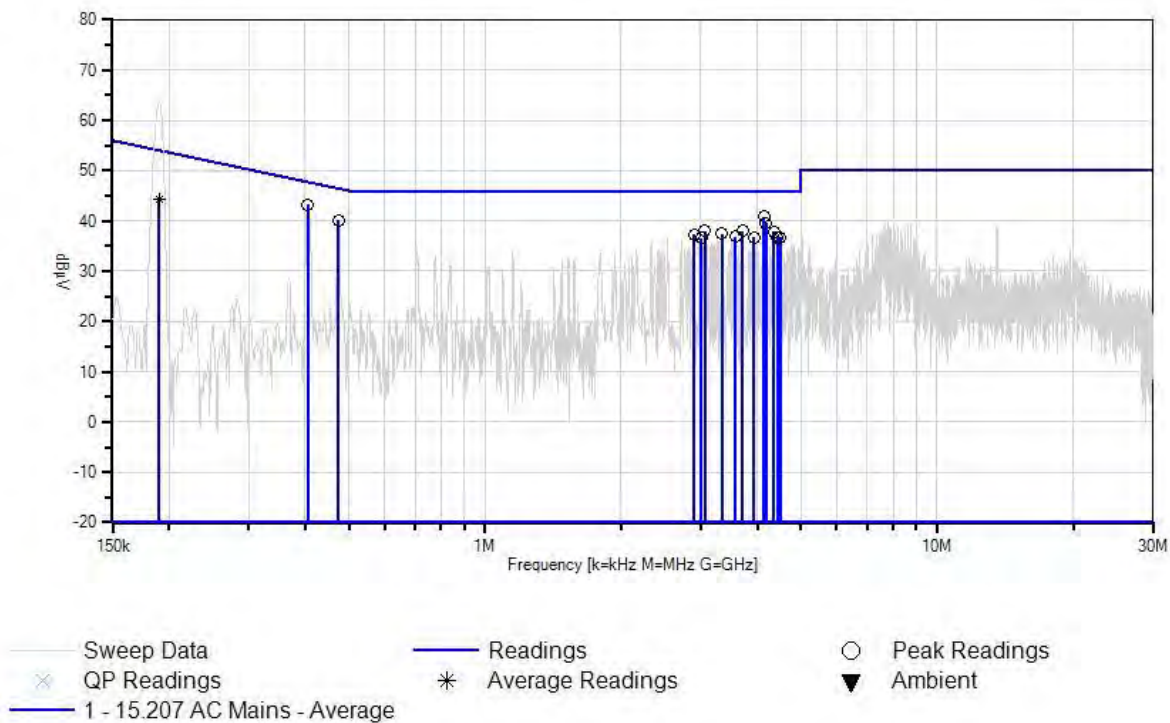
**Measurement Data:**

Reading listed by margin.

Test Lead: Black

| #   | Freq<br>MHz | Rdng<br>dBμV | T1<br>dB | T2<br>dB | T3<br>dB | T4<br>dB | Dist<br>Table | Corr<br>dBμV | Spec<br>dBμV | Margin<br>dB | Polar<br>Ant |
|-----|-------------|--------------|----------|----------|----------|----------|---------------|--------------|--------------|--------------|--------------|
| 1   | 406.172k    | 33.0         | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 43.3         | 47.7         | -4.4         | Black        |
| 2   | 4.144M      | 30.5         | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 40.9         | 46.0         | -5.1         | Black        |
| 3   | 474.529k    | 29.8         | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 40.1         | 46.4         | -6.3         | Black        |
| 4   | 4.178M      | 29.2         | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 39.6         | 46.0         | -6.4         | Black        |
| 5   | 3.064M      | 27.7         | +0.1     | +0.2     | +9.9     | +0.1     | +0.0          | 38.0         | 46.0         | -8.0         | Black        |
| 6   | 3.711M      | 27.6         | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 38.0         | 46.0         | -8.0         | Black        |
| 7   | 4.349M      | 27.4         | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 37.8         | 46.0         | -8.2         | Black        |
| 8   | 3.345M      | 27.1         | +0.1     | +0.2     | +9.9     | +0.1     | +0.0          | 37.4         | 46.0         | -8.6         | Black        |
| 9   | 2.903M      | 27.0         | +0.1     | +0.2     | +9.9     | +0.1     | +0.0          | 37.3         | 46.0         | -8.7         | Black        |
| 10  | 3.583M      | 26.5         | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 36.9         | 46.0         | -9.1         | Black        |
| 11  | 3.932M      | 26.3         | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 36.7         | 46.0         | -9.3         | Black        |
| 12  | 4.434M      | 26.3         | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 36.7         | 46.0         | -9.3         | Black        |
| 13  | 4.493M      | 26.3         | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 36.7         | 46.0         | -9.3         | Black        |
| 14  | 3.005M      | 26.3         | +0.1     | +0.2     | +9.9     | +0.1     | +0.0          | 36.6         | 46.0         | -9.4         | Black        |
| 15  | 190.050k    | 34.2         | +0.2     | +0.0     | +9.9     | +0.1     | +0.0          | 44.4         | 54.0         | -9.6         | Black        |
| Ave |             |              |          |          |          |          |               |              |              |              |              |
| ^   | 190.050k    | 53.3         | +0.2     | +0.0     | +9.9     | +0.1     | +0.0          | 63.5         | 54.0         | +9.5         | Black        |

CKC Laboratories, Inc. Date: 9/27/2014 Time: 12:06:18 Allegion WO#: 96065  
15.207 AC Mains - Average Test Lead: Black 120V 60Hz Sequence#: 2 Ext ATTN: 0 dB



Note: Since the time of testing, it has come to CKC Laboratories attention the manufacturer name Allegion referenced in the above plot should read XceedID Corporation. The screen captures were taken at the time of testing and cannot be changed.

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **Allegion**  
 Specification: **15.207 AC Mains – Average**  
 Work Order #: **96065**  
 Test Type: **Conducted Emissions**  
 Equipment: **Enrollment Reader**  
 Manufacturer: **XceedID**  
 Model: **MT20**  
 S/N: **0001**

Date: 9/27/2014  
 Time: 12:15:42  
 Sequence#: 3  
 Tested By: Eddie Mariscal  
 120V 60Hz

**Test Equipment:**

| ID | Asset #  | Description          | Model               | Calibration Date | Cal Due Date |
|----|----------|----------------------|---------------------|------------------|--------------|
| T1 | AN02668  | Spectrum Analyzer    | E4446A              | 8/4/2014         | 8/4/2015     |
| T2 | AN02609  | High Pass Filter     | HE9615-150K-50-720B | 3/25/2014        | 3/25/2016    |
| T3 | ANMACOND | Cable                |                     | 8/26/2014        | 8/26/2016    |
| T4 | ANP02221 | Attenuator           | PE7010-10           | 6/25/2013        | 6/25/2015    |
|    | AN00374  | 50uH LISN-Black (dB) | 8028-TS-50-BNC      | 3/15/2014        | 3/15/2015    |
| T5 | AN00374  | 50uH LISN-White (dB) | 8028-TS-50-BNC      | 3/15/2014        | 3/15/2015    |

**Equipment Under Test (\* = EUT):**

| Function           | Manufacturer | Model # | S/N  |
|--------------------|--------------|---------|------|
| Enrollment Reader* | XceedID      | MT20    | 0001 |

**Support Devices:**

| Function        | Manufacturer | Model # | S/N                        |
|-----------------|--------------|---------|----------------------------|
| AC Adaptor      | Lenovo       | 42T4422 | 11S42T4422Z1ZF3D01T2<br>L3 |
| Laptop Computer | Lenovo       | SL410   | LR-ZZW25                   |

**Test Conditions / Notes:**

The EUT is placed atop a wooden, non-conductive table of height 80cm. EUT is connected to support laptop via EUT's USB cable. A card is presented to the EUT during testing in order to allow the EUT to constantly transmit. The AC mains port of the support laptop was tested.

The EUT is transmitting at 125kHz.

The EUT is powered by +5VDC via USB cable.

Frequency Range of Interest: 0.15-30MHz

RBW = 9kHz; VBW > RBW

Atmospheric Conditions:

Temperature: 21°C

Relative Humidity: 56%

Atmospheric Pressure: 97.8kPa

Ext Attn: 0 dB

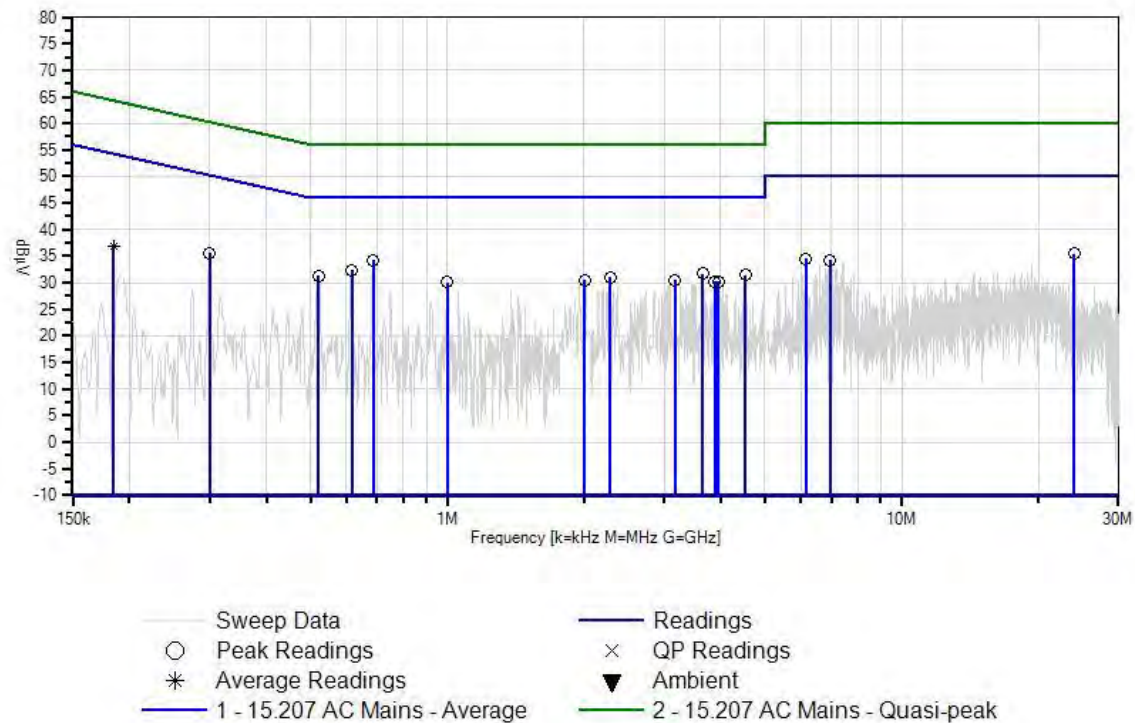
**Measurement Data:**

Reading listed by margin.

Test Lead: White

| #   | Freq<br>MHz | Rdng<br>dB $\mu$ V | T1<br>T5<br>dB | T2<br>dB | T3<br>dB | T4<br>dB | Dist<br>Table | Corr<br>dB $\mu$ V | Spec<br>dB $\mu$ V | Margin<br>dB | Polar<br>Ant |
|-----|-------------|--------------------|----------------|----------|----------|----------|---------------|--------------------|--------------------|--------------|--------------|
| 1   | 686.874k    | 23.9               | +0.0<br>+0.1   | +0.2     | +0.1     | +9.9     | +0.0          | 34.2               | 46.0               | -11.8        | White        |
| 2   | 617.062k    | 22.1               | +0.0<br>+0.1   | +0.2     | +0.1     | +9.9     | +0.0          | 32.4               | 46.0               | -13.6        | White        |
| 3   | 3.651M      | 21.3               | +0.0<br>+0.1   | +0.1     | +0.3     | +9.9     | +0.0          | 31.7               | 46.0               | -14.3        | White        |
| 4   | 4.536M      | 21.1               | +0.0<br>+0.1   | +0.1     | +0.3     | +9.9     | +0.0          | 31.5               | 46.0               | -14.5        | White        |
| 5   | 23.990M     | 24.5               | +0.0<br>+0.2   | +0.2     | +0.7     | +9.9     | +0.0          | 35.5               | 50.0               | -14.5        | White        |
| 6   | 299.850k    | 25.4               | +0.0<br>+0.1   | +0.1     | +0.1     | +9.9     | +0.0          | 35.6               | 50.2               | -14.6        | White        |
| 7   | 521.071k    | 21.0               | +0.0<br>+0.1   | +0.2     | +0.1     | +9.9     | +0.0          | 31.3               | 46.0               | -14.7        | White        |
| 8   | 2.282M      | 20.8               | +0.0<br>+0.1   | +0.1     | +0.2     | +9.9     | +0.0          | 31.1               | 46.0               | -14.9        | White        |
| 9   | 2.010M      | 20.2               | +0.0<br>+0.1   | +0.1     | +0.2     | +9.9     | +0.0          | 30.5               | 46.0               | -15.5        | White        |
| 10  | 3.175M      | 20.2               | +0.0<br>+0.1   | +0.1     | +0.2     | +9.9     | +0.0          | 30.5               | 46.0               | -15.5        | White        |
| 11  | 6.160M      | 24.1               | +0.0<br>+0.1   | +0.1     | +0.3     | +9.9     | +0.0          | 34.5               | 50.0               | -15.5        | White        |
| 12  | 6.951M      | 23.8               | +0.0<br>+0.1   | +0.1     | +0.4     | +9.9     | +0.0          | 34.3               | 50.0               | -15.7        | White        |
| 13  | 3.881M      | 19.8               | +0.0<br>+0.1   | +0.1     | +0.3     | +9.9     | +0.0          | 30.2               | 46.0               | -15.8        | White        |
| 14  | 3.949M      | 19.8               | +0.0<br>+0.1   | +0.1     | +0.3     | +9.9     | +0.0          | 30.2               | 46.0               | -15.8        | White        |
| 15  | 999.572k    | 19.8               | +0.0<br>+0.1   | +0.2     | +0.1     | +9.9     | +0.0          | 30.1               | 46.0               | -15.9        | White        |
| 16  | 184.637k    | 26.6               | +0.0<br>+0.1   | +0.3     | +0.0     | +9.9     | +0.0          | 36.9               | 54.3               | -17.4        | White        |
| Ave |             |                    |                |          |          |          |               |                    |                    |              |              |
| ^   | 184.600k    | 52.1               | +0.0<br>+0.1   | +0.3     | +0.0     | +9.9     | +0.0          | 62.4               | 54.3               | +8.1         | White        |

CKC Laboratories, Inc. Date: 9/27/2014 Time: 12:15:42 Allegion WO#: 96065  
15.207 AC Mains - Average Test Lead: White 120V 60Hz Sequence#: 3 Ext ATTN: 0 dB



Note: Since the time of testing, it has come to CKC Laboratories attention the manufacturer name Allegion referenced in the above plot should read XceedID Corporation. The screen captures were taken at the time of testing and cannot be changed.

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **Allegion**  
 Specification: **15.207 AC Mains – Average**  
 Work Order #: **96065**  
 Test Type: **Conducted Emissions**  
 Equipment: **Enrollment Reader**  
 Manufacturer: **XceedID**  
 Model: **MT20**  
 S/N: **0001**

Date: 9/27/2014  
 Time: 12:22:37  
 Sequence#: 5  
 Tested By: Eddie Mariscal  
 120V 60Hz

**Test Equipment:**

| ID | Asset #  | Description          | Model               | Calibration Date | Cal Due Date |
|----|----------|----------------------|---------------------|------------------|--------------|
|    | AN02668  | Spectrum Analyzer    | E4446A              | 8/4/2014         | 8/4/2015     |
| T1 | AN02609  | High Pass Filter     | HE9615-150K-50-720B | 3/25/2014        | 3/25/2016    |
| T2 | ANMACOND | Cable                |                     | 8/26/2014        | 8/26/2016    |
| T3 | ANP02221 | Attenuator           | PE7010-10           | 6/25/2013        | 6/25/2015    |
| T4 | AN00374  | 50uH LISN-Black (dB) | 8028-TS-50-BNC      | 3/15/2014        | 3/15/2015    |
|    | AN00374  | 50uH LISN-White (dB) | 8028-TS-50-BNC      | 3/15/2014        | 3/15/2015    |

**Equipment Under Test (\* = EUT):**

| Function           | Manufacturer | Model # | S/N  |
|--------------------|--------------|---------|------|
| Enrollment Reader* | XceedID      | MT20    | 0001 |

**Support Devices:**

| Function        | Manufacturer | Model # | S/N                        |
|-----------------|--------------|---------|----------------------------|
| AC Adaptor      | Lenovo       | 42T4422 | 11S42T4422Z1ZF3D01T2<br>L3 |
| Laptop Computer | Lenovo       | SL410   | LR-ZZW25                   |

**Test Conditions / Notes:**

The EUT is placed atop a wooden, non-conductive table of height 80cm. EUT is connected to support laptop via EUT's USB cable. A card is presented to the EUT during testing in order to allow the EUT to constantly transmit. The AC mains port of the support laptop was tested.

The EUT is transmitting at 13.56Hz.

The EUT is powered by +5VDC via USB cable.

Frequency Range of Interest: 0.15-30MHz

RBW = 9kHz; VBW > RBW

Atmospheric Conditions:

Temperature: 21°C

Relative Humidity: 56%

Atmospheric Pressure: 97.8kPa

Ext Attn: 0 dB

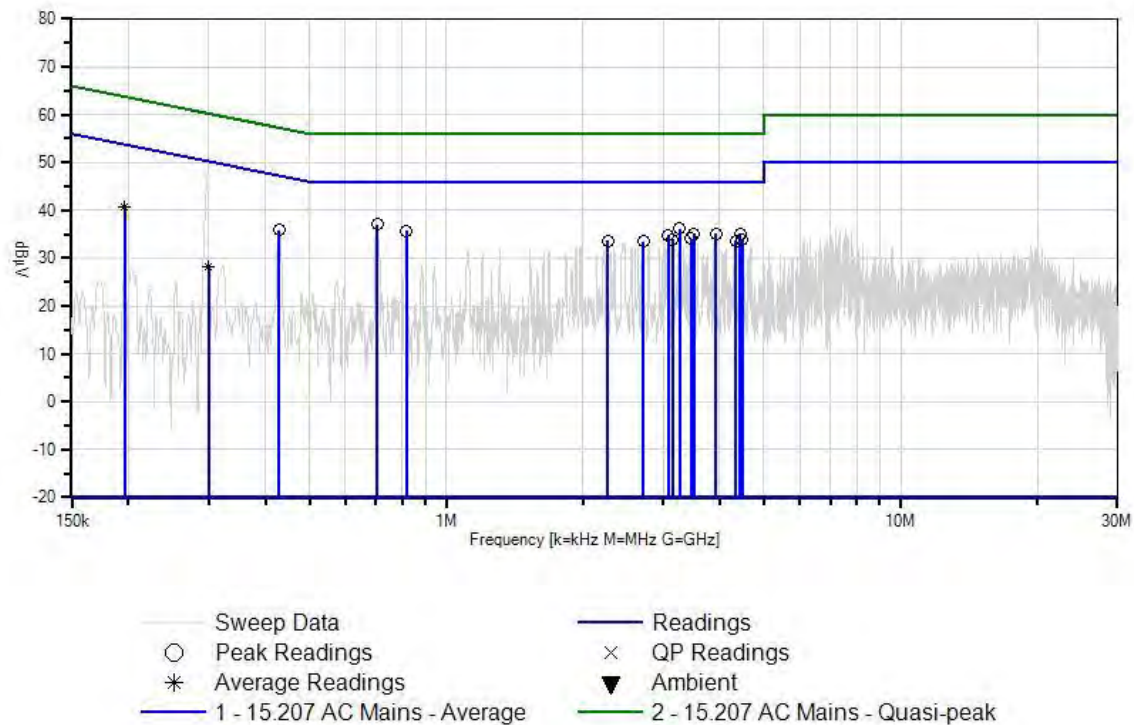
**Measurement Data:**

Reading listed by margin.

Test Lead: Black

| #   | Freq<br>MHz | Rdng<br>dB $\mu$ V | T1<br>dB | T2<br>dB | T3<br>dB | T4<br>dB | Dist<br>Table | Corr<br>dB $\mu$ V | Spec<br>dB $\mu$ V | Margin<br>dB | Polar<br>Ant |
|-----|-------------|--------------------|----------|----------|----------|----------|---------------|--------------------|--------------------|--------------|--------------|
| 1   | 704.327k    | 26.7               | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 37.0               | 46.0               | -9.0         | Black        |
| 2   | 3.268M      | 25.9               | +0.1     | +0.2     | +9.9     | +0.1     | +0.0          | 36.2               | 46.0               | -9.8         | Black        |
| 3   | 816.316k    | 25.5               | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 35.8               | 46.0               | -10.2        | Black        |
| 4   | 3.507M      | 24.8               | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 35.2               | 46.0               | -10.8        | Black        |
| 5   | 3.923M      | 24.7               | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 35.1               | 46.0               | -10.9        | Black        |
| 6   | 4.434M      | 24.7               | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 35.1               | 46.0               | -10.9        | Black        |
| 7   | 3.081M      | 24.4               | +0.1     | +0.2     | +9.9     | +0.1     | +0.0          | 34.7               | 46.0               | -11.3        | Black        |
| 8   | 429.443k    | 25.6               | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 35.9               | 47.3               | -11.4        | Black        |
| 9   | 3.456M      | 23.7               | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 34.1               | 46.0               | -11.9        | Black        |
| 10  | 3.149M      | 23.7               | +0.1     | +0.2     | +9.9     | +0.1     | +0.0          | 34.0               | 46.0               | -12.0        | Black        |
| 11  | 4.485M      | 23.6               | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 34.0               | 46.0               | -12.0        | Black        |
| 12  | 2.265M      | 23.4               | +0.1     | +0.2     | +9.9     | +0.1     | +0.0          | 33.7               | 46.0               | -12.3        | Black        |
| 13  | 4.340M      | 23.2               | +0.1     | +0.3     | +9.9     | +0.1     | +0.0          | 33.6               | 46.0               | -12.4        | Black        |
| 14  | 2.716M      | 23.2               | +0.1     | +0.2     | +9.9     | +0.1     | +0.0          | 33.5               | 46.0               | -12.5        | Black        |
| 15  | 196.256k    | 30.4               | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 40.7               | 53.8               | -13.1        | Black        |
| Ave |             |                    |          |          |          |          |               |                    |                    |              |              |
| ^   | 196.000k    | 49.1               | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 59.4               | 53.8               | +5.6         | Black        |
| 17  | 299.851k    | 18.1               | +0.1     | +0.1     | +9.9     | +0.1     | +0.0          | 28.3               | 50.2               | -21.9        | Black        |
| Ave |             |                    |          |          |          |          |               |                    |                    |              |              |
| ^   | 299.851k    | 37.4               | +0.1     | +0.1     | +9.9     | +0.1     | +0.0          | 47.6               | 50.2               | -2.6         | Black        |

CKC Laboratories, Inc. Date: 9/27/2014 Time: 12:22:37 Allegion WO#: 96065  
 15.207 AC Mains - Average Test Lead: Black 120V 60Hz Sequence#: 5 Ext ATTN: 0 dB



Note: Since the time of testing, it has come to CKC Laboratories attention the manufacturer name Allegion referenced in the above plot should read XceedID Corporation. The screen captures were taken at the time of testing and cannot be changed.

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **Allegion**  
 Specification: **15.207 AC Mains - Average**  
 Work Order #: **96065**  
 Test Type: **Conducted Emissions**  
 Equipment: **Enrollment Reader**  
 Manufacturer: **XceedID**  
 Model: **MT20**  
 S/N: **0001**

Date: 9/27/2014  
 Time: 12:19:22  
 Sequence#: 4  
 Tested By: Eddie Mariscal  
 120V 60Hz

**Test Equipment:**

| ID | Asset #  | Description          | Model               | Calibration Date | Cal Due Date |
|----|----------|----------------------|---------------------|------------------|--------------|
|    | AN02668  | Spectrum Analyzer    | E4446A              | 8/4/2014         | 8/4/2015     |
| T1 | AN02609  | High Pass Filter     | HE9615-150K-50-720B | 3/25/2014        | 3/25/2016    |
| T2 | ANMACOND | Cable                |                     | 8/26/2014        | 8/26/2016    |
| T3 | ANP02221 | Attenuator           | PE7010-10           | 6/25/2013        | 6/25/2015    |
|    | AN00374  | 50uH LISN-Black (dB) | 8028-TS-50-BNC      | 3/15/2014        | 3/15/2015    |
| T4 | AN00374  | 50uH LISN-White (dB) | 8028-TS-50-BNC      | 3/15/2014        | 3/15/2015    |

**Equipment Under Test (\* = EUT):**

| Function           | Manufacturer | Model # | S/N  |
|--------------------|--------------|---------|------|
| Enrollment Reader* | XceedID      | MT20    | 0001 |

**Support Devices:**

| Function        | Manufacturer | Model # | S/N                        |
|-----------------|--------------|---------|----------------------------|
| AC Adaptor      | Lenovo       | 42T4422 | 11S42T4422Z1ZF3D01T2<br>L3 |
| Laptop Computer | Lenovo       | SL410   | LR-ZZW25                   |

**Test Conditions / Notes:**

The EUT is placed atop a wooden, non-conductive table of height 80cm. EUT is connected to support laptop via EUT's USB cable. A card is presented to the EUT during testing in order to allow the EUT to constantly transmit. The AC mains port of the support laptop was tested.

The EUT is transmitting at 13.56Hz.

The EUT is powered by +5VDC via USB cable.

Frequency Range of Interest: 0.15-30MHz

RBW = 9kHz; VBW > RBW

Atmospheric Conditions:

Temperature: 21°C

Relative Humidity: 56%

Atmospheric Pressure: 97.8kPa

Ext Attn: 0 dB

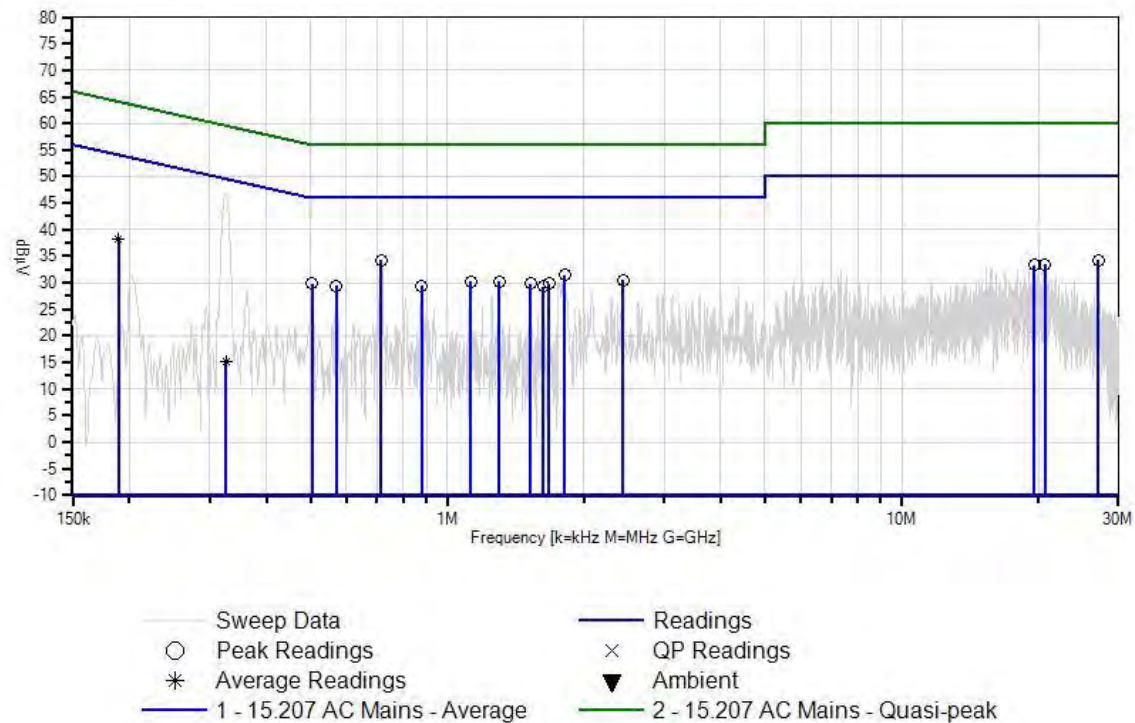
**Measurement Data:**

Reading listed by margin.

Test Lead: White

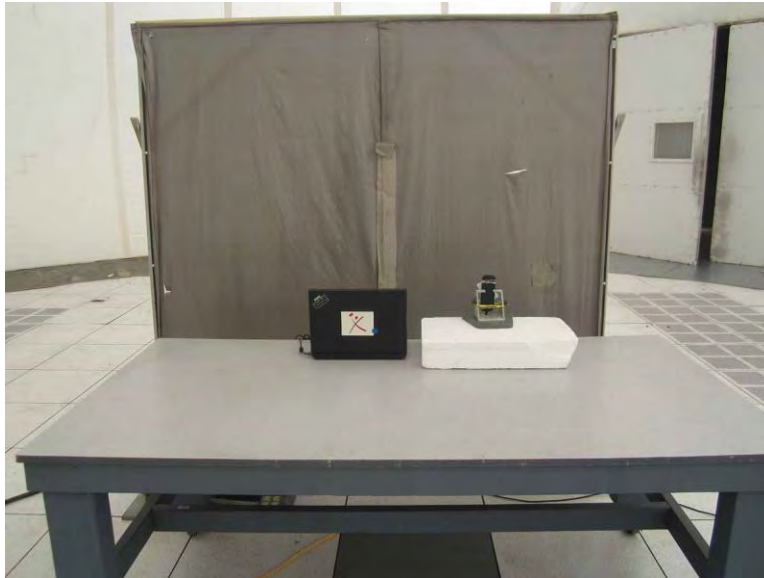
| #   | Freq<br>MHz | Rdng<br>dB $\mu$ V | T1<br>dB | T2<br>dB | T3<br>dB | T4<br>dB | Dist<br>Table | Corr<br>dB $\mu$ V | Spec<br>dB $\mu$ V | Margin<br>dB | Polar<br>Ant |
|-----|-------------|--------------------|----------|----------|----------|----------|---------------|--------------------|--------------------|--------------|--------------|
| 1   | 715.962k    | 24.0               | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 34.3               | 46.0               | -11.7        | White        |
| 2   | 1.814M      | 21.1               | +0.2     | +0.2     | +9.9     | +0.1     | +0.0          | 31.5               | 46.0               | -14.5        | White        |
| 3   | 2.435M      | 20.2               | +0.1     | +0.2     | +9.9     | +0.1     | +0.0          | 30.5               | 46.0               | -15.5        | White        |
| 4   | 1.126M      | 20.0               | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 30.3               | 46.0               | -15.7        | White        |
| 5   | 27.026M     | 23.3               | +0.2     | +0.8     | +9.9     | +0.1     | +0.0          | 34.3               | 50.0               | -15.7        | White        |
| 6   | 1.304M      | 20.0               | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 30.3               | 46.0               | -15.7        | White        |
| 7   | 188.951k    | 28.0               | +0.2     | +0.0     | +9.9     | +0.1     | +0.0          | 38.2               | 54.1               | -15.9        | White        |
| Ave |             |                    |          |          |          |          |               |                    |                    |              |              |
| ^   | 189.000k    | 50.8               | +0.2     | +0.0     | +9.9     | +0.1     | +0.0          | 61.0               | 54.1               | +6.9         | White        |
| 9   | 1.523M      | 19.5               | +0.2     | +0.2     | +9.9     | +0.1     | +0.0          | 29.9               | 46.0               | -16.1        | White        |
| 10  | 505.072k    | 19.5               | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 29.8               | 46.0               | -16.2        | White        |
| 11  | 1.674M      | 19.4               | +0.2     | +0.2     | +9.9     | +0.1     | +0.0          | 29.8               | 46.0               | -16.2        | White        |
| 12  | 570.521k    | 19.1               | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 29.4               | 46.0               | -16.6        | White        |
| 13  | 877.402k    | 19.1               | +0.2     | +0.1     | +9.9     | +0.1     | +0.0          | 29.4               | 46.0               | -16.6        | White        |
| 14  | 20.692M     | 22.4               | +0.2     | +0.7     | +9.9     | +0.2     | +0.0          | 33.4               | 50.0               | -16.6        | White        |
| 15  | 1.629M      | 18.9               | +0.2     | +0.2     | +9.9     | +0.1     | +0.0          | 29.3               | 46.0               | -16.7        | White        |
| 16  | 19.593M     | 22.4               | +0.2     | +0.6     | +9.9     | +0.2     | +0.0          | 33.3               | 50.0               | -16.7        | White        |
| 17  | 326.179k    | 5.1                | +0.1     | +0.1     | +9.9     | +0.1     | +0.0          | 15.3               | 49.5               | -34.2        | White        |
| Ave |             |                    |          |          |          |          |               |                    |                    |              |              |
| ^   | 326.179k    | 36.7               | +0.1     | +0.1     | +9.9     | +0.1     | +0.0          | 46.9               | 49.5               | -2.6         | White        |

CKC Laboratories, Inc. Date: 9/27/2014 Time: 12:19:22 Allegion WO#: 96065  
 15.207 AC Mains - Average Test Lead: White 120V 60Hz Sequence#: 4 Ext ATTN: 0 dB



Note: Since the time of testing, it has come to CKC Laboratories attention the manufacturer name Allegion referenced in the above plot should read XceedID Corporation. The screen captures were taken at the time of testing and cannot be changed.

**Test Setup Photo(s)**



Front View



Back View

## 15.209 Field Strength of Radiated Spurious Emissions

### Test Data

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **Allegion**  
 Specification: **15.209 Radiated Emissions**  
 Work Order #: **96065** Date: 10/18/2014  
 Test Type: **Maximized Emissions** Time: 09:46:32  
 Equipment: **Enrollment Reader** Sequence#: 1  
 Manufacturer: XceedID Tested By: Eddie Mariscal  
 Model: MT20  
 S/N: 0001

#### Test Equipment:

| ID | Asset # | Description       | Model    | Calibration Date | Cal Due Date |
|----|---------|-------------------|----------|------------------|--------------|
| T1 | AN01991 | Biconilog Antenna | CBL6111C | 3/7/2014         | 3/7/2016     |
| T2 | ANMA10M | Cable             |          | 8/26/2014        | 8/26/2016    |
|    | AN02668 | Spectrum Analyzer | E4446A   | 8/4/2014         | 8/4/2015     |
| T3 | AN00449 | Preamplifier (dB) | 8447F    | 4/7/2014         | 4/7/2016     |
| T4 | AN00226 | Loop Antenna      | 6502     | 3/28/2014        | 3/28/2016    |

#### Equipment Under Test (\* = EUT):

| Function           | Manufacturer | Model # | S/N  |
|--------------------|--------------|---------|------|
| Enrollment Reader* | XceedID      | MT20    | 0001 |

#### Support Devices:

| Function        | Manufacturer | Model # | S/N                    |
|-----------------|--------------|---------|------------------------|
| AC Adaptor      | Lenovo       | 42T4422 | 11S42T4422Z1ZF3D01T2L3 |
| Laptop Computer | Lenovo       | SL410   | LR-ZZW25               |

#### Test Conditions / Notes:

The EUT is placed atop a wooden, non-conductive table of height 80cm. EUT is connected to support laptop via EUT's USB cable. A card is presented to the EUT during testing in order to allow the EUT to constantly transmit. The EUT was investigated about three orthogonal axes. The data presented represents the worst-case orientation. The EUT is transmitting at 125kHz.

The EUT is powered by +5VDC via USB cable.  
 Highest internal clock of the EUT: 48MHz  
 Frequency Range of Interest: 0.009-1000MHz

0.009-0.15MHz: RBW = 200Hz; VBW > RBW  
 0.15-30MHz: RBW = 9kHz; VBW > RBW  
 30-1000MHz: RBW = 120kHz; VBW > RBW

Atmospheric Conditions:  
 Temperature: 21°C  
 Relative Humidity: 56%  
 Atmospheric Pressure: 97.8kPa

Ext Attn: 0 dB

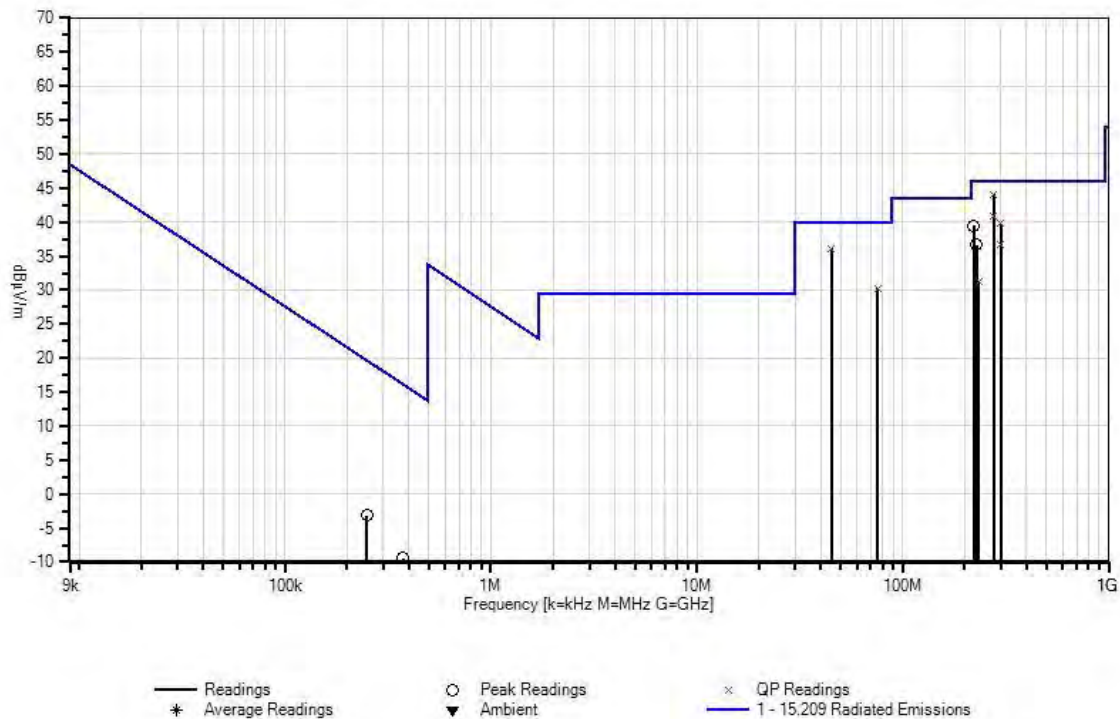
**Measurement Data:**

Reading listed by margin.

Test Distance: 10 Meters

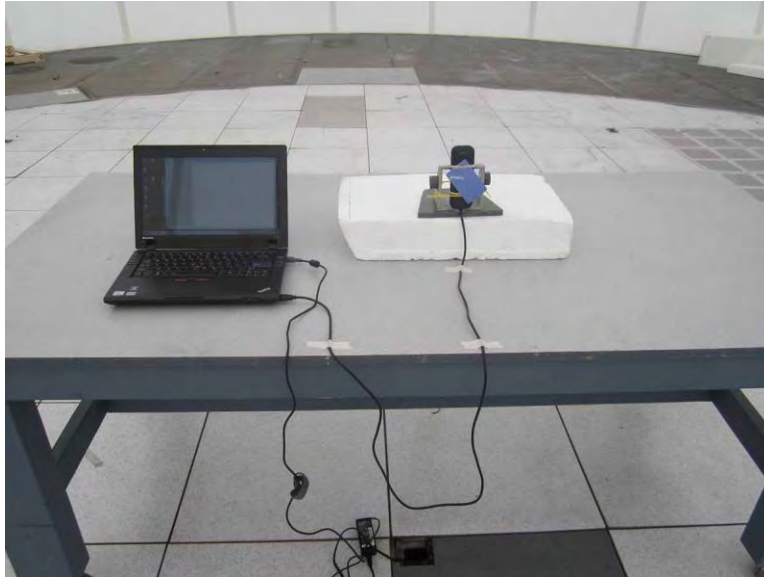
| #  | Freq<br>MHz | Rdng<br>dB $\mu$ V | T1<br>dB | T2<br>dB | T3<br>dB | T4<br>dB | Dist<br>Table | Corr<br>dB $\mu$ V/m | Spec<br>dB $\mu$ V/m | Margin<br>dB | Polar<br>Ant |
|----|-------------|--------------------|----------|----------|----------|----------|---------------|----------------------|----------------------|--------------|--------------|
| 1  | 276.023M    | 42.5               | +13.0    | +4.6     | -26.5    | +0.0     | +10.5         | 44.1                 | 46.0                 | -1.9         | Horiz        |
|    | QP          |                    |          |          |          |          |               |                      |                      |              |              |
| ^  | 276.023M    | 50.5               | +13.0    | +4.6     | -26.5    | +0.0     | +10.5         | 52.1                 | 46.0                 | +6.1         | Horiz        |
| 3  | 44.945M     | 40.0               | +11.3    | +1.6     | -27.2    | +0.0     | +10.5         | 36.2                 | 40.0                 | -3.8         | Horiz        |
|    | QP          |                    |          |          |          |          |               |                      |                      |              |              |
| ^  | 44.945M     | 46.8               | +11.3    | +1.6     | -27.2    | +0.0     | +10.5         | 43.0                 | 40.0                 | +3.0         | Horiz        |
| 5  | 276.037M    | 39.2               | +13.0    | +4.6     | -26.5    | +0.0     | +10.5         | 40.8                 | 46.0                 | -5.2         | Vert         |
|    | QP          |                    |          |          |          |          |               |                      |                      |              |              |
| ^  | 276.037M    | 47.9               | +13.0    | +4.6     | -26.5    | +0.0     | +10.5         | 49.5                 | 46.0                 | +3.5         | Vert         |
| 7  | 299.980M    | 37.6               | +13.3    | +4.9     | -26.5    | +0.0     | +10.5         | 39.8                 | 46.0                 | -6.2         | Vert         |
|    | QP          |                    |          |          |          |          |               |                      |                      |              |              |
| ^  | 299.980M    | 44.8               | +13.3    | +4.9     | -26.5    | +0.0     | +10.5         | 47.0                 | 46.0                 | +1.0         | Vert         |
| 9  | 221.140M    | 40.7               | +10.7    | +4.1     | -26.5    | +0.0     | +10.5         | 39.5                 | 46.0                 | -6.5         | Horiz        |
| 10 | 300.025M    | 34.6               | +13.3    | +4.9     | -26.5    | +0.0     | +10.5         | 36.8                 | 46.0                 | -9.2         | Horiz        |
|    | QP          |                    |          |          |          |          |               |                      |                      |              |              |
| ^  | 300.025M    | 43.0               | +13.3    | +4.9     | -26.5    | +0.0     | +10.5         | 45.2                 | 46.0                 | -0.8         | Horiz        |
| 12 | 228.070M    | 37.3               | +11.2    | +4.1     | -26.5    | +0.0     | +10.5         | 36.6                 | 46.0                 | -9.4         | Vert         |
| 13 | 75.385M     | 37.9               | +6.9     | +2.1     | -27.2    | +0.0     | +10.5         | 30.2                 | 40.0                 | -9.8         | Horiz        |
|    | QP          |                    |          |          |          |          |               |                      |                      |              |              |
| ^  | 75.380M     | 45.6               | +6.9     | +2.1     | -27.2    | +0.0     | +10.5         | 37.9                 | 40.0                 | -2.1         | Horiz        |
| 15 | 233.980M    | 31.5               | +11.6    | +4.2     | -26.5    | +0.0     | +10.5         | 31.3                 | 46.0                 | -14.7        | Vert         |
|    | QP          |                    |          |          |          |          |               |                      |                      |              |              |
| ^  | 233.980M    | 40.4               | +11.6    | +4.2     | -26.5    | +0.0     | +10.5         | 40.2                 | 46.0                 | -5.8         | Vert         |
| 17 | 250.000k    | 45.7               | +0.0     | +0.1     | +0.0     | +10.2    | -59.1         | -3.1                 | 19.6                 | -22.7        | Vert         |
| 18 | 375.000k    | 39.4               | +0.0     | +0.1     | +0.0     | +10.2    | -59.1         | -9.4                 | 16.1                 | -25.5        | Vert         |

CKC Laboratories, Inc. Date: 10/18/2014 Time: 09:46:32 Allegion WO#: 96065  
15,209 Radiated Emissions Test Distance: 10 Meters Sequence#: 1 Ext ATTN: 0 dB

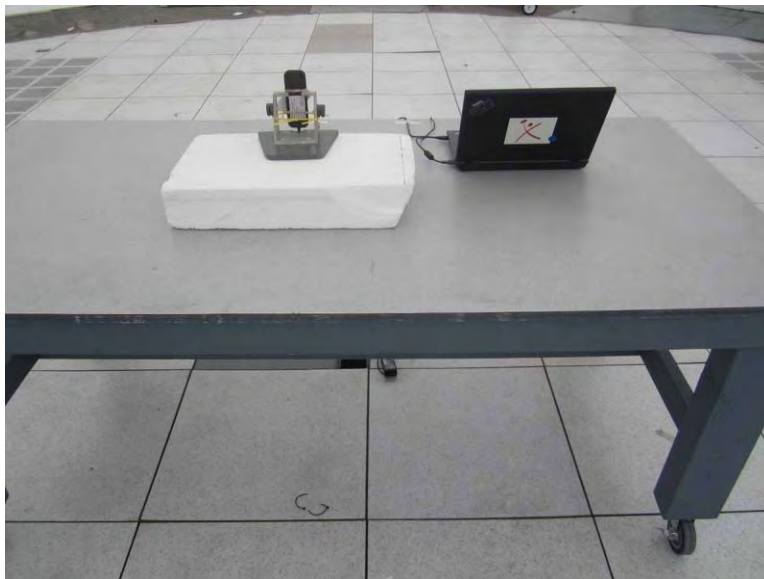


Note: Since the time of testing, it has come to CKC Laboratories attention the manufacturer name Allegion referenced in the above plot should read XceedID Corporation. The screen captures were taken at the time of testing and cannot be changed.

## Test Setup Photo(s)



Front View



Back View

## 15.209(a) Fundamental Field Strength

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **Allegion**  
 Specification: **15.209 Radiated Emissions**  
 Work Order #: **96065** Date: 9/27/2014  
 Test Type: **Maximized Emissions** Time: 13:10:16  
 Equipment: **Enrollment Reader** Sequence#: 1  
 Manufacturer: XceedID Tested By: Eddie Mariscal  
 Model: MT20  
 S/N: 0001

#### Test Equipment:

| ID | Asset #  | Description       | Model  | Calibration Date | Cal Due Date |
|----|----------|-------------------|--------|------------------|--------------|
| T1 | AN00226  | Loop Antenna      | 6502   | 3/28/2014        | 3/28/2016    |
|    | AN02668  | Spectrum Analyzer | E4446A | 8/4/2014         | 8/4/2015     |
| T2 | ANMACOND | Cable             |        | 8/26/2014        | 8/26/2016    |

#### Equipment Under Test (\* = EUT):

| Function           | Manufacturer | Model # | S/N  |
|--------------------|--------------|---------|------|
| Enrollment Reader* | XceedID      | MT20    | 0001 |

#### Support Devices:

| Function        | Manufacturer | Model # | S/N                        |
|-----------------|--------------|---------|----------------------------|
| AC Adaptor      | Lenovo       | 42T4422 | 11S42T4422Z1ZF3D01T2<br>L3 |
| Laptop Computer | Lenovo       | SL410   | LR-ZZW25                   |

#### Test Conditions / Notes:

The EUT is placed atop a wooden, non-conductive table of height 80cm. EUT is connected to support laptop via EUT's USB cable. A card is presented to the EUT during testing in order to allow the EUT to constantly transmit. The EUT was investigated about three orthogonal axes. The data presented represents the worst-case orientation. The EUT is transmitting at 125kHz.

The EUT is powered by +5VDC via USB cable.

Highest internal clock of the EUT: 48MHz

Frequency Range of Interest: Fundamental (125kHz)

RBW = 200Hz; VBW > RBW

Atmospheric Conditions:

Temperature: 21°C

Relative Humidity: 56%

Atmospheric Pressure: 97.8kPa

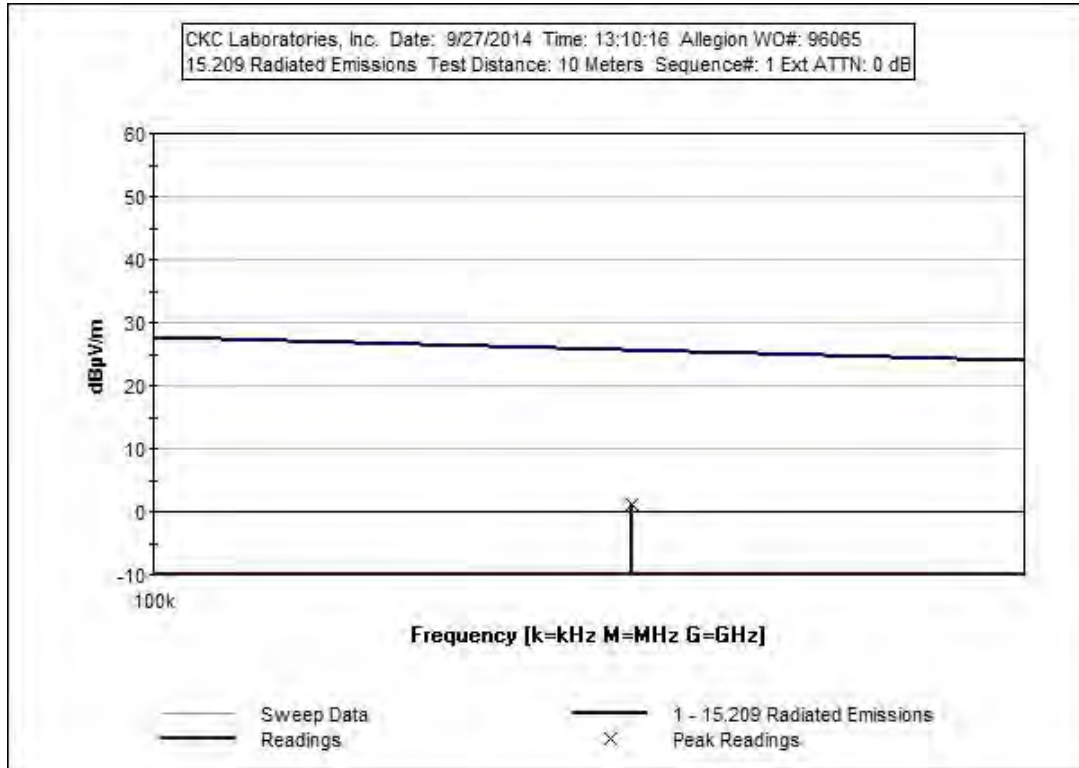
Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

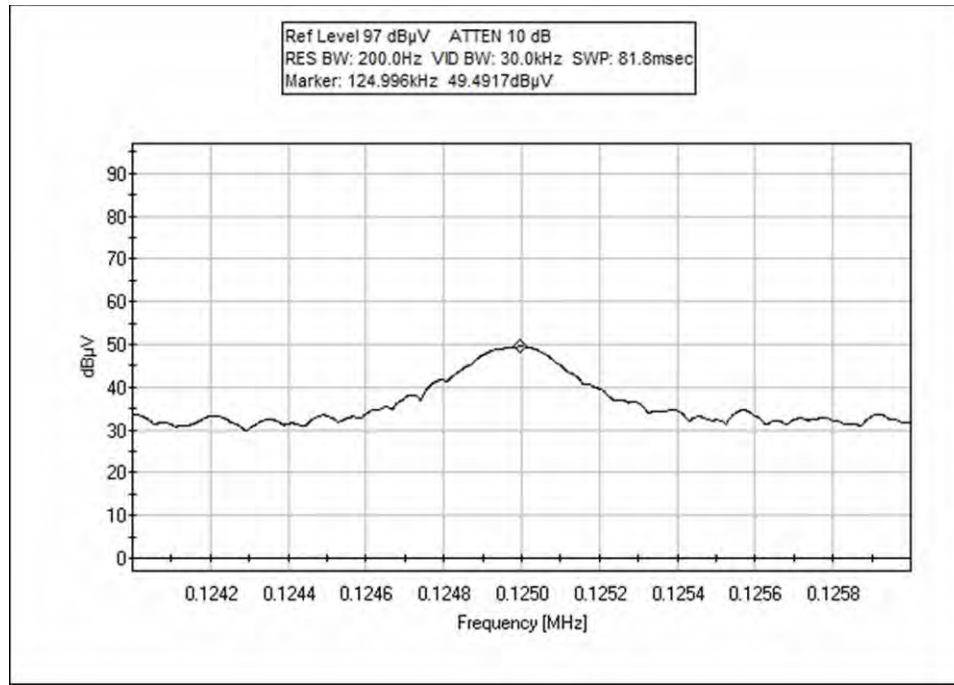
Test Distance: 10 Meters

| # | Freq<br>MHz | Rdng<br>dB $\mu$ V | T1<br>dB | T2<br>dB |  |  | Dist<br>Table | Corr<br>dB $\mu$ V/m | Spec<br>dB $\mu$ V/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------------|----------|----------|--|--|---------------|----------------------|----------------------|--------------|--------------|
| 1 | 124.980k    | 49.3               | +10.8    | +0.0     |  |  | -59.1         | 1.0                  | 25.7                 | -24.7        | Vert         |

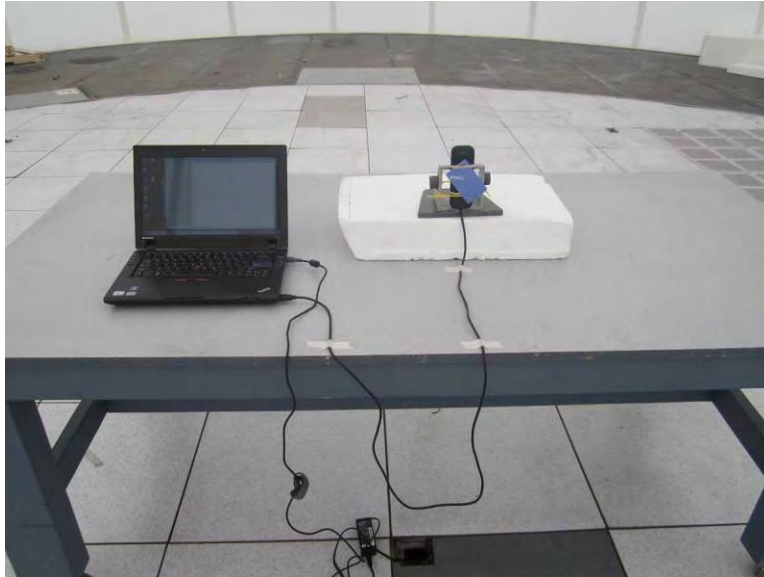


Note: Since the time of testing, it has come to CKC Laboratories attention the manufacturer name Allegion referenced in the above plot should read XceedID Corporation. The screen captures were taken at the time of testing and cannot be changed.

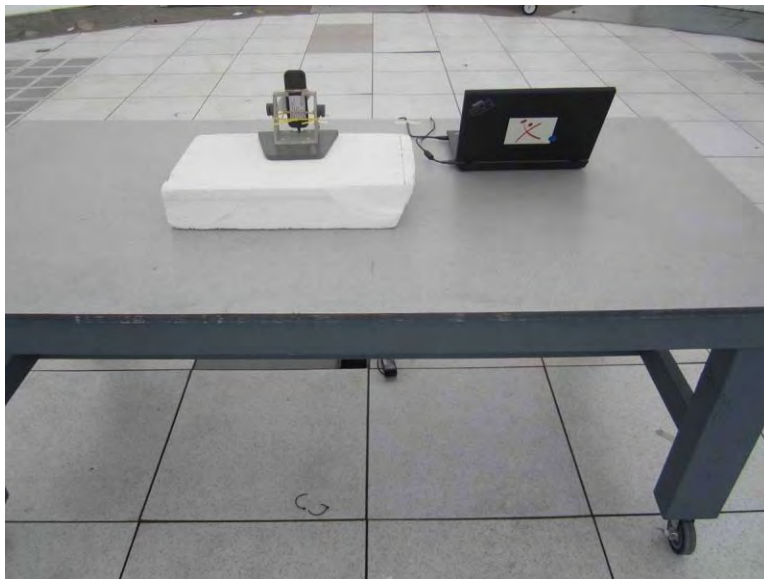
## Test Data



## Test Setup Photo(s)



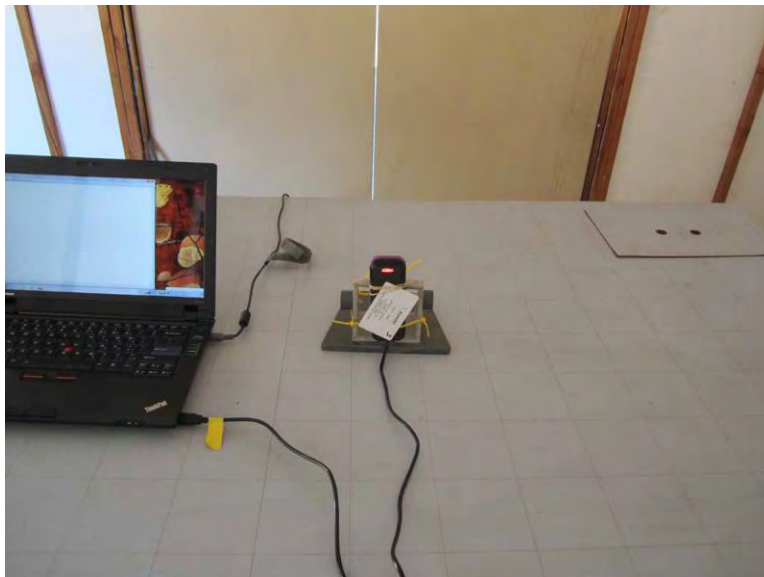
Front View



Back View



X-Axis



Y-Axis



Z-Axis

## 15.215(c) 20dB Occupied Bandwidth

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **Allegion**  
 Specification: **15.215 20dB Bandwidth**  
 Work Order #: **96065** Date: 9/26/2014  
 Test Type: **Maximized Emissions** Time: 17:25:53  
 Equipment: **Enrollment Reader** Sequence#: 1  
 Manufacturer: XceedID Tested By: Eddie Mariscal  
 Model: MT20  
 S/N: 0001

#### Test Equipment:

| ID | Asset # | Description       | Model  | Calibration Date | Cal Due Date |
|----|---------|-------------------|--------|------------------|--------------|
| T1 | AN00226 | Loop Antenna      | 6502   | 3/28/2014        | 3/28/2016    |
| T2 | ANMA10M | Cable             |        | 8/26/2014        | 8/26/2016    |
|    | AN02668 | Spectrum Analyzer | E4446A | 8/4/2014         | 8/4/2015     |

#### Equipment Under Test (\* = EUT):

| Function           | Manufacturer | Model # | S/N  |
|--------------------|--------------|---------|------|
| Enrollment Reader* | XceedID      | MT20    | 0001 |

#### Support Devices:

| Function        | Manufacturer | Model # | S/N                        |
|-----------------|--------------|---------|----------------------------|
| AC Adaptor      | Lenovo       | 42T4422 | 11S42T4422Z1ZF3D01T2<br>L3 |
| Laptop Computer | Lenovo       | SL410   | LR-ZZW25                   |

#### Test Conditions / Notes:

The EUT is placed atop a wooden, non-conductive table of height 80cm. EUT is connected to support laptop via EUT's USB cable. A card is presented to the EUT during testing in order to allow the EUT to constantly transmit. The EUT was investigated about three orthogonal axes. The data presented represents the worst-case orientation.

The EUT is transmitting at 125kHz.

The EUT is powered by +5VDC via USB cable.

Highest internal clock of the EUT: 48MHz

Frequency Range of Interest: Fundamental (125kHz)

Atmospheric Conditions: Temperature: 21°C, Relative Humidity: 56%, Atmospheric Pressure: 97.8kPa

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **Allegion**  
 Specification: **15.215 20dB Bandwidth**  
 Work Order #: **96065** Date: 9/26/2014  
 Test Type: **Maximized Emissions** Time: 17:25:53  
 Equipment: **Enrollment Reader** Sequence#: 1  
 Manufacturer: XceedID Tested By: Eddie Mariscal  
 Model: MT20  
 S/N: 0001

**Test Equipment:**

| ID | Asset # | Description       | Model  | Calibration Date | Cal Due Date |
|----|---------|-------------------|--------|------------------|--------------|
| T1 | AN00226 | Loop Antenna      | 6502   | 3/28/2014        | 3/28/2016    |
| T2 | ANMA10M | Cable             |        | 8/26/2014        | 8/26/2016    |
|    | AN02668 | Spectrum Analyzer | E4446A | 8/4/2014         | 8/4/2015     |

**Equipment Under Test (\* = EUT):**

| Function           | Manufacturer | Model # | S/N  |
|--------------------|--------------|---------|------|
| Enrollment Reader* | XceedID      | MT20    | 0001 |

**Support Devices:**

| Function        | Manufacturer | Model # | S/N                        |
|-----------------|--------------|---------|----------------------------|
| AC Adaptor      | Lenovo       | 42T4422 | 11S42T4422Z1ZF3D01T2<br>L3 |
| Laptop Computer | Lenovo       | SL410   | LR-ZZW25                   |

**Test Conditions / Notes:**

The EUT is placed atop a wooden, non-conductive table of height 80cm. EUT is connected to support laptop via EUT's USB cable. A card is presented to the EUT during testing in order to allow the EUT to constantly transmit. The EUT was investigated about three orthogonal axes. The data presented represents the worst-case orientation.

The EUT is transmitting at 13.56MHz.

The EUT is powered by +5VDC via USB cable.

Highest internal clock of the EUT: 48MHz

Frequency Range of Interest: Fundamental (13.56MHz)

Atmospheric Conditions:

Temperature: 21°C

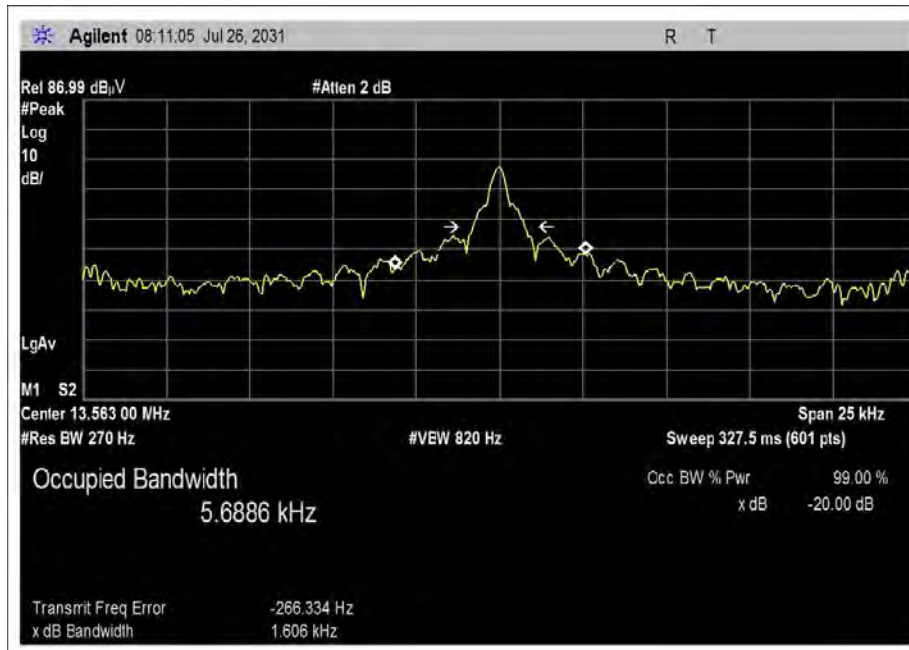
Relative Humidity: 56%

Atmospheric Pressure: 97.8kPa

Test Data



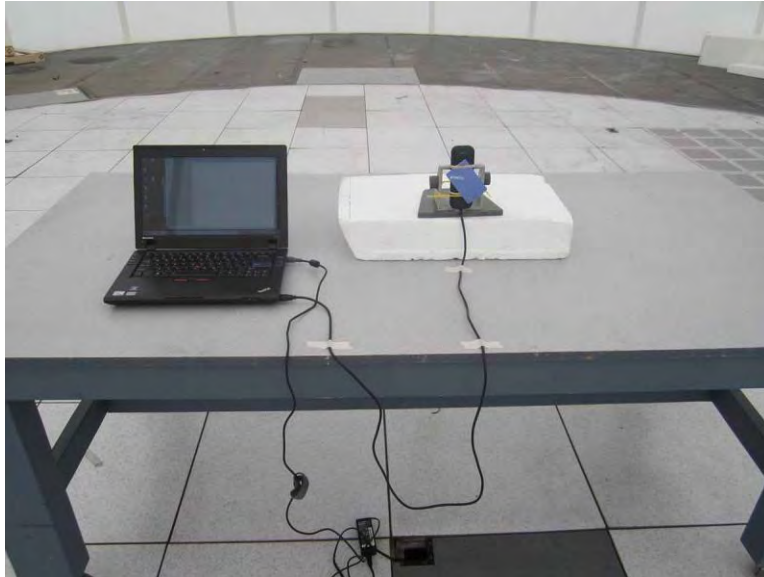
125kHz



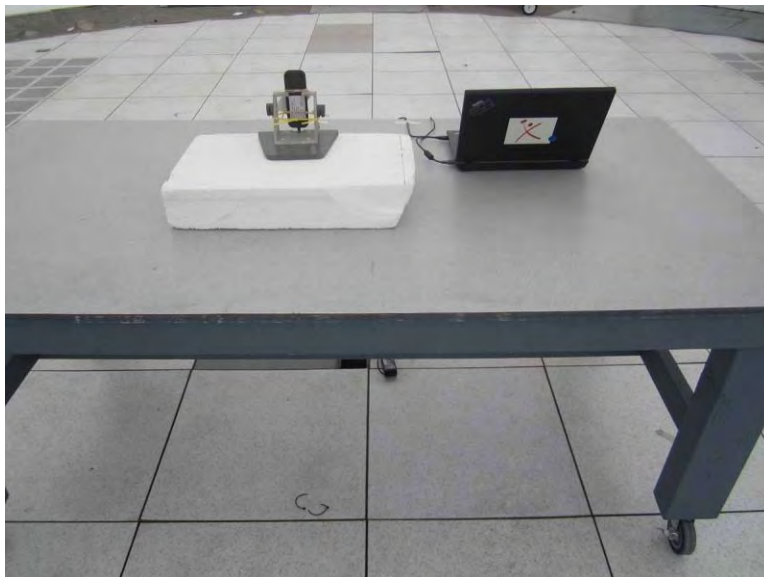
13.56MHz

Note: At the time of testing, the date on the above test screen captures was set on a default setting and should read 9/26/14. The screen capture was taken at the time of testing and cannot be changed.

## Test Setup Photo(s)



Front View



Back View

## 15.225(a) Fundamental Field Strength

### Test Data

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **Allegion**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **96065** Date: 9/26/2014  
 Test Type: **Maximized Emissions** Time: 17:25:53  
 Equipment: **Enrollment Reader** Sequence#: 1  
 Manufacturer: XceedID Tested By: Eddie Mariscal  
 Model: MT20  
 S/N: 0001

#### Test Equipment:

| ID | Asset # | Description       | Model  | Calibration Date | Cal Due Date |
|----|---------|-------------------|--------|------------------|--------------|
| T1 | AN00226 | Loop Antenna      | 6502   | 3/28/2014        | 3/28/2016    |
| T2 | ANMA10M | Cable             |        | 8/26/2014        | 8/26/2016    |
|    | AN02668 | Spectrum Analyzer | E4446A | 8/4/2014         | 8/4/2015     |

#### Equipment Under Test (\* = EUT):

| Function           | Manufacturer | Model # | S/N  |
|--------------------|--------------|---------|------|
| Enrollment Reader* | XceedID      | MT20    | 0001 |

#### Support Devices:

| Function        | Manufacturer | Model # | S/N                        |
|-----------------|--------------|---------|----------------------------|
| AC Adaptor      | Lenovo       | 42T4422 | 11S42T4422Z1ZF3D01T2<br>L3 |
| Laptop Computer | Lenovo       | SL410   | LR-ZZW25                   |

#### Test Conditions / Notes:

The EUT is placed atop a wooden, non-conductive table of height 80cm. EUT is connected to support laptop via EUT's USB cable. A card is presented to the EUT during testing in order to allow the EUT to constantly transmit. The EUT was investigated about three orthogonal axes. The data presented represents the worst-case orientation.

The EUT is transmitting at 13.56MHz.

The EUT is powered by +5VDC via USB cable.

Highest internal clock of the EUT: 48MHz

Frequency Range of Interest: Fundamental (13.56MHz)

0.009-0.15MHz: RBW = 200Hz; VBW > RBW

0.15-30MHz: RBW = 9kHz; VBW > RBW

30-1000MHz: RBW = 120kHz; VBW > RBW

Atmospheric Conditions: Temperature: 21°C, Relative Humidity: 56%, Atmospheric Pressure: 97.8kPa

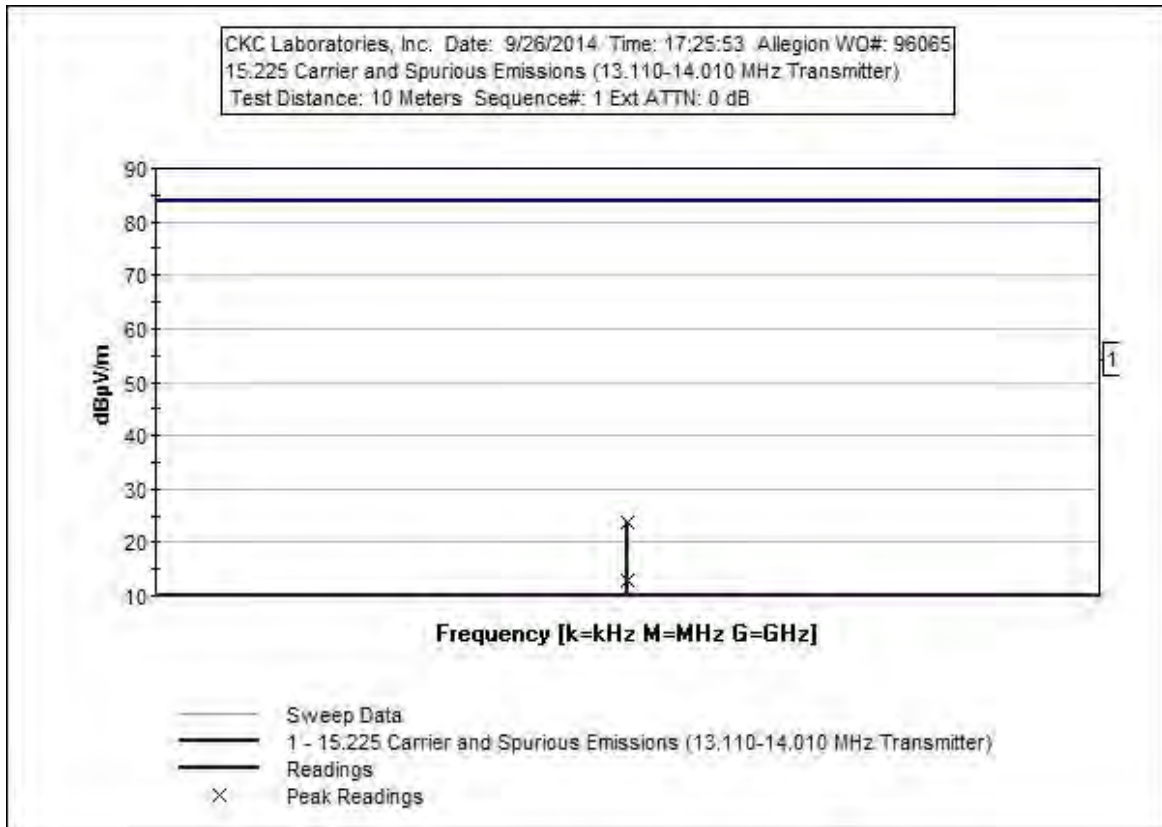
Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

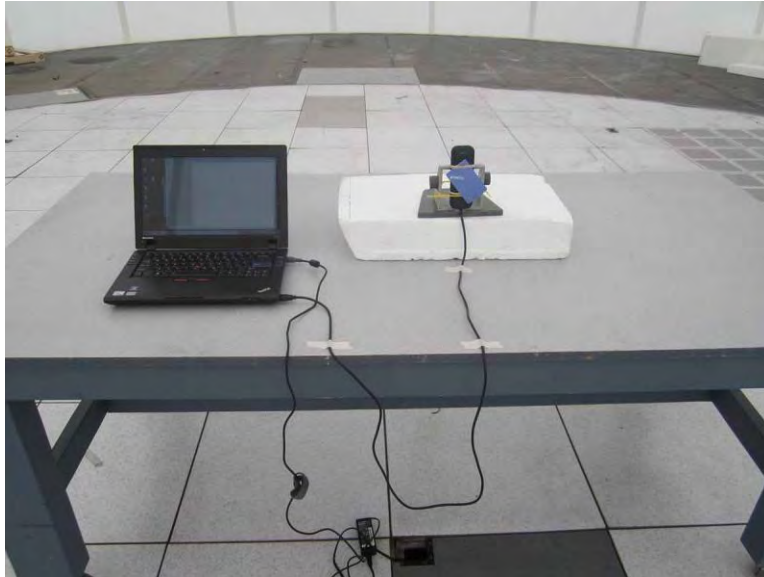
Test Distance: 10 Meters

| # | Freq<br>MHz | Rdng<br>dB $\mu$ V | T1<br>dB | T2<br>dB |  | Dist<br>Table | Corr<br>dB $\mu$ V/m | Spec<br>dB $\mu$ V/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------------|----------|----------|--|---------------|----------------------|----------------------|--------------|--------------|
| 1 | 13.563M     | 32.5               | +9.7     | +0.8     |  | -19.1         | 23.9                 | 84.0<br>Y-Axis       | -60.1        | Vert         |
| 2 | 13.563M     | 32.4               | +9.7     | +0.8     |  | -19.1         | 23.8                 | 84.0<br>Z-Axis       | -60.2        | Vert         |
| 3 | 13.563M     | 21.5               | +9.7     | +0.8     |  | -19.1         | 12.9                 | 84.0<br>X-Axis       | -71.1        | Vert         |

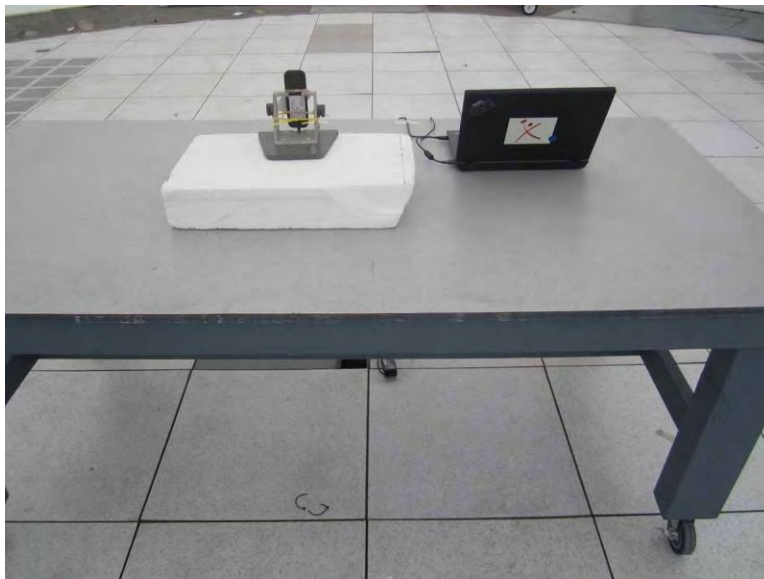


Note: Since the time of testing, it has come to CKC Laboratories attention the manufacturer name Allegion referenced in the above plot should read XceedID Corporation. The screen captures were taken at the time of testing and cannot be changed.

## Test Setup Photo(s)



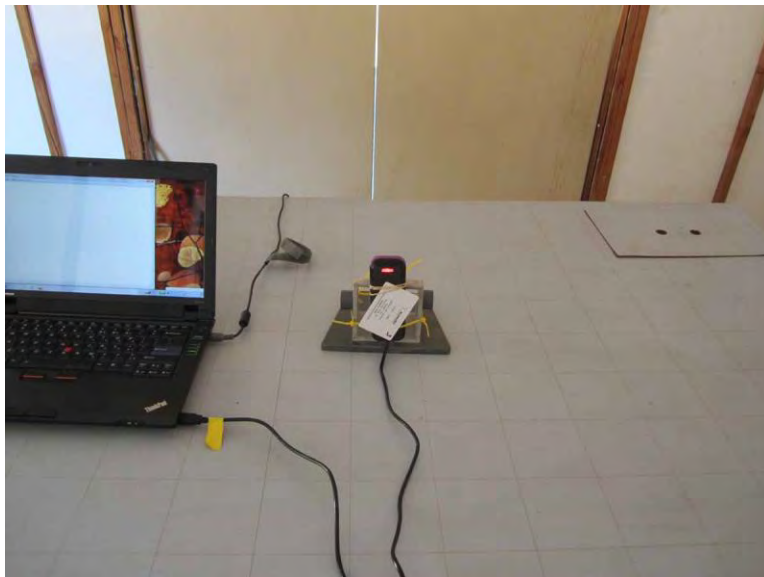
Front View



Back View



X-Axis



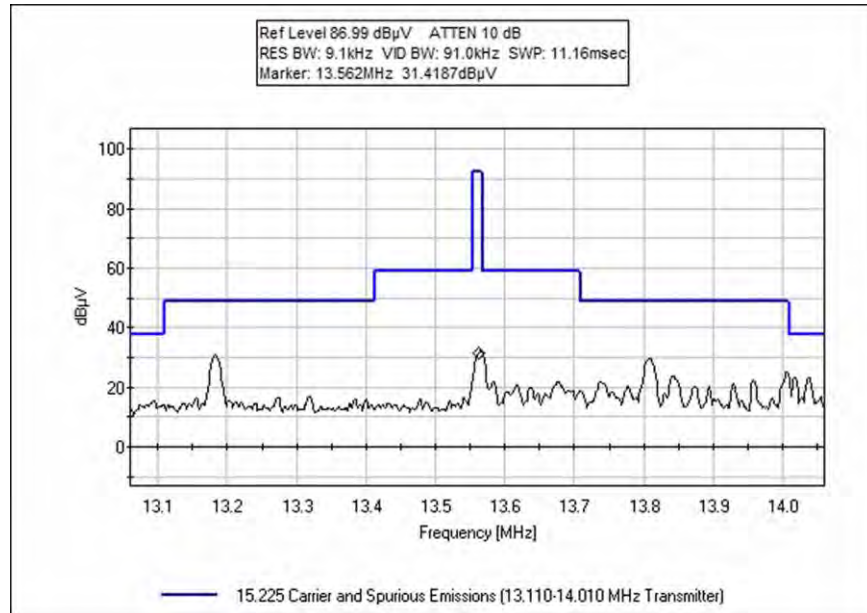
Y-Axis



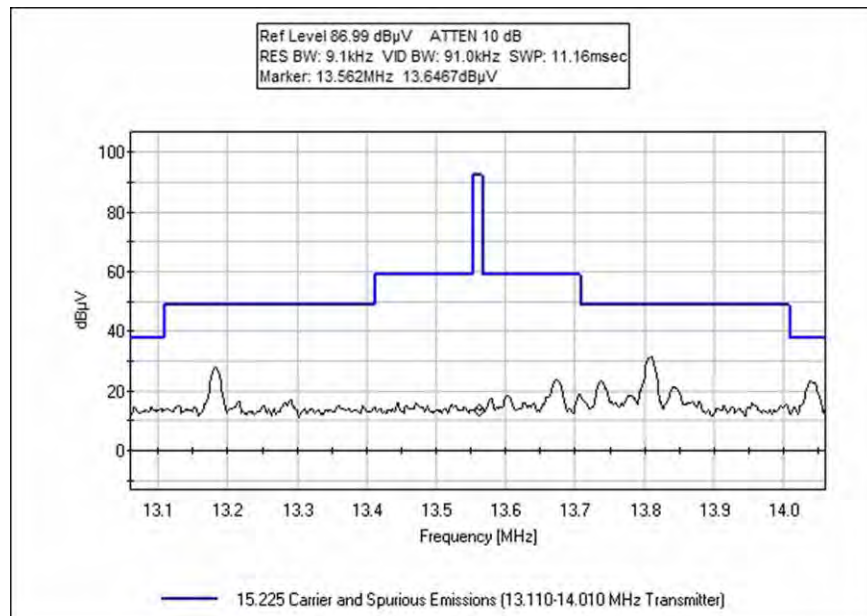
Z-Axis

## 15.225(b)(c) Emission Mask

### Test Data

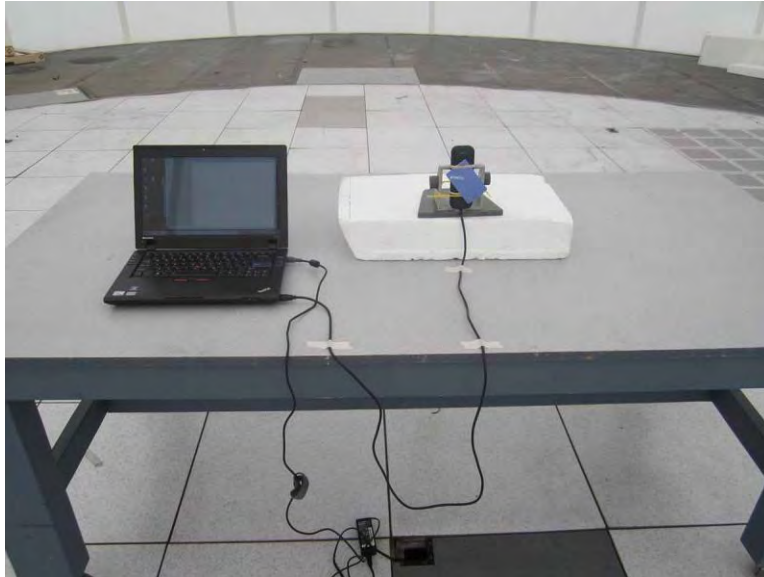


On, 13.56MHz

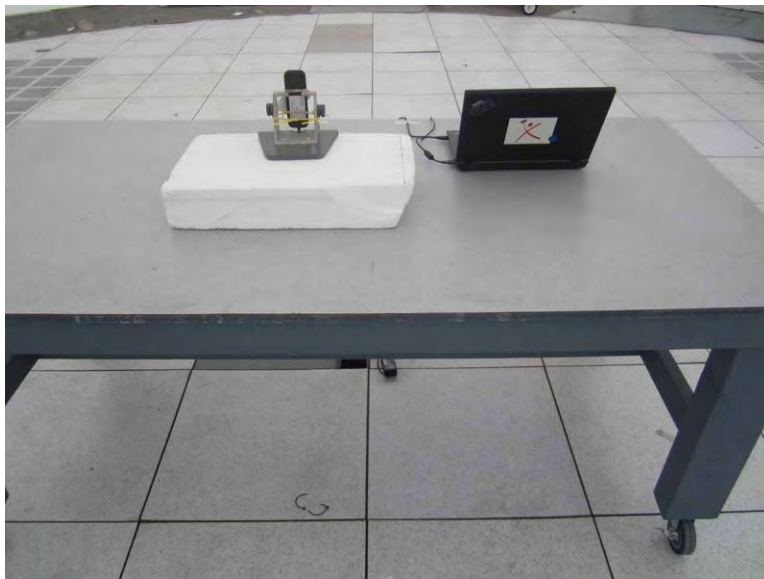


Off, 13.56MHz

## Test Setup Photo(s)



Front View



Back View

## 15.225(d) Field Strength of Spurious Emissions

### Test Data

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **Allegion**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **96065** Date: 10/18/2014  
 Test Type: **Maximized Emissions** Time: 09:41:56  
 Equipment: **Enrollment Reader** Sequence#: 1  
 Manufacturer: **XceedID** Tested By: Eddie Mariscal  
 Model: **MT20**  
 S/N: **0001**

#### Test Equipment:

| ID | Asset # | Description       | Model    | Calibration Date | Cal Due Date |
|----|---------|-------------------|----------|------------------|--------------|
| T1 | AN01991 | Biconilog Antenna | CBL6111C | 3/7/2014         | 3/7/2016     |
| T2 | ANMA10M | Cable             |          | 8/26/2014        | 8/26/2016    |
|    | AN02668 | Spectrum Analyzer | E4446A   | 8/4/2014         | 8/4/2015     |
| T3 | AN00449 | Preamplifier (dB) | 8447F    | 4/7/2014         | 4/7/2016     |
| T4 | AN00226 | Loop Antenna      | 6502     | 3/28/2014        | 3/28/2016    |

#### Equipment Under Test (\* = EUT):

| Function           | Manufacturer | Model # | S/N  |
|--------------------|--------------|---------|------|
| Enrollment Reader* | XceedID      | MT20    | 0001 |

#### Support Devices:

| Function        | Manufacturer | Model # | S/N                        |
|-----------------|--------------|---------|----------------------------|
| AC Adaptor      | Lenovo       | 42T4422 | 11S42T4422Z1ZF3D01T2<br>L3 |
| Laptop Computer | Lenovo       | SL410   | LR-ZZW25                   |

#### Test Conditions / Notes:

The EUT is placed atop a wooden, non-conductive table of height 80cm. The EUT is connected to support laptop via EUT's USB cable. A card is presented to the EUT during testing in order to allow the EUT to constantly transmit. The EUT was investigated about three orthogonal axes. The data presented represents the worst-case orientation. The EUT is transmitting at 13.56MHz.

The EUT is powered by +5VDC via USB cable.

Highest internal clock of the EUT: 48MHz

Frequency Range of Interest: 0.009-1000MHz

0.009-0.15MHz: RBW = 200Hz; VBW > RBW

0.15-30MHz: RBW = 9kHz; VBW > RBW

30-1000MHz: RBW = 120kHz; VBW > RBW

Atmospheric Conditions:

Temperature: 21°C

Relative Humidity: 56%

Atmospheric Pressure: 97.8kPa

Ext Attn: 0 dB

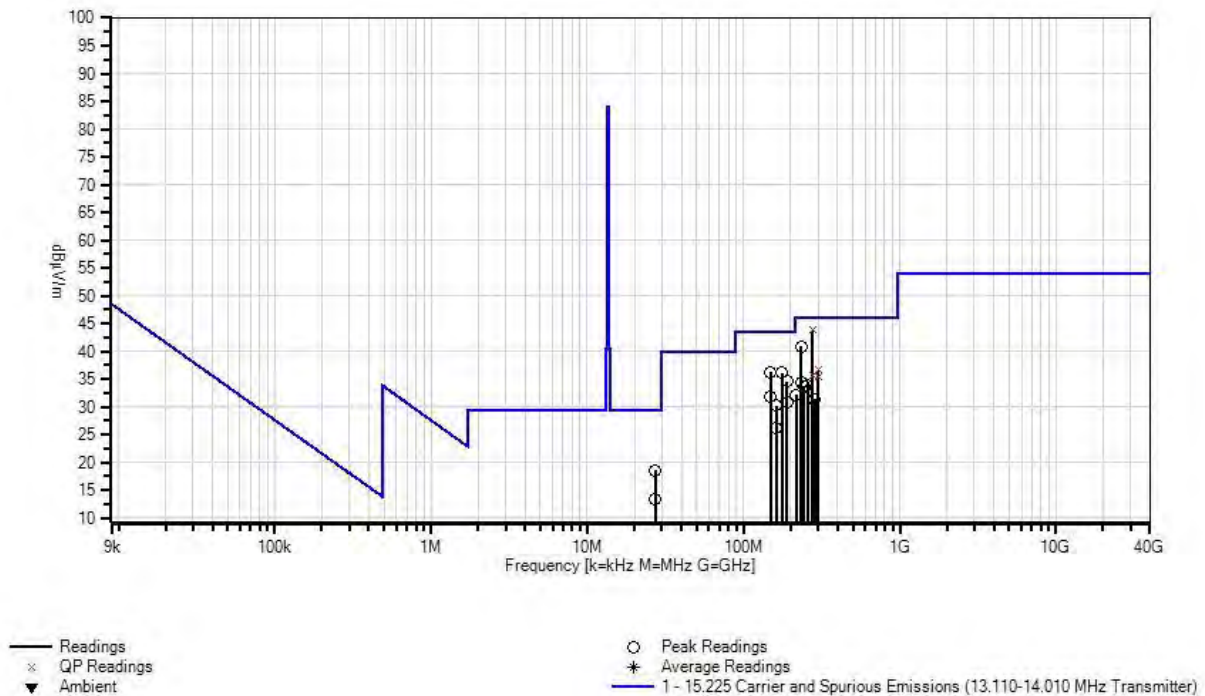
**Measurement Data:**

Reading listed by margin.

Test Distance: 10 Meters

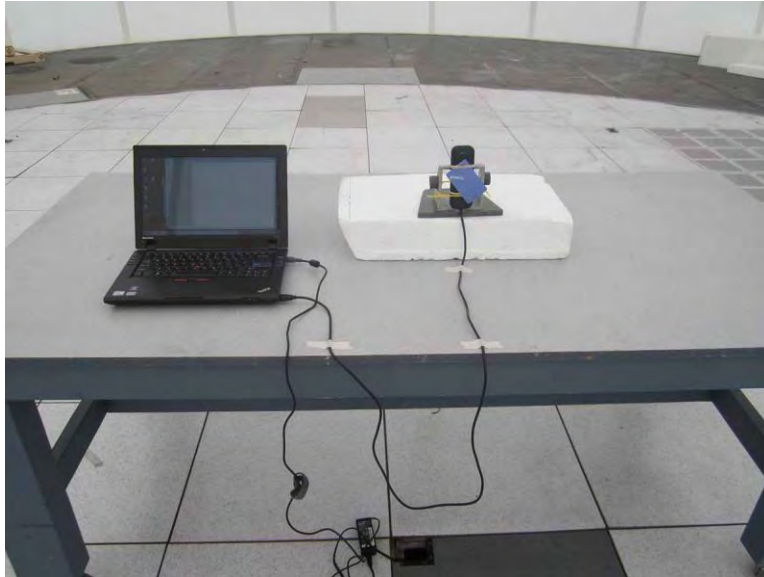
| #  | Freq<br>MHz | Rdng<br>dB $\mu$ V | T1<br>dB | T2<br>dB | T3<br>dB | T4<br>dB | Dist<br>Table | Corr<br>dB $\mu$ V/m | Spec<br>dB $\mu$ V/m | Margin<br>dB | Polar<br>Ant |
|----|-------------|--------------------|----------|----------|----------|----------|---------------|----------------------|----------------------|--------------|--------------|
| 1  | 276.024M    | 42.1               | +13.0    | +4.6     | -26.5    | +0.0     | +10.5         | 43.7                 | 46.0                 | -2.3         | Vert         |
|    | QP          |                    |          |          |          |          |               |                      |                      |              |              |
| ^  | 276.024M    | 50.2               | +13.0    | +4.6     | -26.5    | +0.0     | +10.5         | 51.8                 | 46.0                 | +5.8         | Vert         |
| 3  | 233.997M    | 41.1               | +11.6    | +4.2     | -26.5    | +0.0     | +10.5         | 40.9                 | 46.0                 | -5.1         | Vert         |
| 4  | 149.185M    | 38.2               | +11.1    | +3.3     | -26.9    | +0.0     | +10.5         | 36.2                 | 43.5                 | -7.3         | Horiz        |
| 5  | 176.310M    | 39.6               | +9.3     | +3.6     | -26.8    | +0.0     | +10.5         | 36.2                 | 43.5                 | -7.3         | Horiz        |
| 6  | 189.870M    | 37.9               | +9.1     | +3.7     | -26.7    | +0.0     | +10.5         | 34.5                 | 43.5                 | -9.0         | Horiz        |
| 7  | 299.949M    | 34.4               | +13.3    | +4.9     | -26.5    | +0.0     | +10.5         | 36.6                 | 46.0                 | -9.4         | Vert         |
|    | QP          |                    |          |          |          |          |               |                      |                      |              |              |
| ^  | 299.949M    | 43.2               | +13.3    | +4.9     | -26.5    | +0.0     | +10.5         | 45.4                 | 46.0                 | -0.6         | Vert         |
| 9  | 276.037M    | 34.0               | +13.0    | +4.6     | -26.5    | +0.0     | +10.5         | 35.6                 | 46.0                 | -10.4        | Horiz        |
|    | QP          |                    |          |          |          |          |               |                      |                      |              |              |
| ^  | 276.028M    | 42.4               | +13.0    | +4.6     | -26.5    | +0.0     | +10.5         | 44.0                 | 46.0                 | -2.0         | Horiz        |
| 11 | 300.018M    | 33.2               | +13.3    | +4.9     | -26.5    | +0.0     | +10.5         | 35.4                 | 46.0                 | -10.6        | Horiz        |
|    | QP          |                    |          |          |          |          |               |                      |                      |              |              |
| ^  | 300.018M    | 43.5               | +13.3    | +4.9     | -26.5    | +0.0     | +10.5         | 45.7                 | 46.0                 | -0.3         | Horiz        |
| 13 | 27.131M     | 29.2               | +0.0     | +1.2     | +0.0     | +7.2     | -19.1         | 18.5                 | 29.5                 | -11.0        | Vert         |
| 14 | 149.199M    | 33.8               | +11.1    | +3.3     | -26.9    | +0.0     | +10.5         | 31.8                 | 43.5                 | -11.7        | Vert         |
| 15 | 233.957M    | 34.5               | +11.6    | +4.2     | -26.5    | +0.0     | +10.5         | 34.3                 | 46.0                 | -11.7        | Horiz        |
| 16 | 257.550M    | 32.8               | +12.7    | +4.4     | -26.5    | +0.0     | +10.5         | 33.9                 | 46.0                 | -12.1        | Horiz        |
| 17 | 244.150M    | 33.2               | +12.2    | +4.3     | -26.5    | +0.0     | +10.5         | 33.7                 | 46.0                 | -12.3        | Horiz        |
| 18 | 189.880M    | 34.3               | +9.1     | +3.7     | -26.7    | +0.0     | +10.5         | 30.9                 | 43.5                 | -12.6        | Vert         |
| 19 | 162.754M    | 32.6               | +10.5    | +3.4     | -26.8    | +0.0     | +10.5         | 30.2                 | 43.5                 | -13.3        | Horiz        |
| 20 | 217.000M    | 33.8               | +10.4    | +4.0     | -26.6    | +0.0     | +10.5         | 32.1                 | 46.0                 | -13.9        | Vert         |
| 21 | 284.790M    | 29.6               | +13.1    | +4.7     | -26.5    | +0.0     | +10.5         | 31.4                 | 46.0                 | -14.6        | Horiz        |
| 22 | 27.131M     | 24.1               | +0.0     | +1.2     | +0.0     | +7.2     | -19.1         | 13.4                 | 29.5                 | -16.1        | Vert         |
| 23 | 162.756M    | 28.7               | +10.5    | +3.4     | -26.8    | +0.0     | +10.5         | 26.3                 | 43.5                 | -17.2        | Vert         |

CKC Laboratories, Inc. Date: 10/18/2014 Time: 09:41:56 Allegion WO#: 96065  
 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 10 Meters Sequence#: 1  
 Ext ATTN: 0 dB

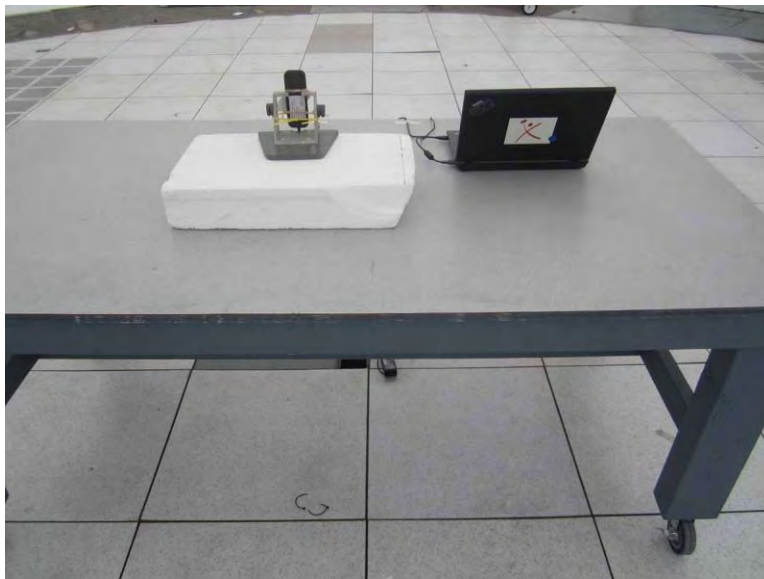


Note: Since the time of testing, it has come to CKC Laboratories attention the manufacturer name Allegion referenced in the above plot should read XceedID Corporation. The screen captures were taken at the time of testing and cannot be changed.

## Test Setup Photo(s)



Front View



Back View

## 15.225(e) Frequency Stability

### Test Conditions / Setup

The EUT was placed inside the temperature chamber, transmitting at 13.56MHz. The EUT's voltage is regulated at +5VDC via USB. The EUT also has voltage regulation at the input of the EUT to step from 5VDC to 3.3VDC; therefore voltage variations were not performed. A card is presented to the EUT to ensure constant transmission. RBW = 200Hz; VBW > RBW.

| Test Equipment |                     |            |              |            |            |
|----------------|---------------------|------------|--------------|------------|------------|
| Asset/Serial # | Description         | Model      | Manufacturer | Cal Date   | Cal Due    |
| 02668          | Spectrum Analyzer   | E4446A     | Agilent      | 08/04/2014 | 08/04/2016 |
| 03197          | Multimeter          | MM570A     | Extech       | 09/12/2014 | 09/12/2016 |
| 01879          | Temperature Chamber | S-1.2 Min. | Thermotron   | 11/15/2012 | 11/15/2014 |
| 00170          | Loop Antenna        | 7334-1     | Solar        | 02/01/2013 | 02/01/2015 |
| 02242          | Thermometer         | HH-26K     | Omega        | 05/02/2014 | 05/02/2016 |

## Test Data

**Customer:** Allegion  
**WO#:** 96065  
**Date:** 27-Sep-14  
**Test Engineer:** Eddie Mariscal  
**Test Specification:** FCC 15.225  
**Device Model #:** MT20  
**Operating Voltage:** +5 VDC  
**Frequency Limit:** 0.01 %

### Temperature Variations

| Channel Frequency: |         | Channel 1 (MHz) | Dev. (%) |
|--------------------|---------|-----------------|----------|
|                    |         | 13.562975       |          |
| Temp (C)           | Voltage |                 |          |
| -20                | +5      | 13.56299        | 0.00013  |
| -10                | +5      | 13.56300        | 0.00018  |
| 0                  | +5      | 13.56300        | 0.00018  |
| 10                 | +5      | 13.56300        | 0.00018  |
| 20                 | +5      | 13.56298        | 0.00000  |
| 30                 | +5      | 13.56298        | 0.00006  |
| 40                 | +5      | 13.56295        | 0.00018  |
| 50                 | +5      | 13.56295        | 0.00018  |

### Voltage Variations (±15%)

|       |     |  |
|-------|-----|--|
| 20    | 4.3 |  |
| 20 +5 |     |  |
| 20    | 5.8 |  |

**Max Deviation (%)** 0.00018

**PASS**

**Test Setup Photo(s)**



Temperature Chamber

## SUPPLEMENTAL INFORMATION

### Measurement Uncertainty

| Uncertainty Value | Parameter                 |
|-------------------|---------------------------|
| 4.73 dB           | Radiated Emissions        |
| 3.34 dB           | Mains Conducted Emissions |
| 3.30 dB           | Disturbance Power         |

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ . Compliance is deemed to occur provided measurements are below the specified limits.

### Emissions Test Details

#### TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

#### CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB $\mu$ V/m, the spectrum analyzer reading in dB $\mu$ V was corrected by using the following formula. This reading was then compared to the applicable specification limit.

| SAMPLE CALCULATIONS |                     |          |
|---------------------|---------------------|----------|
|                     | Meter reading       | (dBμV)   |
| +                   | Antenna Factor      | (dB)     |
| +                   | Cable Loss          | (dB)     |
| -                   | Distance Correction | (dB)     |
| -                   | Preamplifier Gain   | (dB)     |
| =                   | Corrected Reading   | (dBμV/m) |

#### TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

| MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE |                     |                  |                   |
|------------------------------------------------------------|---------------------|------------------|-------------------|
| TEST                                                       | BEGINNING FREQUENCY | ENDING FREQUENCY | BANDWIDTH SETTING |
| CONDUCTED EMISSIONS                                        | 150 kHz             | 30 MHz           | 9 kHz             |
| RADIATED EMISSIONS                                         | 9 kHz               | 150 kHz          | 200 Hz            |
| RADIATED EMISSIONS                                         | 150 kHz             | 30 MHz           | 9 kHz             |
| RADIATED EMISSIONS                                         | 30 MHz              | 1000 MHz         | 120 kHz           |
| RADIATED EMISSIONS                                         | 1000 MHz            | >1 GHz           | 1 MHz             |

#### SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or carrot ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

##### **Peak**

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

##### **Quasi-Peak**

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

##### **Average**

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.