

# Sargent Manufacturing Company

## TEST REPORT

### SCOPE OF WORK

Emissions Testing – Electronic access control system with RF Module, Model NTD and NTC Series

### REPORT NUMBER

105779772BOX-006.BLE

### ISSUE DATE

January 16, 2025

### [REVISED DATE]

Original issue

### DOCUMENT CONTROL NUMBER

Non-Specific Radio Report Shell Rev. October 2022  
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## EMISSIONS TEST REPORT

(Class II Permissive Change)

**Report Number:** 105779772BOX-006.BLE

**Project Number:** G105779772

**Report Issue Date:** January 16, 2025

**Model(s) Tested:** NTD623-ACC, NTC623-ACC

**Model(s) Partially Tested:** None

**Model(s) Not Tested but declared equivalent by the client:** None

**Standards:** CFR47 FCC Part 15 Subpart C, Section 15.247: 05/2024  
CFR47 FCC Part 15 Subpart B 15.109: 05/2024  
RSS-247 Issue 3 August 2023,  
RSS-210 Issue 10 December 2019  
KDB 558074 D01 15.247 Meas Guidance v05r02: 04/2019  
RSS-Gen Issue 5 April 2018 +Amendment 1 March 2019

(NTD623-ACC, NTD643-ACC, NTC643-ACC)

FCC: U4A-YRD642BLEV1

IC: 6982A-YRD642BLEV1

(NTC623-ACC)

FCC: U4A-YRD622BLEV1

IC: 6982A-YRD622BLEV1

Tested by:  
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Client:  
Sargent Manufacturing Company  
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New Haven, CT 6511  
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## 1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the products tested **comply** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

## 2 Test Summary

| Section | Test full name                                                                                                                  | Result |
|---------|---------------------------------------------------------------------------------------------------------------------------------|--------|
| 3       | Client Information                                                                                                              | --     |
| 4       | Description of Equipment Under Test and Variant Models                                                                          | --     |
| 5       | System Setup and Method                                                                                                         | --     |
| 6       | Transmitter spurious emissions<br>CFR47 FCC Part 15 Subpart C, Section 15.247 (d): 05/2024<br>RSS-247 Issue 3 August 2023       | Pass   |
| 7       | Digital Device Radiated Spurious Emissions<br>CFR47 FCC Part 15 Subpart B 15.109: 05/2024<br>ISED ICES-003 Issue 7 October 2020 | --     |
| 8       | Revision History                                                                                                                | --     |

Notes: The EUT is battery powered. The radio does not transmit simultaneously with other radio within the electronic access control system in normal operation.

### 3 Client Information

This EUT was tested at the request of:

**Client:** Sargent Manufacturing Company  
100 Sargent Drive  
New Haven, CT 6511  
USA

**Contact:** Dave Debiase  
**Telephone:** 203-821-5724  
**Email:** dave.debiase@assaabloy.com

### 4 Description of Equipment Under Test and Variant Models

**Manufacturer:** Sargent Manufacturing Company  
100 Sargent Drive  
New Haven, CT 6511  
USA

| Equipment Under Test                                          |                               |              |                        |
|---------------------------------------------------------------|-------------------------------|--------------|------------------------|
| Description                                                   | Manufacturer                  | Model Number | Serial Number          |
| Electronic access control system with RF Module<br>RFID (NTD) | Sargent Manufacturing Company | NTD623-ACC   | 14-D623<br>A16XNC00083 |
| Electronic access control system with RF Module<br>BLE (NTD)  | Sargent Manufacturing Company | NTD623-ACC   | 14-D623<br>A16XNC0080  |
| Electronic access control system with RF Module<br>RFID (NTC) | Sargent Manufacturing Company | NTC623-ACC   | NTC623<br>A13X0100913  |
| Electronic access control system with RF Module<br>BLE (NTC)  | Sargent Manufacturing Company | NTC623-ACC   | YRC622<br>A13XNB00985  |

|                            |                                    |
|----------------------------|------------------------------------|
| <b>Receive Date:</b>       | 05/06/2024 (NTD), 06/24/2024 (NTC) |
| <b>Received Condition:</b> | Good                               |
| <b>Type:</b>               | Production                         |

| Description of Equipment Under Test (provided by client)                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electronic access control system. It contains the radio modules as below.<br><br>(NTD623-ACC, NTD643-ACC, NTC643-ACC)<br>FCC: U4A-YRD642BLEV1<br>IC: 6982A-YRD642BLEV1<br><br>(NTC623-ACC)<br>FCC: U4A-YRD622BLEV1<br>IC: 6982A-YRD622BLEV1 |

| Equipment Under Test Power Configuration |               |                 |                  |
|------------------------------------------|---------------|-----------------|------------------|
| Rated Voltage                            | Rated Current | Rated Frequency | Number of Phases |
| 6 V (4 x 1.5 V Batteries)                | N/A           | DC              | N/A              |
|                                          |               |                 |                  |

**Operating modes of the EUT:**

| No. | Descriptions of EUT Exercising                                                                |
|-----|-----------------------------------------------------------------------------------------------|
| 1   | RFID – Pre-programmed to transmit continuously with modulation at low, mid, and high channels |
|     |                                                                                               |

**Software used by the EUT:**

| No. | Descriptions of EUT Exercising                                 |
|-----|----------------------------------------------------------------|
| 1   | None – Pre-programmed to transmit continuously with modulation |
|     |                                                                |

| 13.56 MHz RFID Radio/Receiver Characteristics                                   |                              |
|---------------------------------------------------------------------------------|------------------------------|
| Frequency Band(s)                                                               | 2402-2480 MHz                |
| Modulation Type(s)                                                              | GFSK                         |
| Maximum Field Strength                                                          | Not cover in this report     |
| Test Channels                                                                   | 2402 MHz, 2440 MHz, 2480 MHz |
| Occupied Bandwidth                                                              | Not cover in this report     |
| Frequency Hopper: Number of Hopping Channels                                    | N/A                          |
| Frequency Hopper: Channel Dwell Time                                            | N/A                          |
| Frequency Hopper: Max interval between two instances of use of the same channel | N/A                          |
| MIMO Information (# of Transmit and Receive antenna ports)                      | N/A                          |
| Equipment Type                                                                  | Limited Module               |
| Antenna Type and Gain                                                           | PCB Trace Antenna<br>1 dBi   |

**Variant Models:**

The following variant models were not tested as part of this evaluation, but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

None

## 5 System Setup and Method

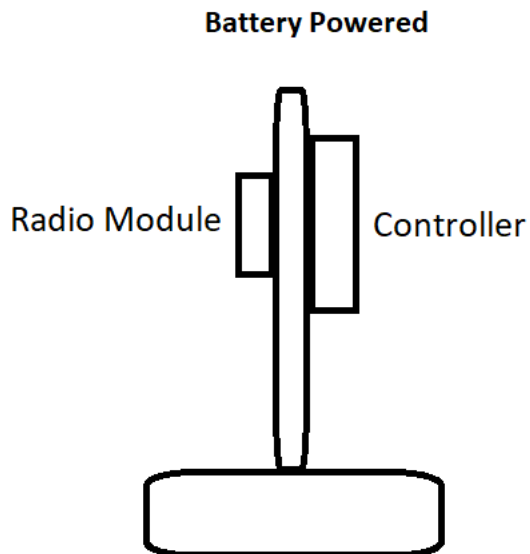
| Cables |             |        |           |          |             |
|--------|-------------|--------|-----------|----------|-------------|
| ID     | Description | Length | Shielding | Ferrites | Termination |
| --     | None        | N/A    | N/A       | N/A      | N/A         |
|        |             |        |           |          |             |

| Support Equipment |              |              |               |
|-------------------|--------------|--------------|---------------|
| Description       | Manufacturer | Model Number | Serial Number |
| None              | N/A          | N/A          | N/A           |
|                   |              |              |               |

### 5.1 Method:

Configuration as required by ANSI C63.10-2013, RSS-Gen Issue 5 April 2018, ANSI C63.4:2014, and KDB 558074 D01 15.247 Meas Guidance v05r02: 04/2019.

### 5.2 EUT Block Diagram:



## 6 Transmitter spurious emissions

### 6.1 Method

Tests are performed in accordance with CFR47 FCC Part 15.247, RSS-247, ANSI C63.10, and KDB 558074 D0115.247 Meas Guidancev05r02.

**TEST SITE:** 10m ALSE

**The 10m ALSE** is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

#### Measurement Uncertainty

| Measurement             | Frequency Range | Expanded Uncertainty (k=2) | Ucisp  |
|-------------------------|-----------------|----------------------------|--------|
| Radiated Emissions, 10m | 30-1000 MHz     | 4.6dB                      | 6.3 dB |
| Radiated Emissions, 3m  | 30-1000 MHz     | 5.3 dB                     | 6.3 dB |
| Radiated Emissions, 3m  | 1-6 GHz         | 4.5 dB                     | 5.2 dB |
| Radiated Emissions, 3m  | 6-15 GHz        | 5.2 dB                     | 5.5 dB |
| Radiated Emissions, 3m  | 15-18 GHz       | 5.0 dB                     | 5.5 dB |
| Radiated Emissions, 3m  | 18-40 GHz       | 5.0 dB                     | 5.5 dB |

As shown in the table above our radiated emissions  $U_{lab}$  is less than the corresponding  $U_{CISPR}$  reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

#### Sample Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where

FS = Field Strength in dB $\mu$ V/m

RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB

AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB $\mu$ V/m. This



value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

RA = 52.0 dB $\mu$ V

AF = 7.4 dB/m

CF = 1.6 dB

AG = 29.0 dB

FS = 32 dB $\mu$ V/m

To convert from dB $\mu$ V to  $\mu$ V or mV the following was used:

$UF = 10^{(NF / 20)}$  where UF = Net Reading in  $\mu$ V  
NF = Net Reading in dB $\mu$ V

**Example:**

FS = RA + AF + CF – AG = 52.0 + 7.4 + 1.6 – 29.0 = 32.0

UF =  $10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$

Alternately, when BAT-EMC Emission Software is used, the “Level” includes all losses and gains and is compared directly in the “Margin” column to the “Limit”. The “Correction” includes Antenna Factor, Preamp, and Cable Loss. These are already accounted for in the “Level” column.

## 6.2 Limits

Limits – FCC Part §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c))

Notes: The limits for RSS-247 are the same as the FCC limits above.

### 6.3 Test Equipment Used:

Test equipment used from 30-1000 MHz on 05/06/2024

| Asset    | Description                             | Manufacturer         | Model                | Serial      | Cal Date   | Cal Due    |
|----------|-----------------------------------------|----------------------|----------------------|-------------|------------|------------|
| DAV007'  | Weather Station Vantage Vue             | Davis                | 6250                 | MS191212003 | 03/27/2024 | 03/27/2025 |
| ROS014'  | Receiver 1Hz-44GHz                      | Rhode & Schwarz      | ESW 44               | 103232      | 06/10/2024 | 06/10/2025 |
| 145-420' | Receiver to floor cable                 | Utiflex              | UFB311A-2-0591-70070 | 145-420     | 02/27/2024 | 02/27/2025 |
| HS003'   | 10m under floor cable                   | Huber-Schuner        | 10m-1                | HS003       | 02/27/2024 | 02/27/2025 |
| IW006'   | DC-18GHz cable 8.4m long                | Insulated Wire       | 2800-NPS             | IW006       | 05/23/2024 | 05/23/2025 |
| HS001'   | DC-18GHz cable 1.5m long                | Huber & Suhner       | SucoFlex 106A        | HS001       | 01/30/2024 | 01/30/2025 |
| 145145'  | Broadband Hybrid Antenna 30 MHz - 3 GHz | Sunol Sciences Corp. | JB3                  | A122313     | 07/11/2024 | 07/11/2025 |
| PRE10'   | 30-1000MHz pre-amp                      | ITS                  | PRE10                | PRE10       | 02/27/2024 | 02/27/2025 |

Test equipment used from 1-3 GHz on 05/06/2024

| Asset    | Description                  | Manufacturer    | Model                | Serial      | Cal Date   | Cal Due    |
|----------|------------------------------|-----------------|----------------------|-------------|------------|------------|
| DAV007'  | Weather Station Vantage Vue  | Davis           | 6250                 | MS191212003 | 03/27/2024 | 03/27/2025 |
| ROS014'  | Receiver 1Hz-44GHz           | Rhode & Schwarz | ESW 44               | 103232      | 06/10/2024 | 06/10/2025 |
| 145-420' | Receiver to floor cable      | Utiflex         | UFB311A-2-0591-70070 | 145-420     | 02/27/2024 | 02/27/2025 |
| 145-414' | Cable 145-414                | Huber + Suhner  | 3m Track A cable     | 145-414     | 07/15/2024 | 07/15/2025 |
| 145-422' | 10Amp Pre-amp to under floor | Utiflex         | UFB311A-0-2756-70070 | 145-422     | 03/26/2024 | 03/26/2025 |
| IW003'   | 8.4 meter cable              | Insulated Wire  | 2800-NPS             | 003         | 01/17/2024 | 01/17/2025 |
| ETS002   | 1-18GHz DRG Horn Antenna     | ETS Lindgren    | 3117                 | 00143260    | 09/04/2024 | 09/04/2025 |
| BONN001  | 1-18GHz low noise pre-amp    | Bonn            | BLMA 0118-M          | 1811749     | 07/24/2024 | 07/24/2025 |
| REA008   | band reject filter 2.4GHz    | Reactel, Inc    | 12RX7-2441.75-x140 S | 17-01       | 10/31/2023 | 10/31/2024 |

Test equipment used from 3-18 GHz on 05/06/2024

| Asset    | Description                  | Manufacturer    | Model                | Serial      | Cal Date   | Cal Due    |
|----------|------------------------------|-----------------|----------------------|-------------|------------|------------|
| DAV007'  | Weather Station Vantage Vue  | Davis           | 6250                 | MS191212003 | 03/27/2024 | 03/27/2025 |
| ROS014'  | Receiver 1Hz-44GHz           | Rhode & Schwarz | ESW 44               | 103232      | 06/10/2024 | 06/10/2025 |
| 145-420' | Receiver to floor cable      | Utiflex         | UFB311A-2-0591-70070 | 145-420     | 02/27/2024 | 02/27/2025 |
| 145-414' | Cable 145-414                | Huber + Suhner  | 3m Track A cable     | 145-414     | 07/15/2024 | 07/15/2025 |
| 145-422' | 10Amp Pre-amp to under floor | Utiflex         | UFB311A-0-2756-70070 | 145-422     | 03/26/2024 | 03/26/2025 |
| IW003'   | 8.4 meter cable              | Insulated Wire  | 2800-NPS             | 003         | 01/17/2024 | 01/17/2025 |
| ETS002'  | 1-18GHz DRG Horn Antenna     | ETS Lindgren    | 3117                 | 00143260    | 09/04/2024 | 09/04/2025 |
| BONN001' | 1-18GHz low noise pre-amp    | Bonn            | BLMA 0118-M          | 1811749     | 07/24/2024 | 07/24/2025 |
| REA004'  | 3GHz High Pass Filter        | Reactel, Inc    | 7HSX-3G/18G-S11      | 06-1        | 02/27/2024 | 02/27/2025 |

#### Software Utilized:

| Name    | Manufacturer | Version    |
|---------|--------------|------------|
| BAT-EMC | Nexio        | 2023.0.9.0 |

Test equipment used from 18-25 GHz on 05/06/2024

| Asset           | Description                        | Manufacturer      | Model           | Serial      | Cal Date   | Cal Due    |
|-----------------|------------------------------------|-------------------|-----------------|-------------|------------|------------|
| DAV007'         | Weather Station Vantage Vue        | Davis             | 6250            | MS191212003 | 03/27/2024 | 03/27/2025 |
| ROS005-1'       | Signal and Spectrum Analyzer       | Rohde and Shwartz | FSW43           | 100646      | 11/22/2023 | 11/22/2024 |
| CBLHF2012-5M-2' | 5m 9kHz-40GHz Coaxial Cable - SET2 | Huber & Suhner    | SF102           | 252676002   | 02/27/2024 | 02/27/2025 |
| CBLHF2012-2M-1' | 2m 9kHz-40GHz Coaxial Cable - SET1 | Huber & Suhner    | SF102           | 252675001   | 02/27/2024 | 02/27/2025 |
| EMC018'         | 18-40GHz Pre-amp 40dB gain         | The EMC Shop      | PA40G           | 27490-01    | 08/06/2024 | 08/06/2025 |
| EMC04'          | ANTENNA, RIDGED GUIDE, 18-40 GHZ   | EMCO              | 3116            | 2090        | 02/13/2024 | 02/13/2025 |
| REA006'         | 18GHz High Pass Filter             | Reactel, Inc      | 7HS-18G/40G K11 | (06)1       | 04/23/2024 | 04/23/2025 |

#### Software Utilized:

| Name | Manufacturer | Version |
|------|--------------|---------|
| None | N/A          | N/A     |

## Test equipment used from 30-1000 MHz on 12/15/2024

| Asset   | Description                             | Manufacturer         | Model                | Serial      | Cal Date   | Cal Due    |
|---------|-----------------------------------------|----------------------|----------------------|-------------|------------|------------|
| DAV007  | Weather Station Vantage Vue             | Davis                | 6250                 | MS191212003 | 03/27/2024 | 03/27/2025 |
| ROS014  | Receiver 1Hz-44GHz                      | Rhode & Schwarz      | ESW 44               | 103232      | 06/10/2024 | 06/10/2025 |
| 145-420 | Receiver to floor cable                 | Utiflex              | UFB311A-2-0591-70070 | 145-420     | 02/27/2024 | 02/27/2025 |
| HS003   | 10m under floor cable                   | Huber-Schuner        | 10m-1                | HS003       | 02/27/2024 | 02/27/2025 |
| IW006   | DC-18GHz cable 8.4m long                | Insulated Wire       | 2800-NPS             | IW006       | 05/23/2024 | 05/23/2025 |
| HS001   | DC-18GHz cable 1.5m long                | Huber & Suhner       | SucoFlex 106A        | HS001       | 01/30/2024 | 01/30/2025 |
| 145145  | Broadband Hybrid Antenna 30 MHz - 3 GHz | Sunol Sciences Corp. | JB3                  | A122313     | 07/11/2024 | 07/11/2025 |
| PRE10   | 30-1000MHz pre-amp                      | ITS                  | PRE10                | PRE10       | 02/27/2024 | 02/27/2025 |

## Test equipment used from 1-3 GHz on 12/15/2024

| Asset   | Description                  | Manufacturer    | Model                | Serial      | Cal Date   | Cal Due    |
|---------|------------------------------|-----------------|----------------------|-------------|------------|------------|
| DAV007  | Weather Station Vantage Vue  | Davis           | 6250                 | MS191212003 | 03/27/2024 | 03/27/2025 |
| ROS014  | Receiver 1Hz-44GHz           | Rhode & Schwarz | ESW 44               | 103232      | 06/10/2024 | 06/10/2025 |
| 145-420 | Receiver to floor cable      | Utiflex         | UFB311A-2-0591-70070 | 145-420     | 02/27/2024 | 02/27/2025 |
| 145-414 | Cable 145-414                | Huber + Suhner  | 3m Track A cable     | 145-414     | 07/15/2024 | 07/15/2025 |
| 145-422 | 10Amp Pre-amp to under floor | Utiflex         | UFB311A-0-2756-70070 | 145-422     | 03/26/2024 | 03/26/2025 |
| IW003   | 8.4 meter cable              | Insulated Wire  | 2800-NPS             | 003         | 01/17/2024 | 01/17/2025 |
| ETS002  | 1-18GHz DRG Horn Antenna     | ETS Lindgren    | 3117                 | 00143260    | 09/04/2024 | 09/04/2025 |
| BONN001 | 1-18GHz low noise pre-amp    | Bonn            | BLMA 0118-M          | 1811749     | 07/24/2024 | 07/24/2025 |
| REA008  | band reject filter 2.4GHz    | Reactel, Inc    | 12RX7-2441.75-x140 S | 17-01       | 10/31/2023 | 10/31/2024 |
| WEI32   | 10 dB 18GHz 5W Attenuator    | Weinschel       | WA2-10-0403          | WEI32       | 01/08/2024 | 01/08/2025 |

## Test equipment used from 3-6 GHz on 12/15/2024

| Asset   | Description                  | Manufacturer    | Model                | Serial      | Cal Date   | Cal Due    |
|---------|------------------------------|-----------------|----------------------|-------------|------------|------------|
| DAV007  | Weather Station Vantage Vue  | Davis           | 6250                 | MS191212003 | 03/27/2024 | 03/27/2025 |
| ROS014  | Receiver 1Hz-44GHz           | Rhode & Schwarz | ESW 44               | 103232      | 06/10/2024 | 06/10/2025 |
| 145-420 | Receiver to floor cable      | Utiflex         | UFB311A-2-0591-70070 | 145-420     | 02/27/2024 | 02/27/2025 |
| 145-414 | Cable 145-414                | Huber + Suhner  | 3m Track A cable     | 145-414     | 07/15/2024 | 07/15/2025 |
| 145-422 | 10Amp Pre-amp to under floor | Utiflex         | UFB311A-0-2756-70070 | 145-422     | 03/26/2024 | 03/26/2025 |
| IW003   | 8.4 meter cable              | Insulated Wire  | 2800-NPS             | 003         | 01/17/2024 | 01/17/2025 |
| ETS002  | 1-18GHz DRG Horn Antenna     | ETS Lindgren    | 3117                 | 00143260    | 09/04/2024 | 09/04/2025 |
| BONN001 | 1-18GHz low noise pre-amp    | Bonn            | BLMA 0118-M          | 1811749     | 07/24/2024 | 07/24/2025 |
| REA004  | 3GHz High Pass Filter        | Reactel, Inc    | 7HSX-3G/18G-S11      | 06-1        | 02/27/2024 | 02/27/2025 |

## Test equipment used from 6-18 GHz on 12/15/2024

| Asset   | Description                  | Manufacturer    | Model                | Serial      | Cal Date   | Cal Due    |
|---------|------------------------------|-----------------|----------------------|-------------|------------|------------|
| DAV007  | Weather Station Vantage Vue  | Davis           | 6250                 | MS191212003 | 03/27/2024 | 03/27/2025 |
| ROS014  | Receiver 1Hz-44GHz           | Rhode & Schwarz | ESW 44               | 103232      | 06/10/2024 | 06/10/2025 |
| 145-420 | Receiver to floor cable      | Utiflex         | UFB311A-2-0591-70070 | 145-420     | 02/27/2024 | 02/27/2025 |
| 145-414 | Cable 145-414                | Huber + Suhner  | 3m Track A cable     | 145-414     | 07/15/2024 | 07/15/2025 |
| 145-422 | 10Amp Pre-amp to under floor | Utiflex         | UFB311A-0-2756-70070 | 145-422     | 03/26/2024 | 03/26/2025 |
| IW003   | 8.4 meter cable              | Insulated Wire  | 2800-NPS             | 003         | 01/17/2024 | 01/17/2025 |
| ETS002  | 1-18GHz DRG Horn Antenna     | ETS Lindgren    | 3117                 | 00143260    | 09/04/2024 | 09/04/2025 |
| BONN001 | 1-18GHz low noise pre-amp    | Bonn            | BLMA 0118-M          | 1811749     | 07/24/2024 | 07/24/2025 |
| REA001  | 6.0GHz High Pass Filter      | Reactel, Inc    | 11HS-6G/18G-S11      | 06-1        | 02/27/2024 | 02/27/2025 |

## Software Utilized:

| Name    | Manufacturer | Version    |
|---------|--------------|------------|
| BAT-EMC | Nexio        | 2023.0.9.0 |

## Test equipment used from 18-25 GHz on 12/15/2024

| Asset           | Description                        | Manufacturer     | Model           | Serial      | Cal Date   | Cal Due    |
|-----------------|------------------------------------|------------------|-----------------|-------------|------------|------------|
| DAV007          | Weather Station Vantage Vue        | Davis            | 6250            | MS191212003 | 03/27/2024 | 03/27/2025 |
| CBLHF2012-5M-2' | 5m 9kHz-40GHz Coaxial Cable - SET2 | Huber & Suhner   | SF102           | 252676002   | 02/27/2024 | 02/27/2025 |
| CBLHF2012-2M-1' | 2m 9kHz-40GHz Coaxial Cable - SET1 | Huber & Suhner   | SF102           | 252675001   | 02/27/2024 | 02/27/2025 |
| EMC018          | 18-40GHz Pre-amp 40dB gain         | The EMC Shop     | PA40G           | 27490-01    | 08/06/2024 | 08/06/2025 |
| EMC04           | ANTENNA, RIDGED GUIDE, 18-40 GHZ   | EMCO             | 3116            | 2090        | 02/13/2024 | 02/13/2025 |
| REA006          | 18GHz High Pass Filter             | Reactel, Inc     | 7HS-18G/40G K11 | (06)1       | 04/23/2024 | 04/23/2025 |
| ROS011          | EMI Test Receiver                  | Rohde & Schwartz | ESW44           | 103296      | 11/06/2024 | 11/06/2025 |

## Software Utilized:

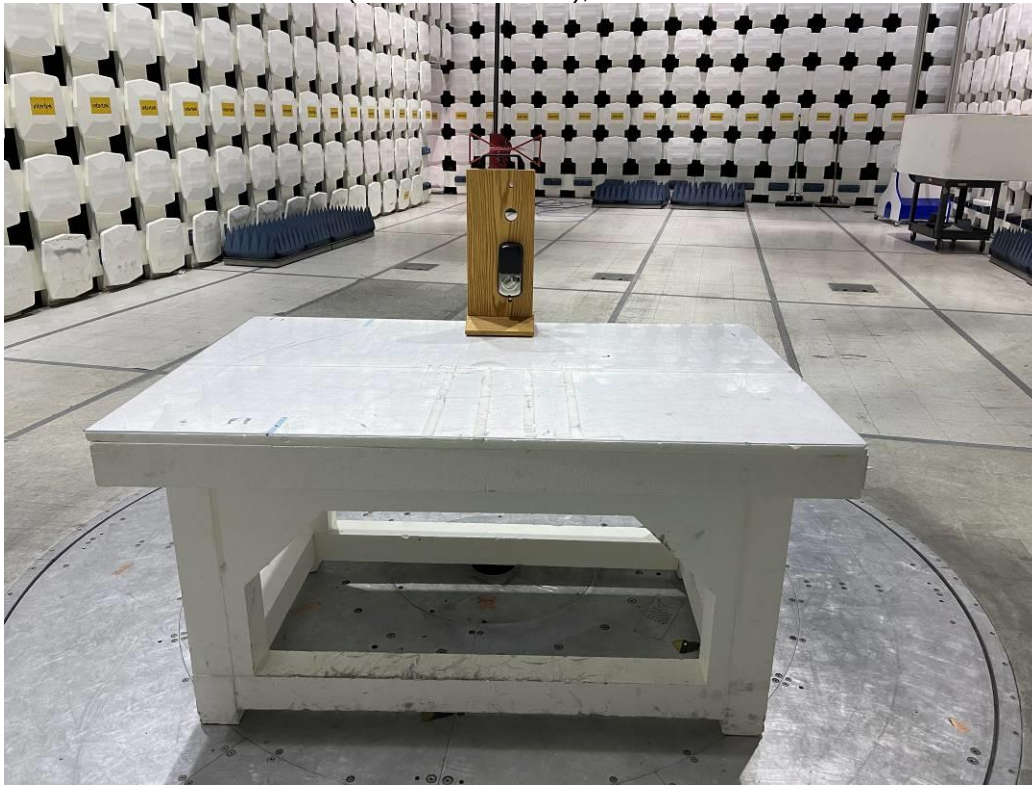
| Name | Manufacturer | Version |
|------|--------------|---------|
| None | N/A          | N/A     |

## 6.4 Results:

The sample tested was found to Comply.

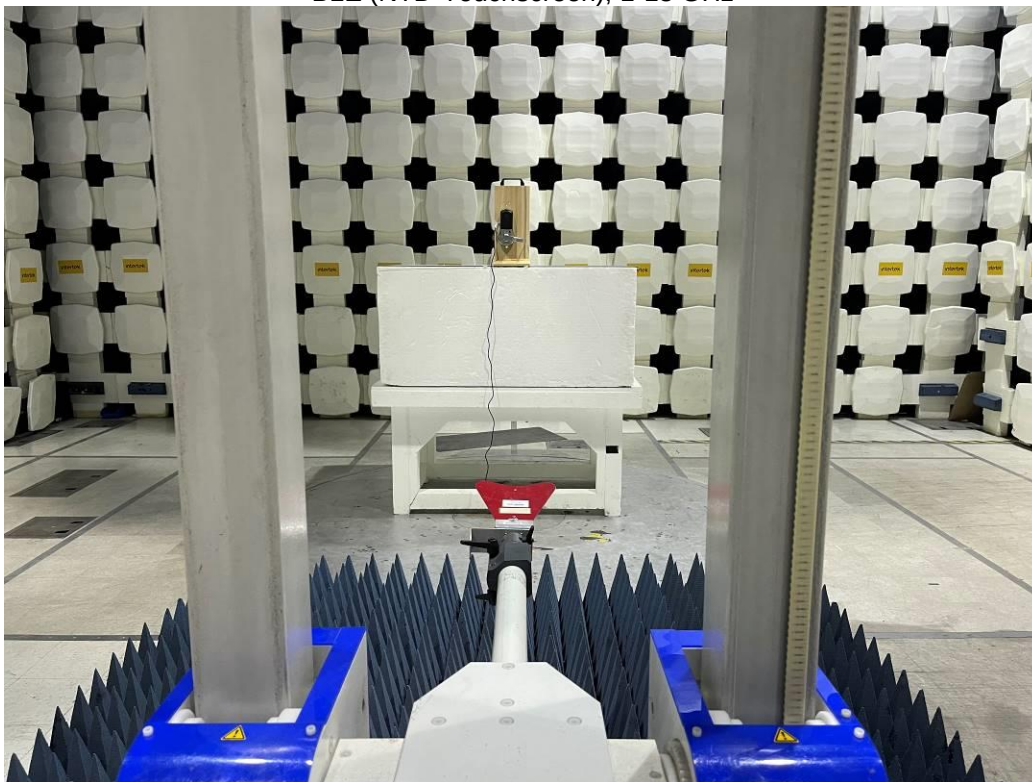
## 6.5 Setup Photographs:

BLE (NTD-Touchscreen), 30-1000 MHz





BLE (NTD-Touchscreen), 1-18 GHz



BLE (NTD-Touchscreen), 18-25 GHz

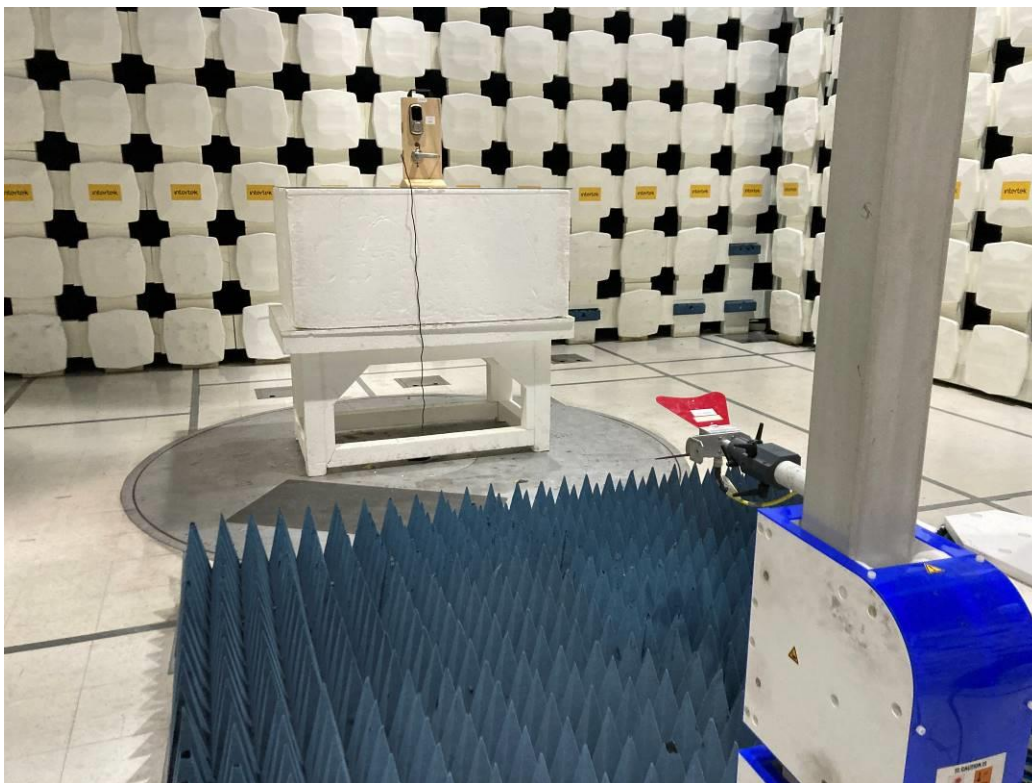




BLE (NTC-Touchscreen), 30-1000 MHz

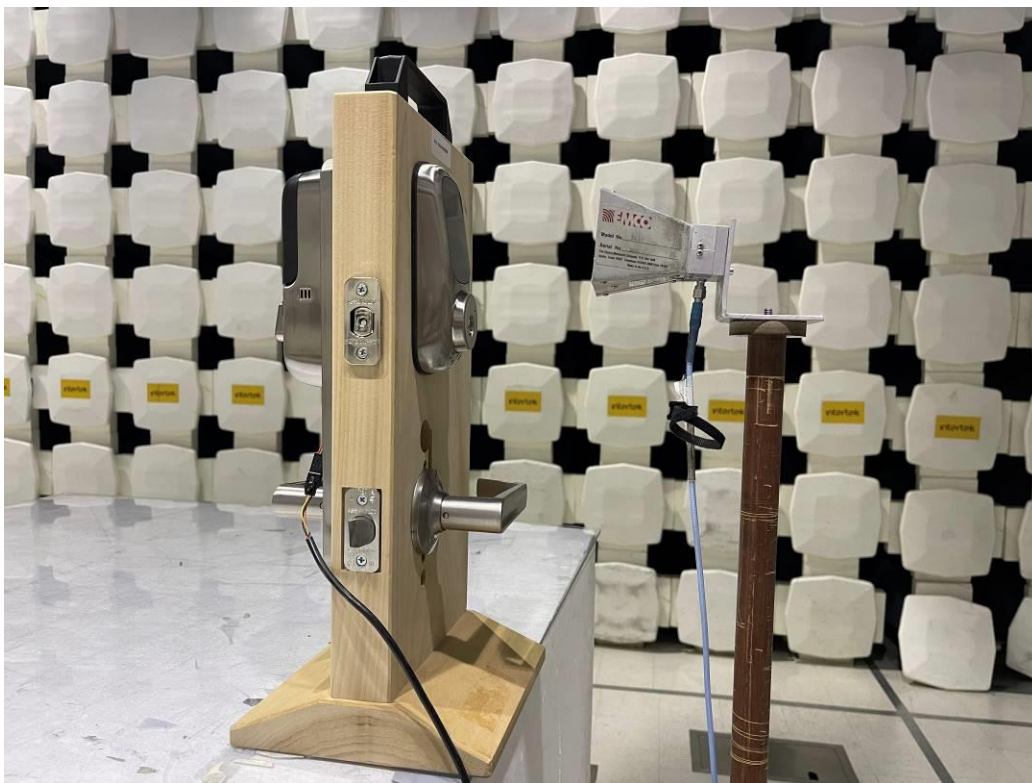


BLE (NTC-Touchscreen), 1-18 GHz





BLE (NTC-Touchscreen), 18-25 GHz



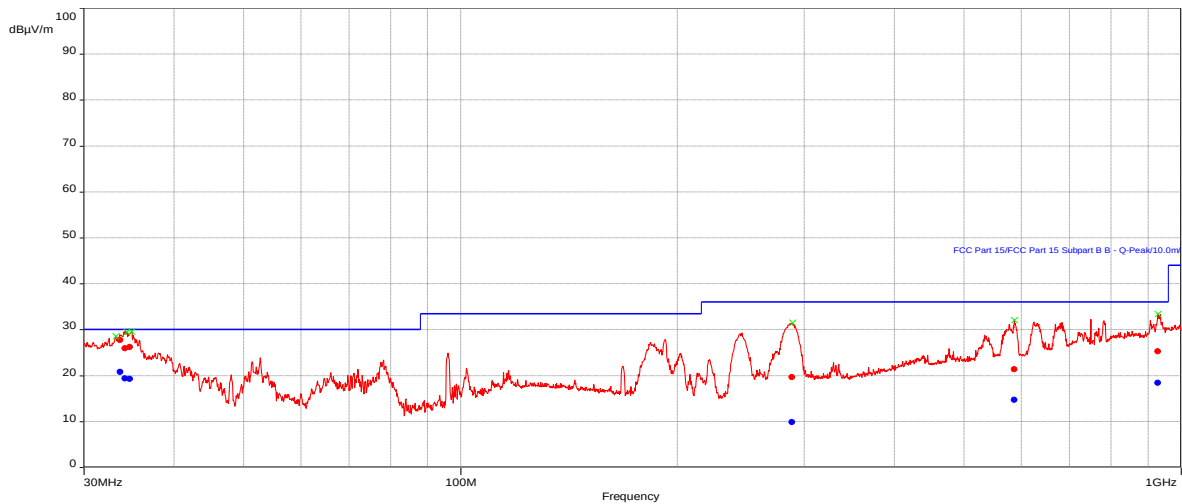
## 6.6 Plots/Data:

BLE (NTD-Touchscreen), Low Channel, 30-1000 MHz, Test Distance at 10m, (Vertical & Horizontal Polarities)

### Test Information:

|                           |                                                              |
|---------------------------|--------------------------------------------------------------|
| Date and Time             | 5/6/2024 12:50:11 PM                                         |
| Client and Project Number | Sargent Assa Abloy (NTD & NTC - Touchscreen)                 |
| Engineer                  | Kouma Sinn                                                   |
| Temperature               | 23 deg C                                                     |
| Humidity                  | 45 %                                                         |
| Atmospheric Pressure      | 1007 mbars                                                   |
| Comments                  | Scan 8_BLE (NTD-Touchscreen), Tx Low Channel, RE 30-1000 MHz |

### Graph:



### Results:

#### QuasiPeak (PASS) (6)

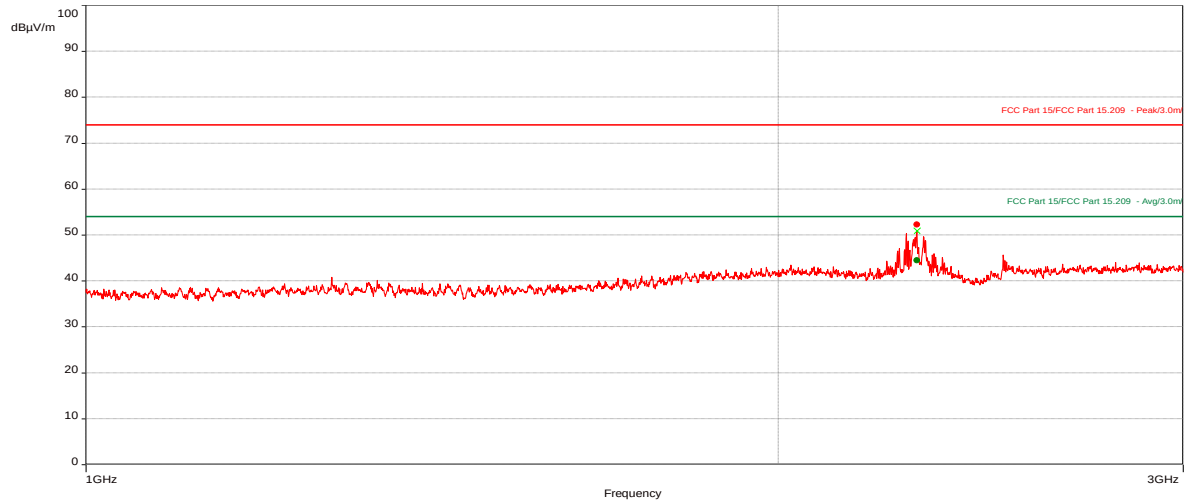
| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | RBW  | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------|--------------|-----------------|
| 33.6829         | 20.85          | 30.00          | -9.15       | 61.20       | 1.00       | 120k | 0.10         | -14.93          |
| 34.2006         | 19.43          | 30.00          | -10.57      | 55.90       | 2.54       | 120k | 0.10         | -15.26          |
| 34.7763         | 19.27          | 30.00          | -10.73      | 50.30       | 1.31       | 120k | 0.10         | -15.60          |
| 288.5688        | 9.93           | 36.00          | -26.07      | 294.70      | 4.00       | 120k | 0.10         | -18.10          |
| 587.176         | 14.71          | 36.00          | -21.29      | 256.50      | 4.00       | 120k | 0.10         | -11.62          |
| 928.1633        | 18.41          | 36.00          | -17.59      | 289.00      | 4.00       | 120k | 0.10         | -5.68           |

BLE (NTD-Touchscreen), Low Channel, 1-3 GHz, Test Distance at 3m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                          |
|---------------------------|----------------------------------------------------------|
| Date and Time             | 5/6/2024 11:10:21 AM                                     |
| Client and Project Number | Sargent Assa Abloy (NTD & NTC - Touchscreen)             |
| Engineer                  | Kouma Sinn                                               |
| Temperature               | 23 deg C                                                 |
| Humidity                  | 45 %                                                     |
| Atmospheric Pressure      | 1007 mbars                                               |
| Comments                  | Scan 6_BLE (NTD-Touchscreen), Tx Low Channel, RE 1-3 GHz |

**Graph:**



**Results:**

Peak (PASS) (1)

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|-----------------|
| 2297.925        | 2.27           | 74.00          | -71.73      | 35.00       | 3.05       | Horizontal | 1M  | -17.94          |

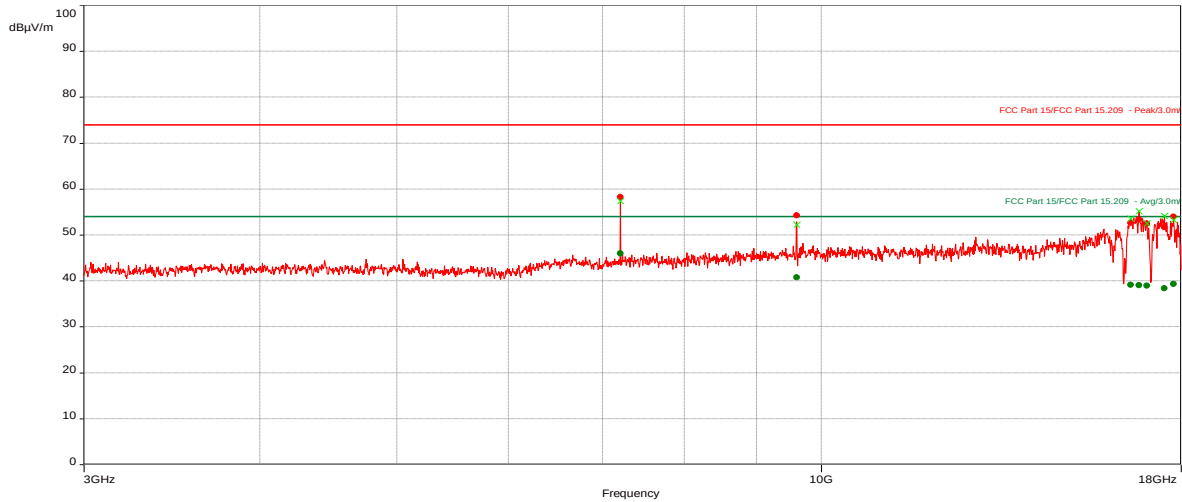
AVG (PASS) (1)

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|-----------------|
| 2297.925        | 44.50          | 54.00          | -9.50       | 35.00       | 3.05       | Horizontal | 1M  | -17.94          |

BLE (NTD-Touchscreen), Low Channel, 3-18 GHz, Test Distance at 3m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                           |
|---------------------------|-----------------------------------------------------------|
| Date and Time             | 5/6/2024 8:37:25 AM                                       |
| Client and Project Number | Sargent Assa Abloy (NTD & NTC - Touchscreen)              |
| Engineer                  | Kouma Sinn                                                |
| Temperature               | 23 deg C                                                  |
| Humidity                  | 45 %                                                      |
| Atmospheric Pressure      | 1007 mbars                                                |
| Comments                  | Scan 1_BLE (NTD-Touchscreen), Tx Low Channel, RE 3-18 GHz |

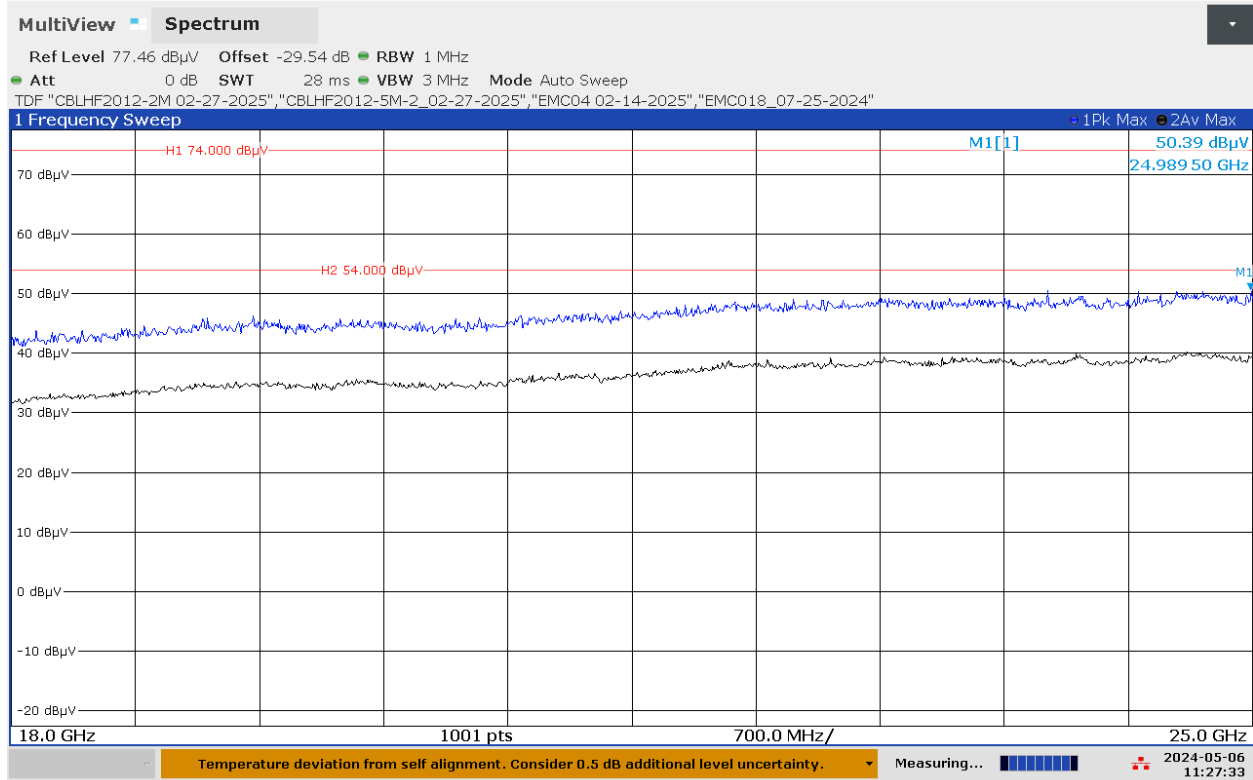
**Graph:****Results:****Peak (PASS) (7)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|-----------------|
| 7206.801        | 58.26          | 74.00          | -15.74      | 360.00      | 4.00       | Vertical   | 1M  | -10.25          |
| 9609.237        | 54.28          | 74.00          | -19.72      | 360.00      | 4.00       | Horizontal | 1M  | -8.04           |
| 16581.726       | 52.69          | 74.00          | -21.31      | 265.50      | 4.00       | Horizontal | 1M  | 1.57            |
| 16804.729       | 53.42          | 74.00          | -20.58      | 360.00      | 1.00       | Vertical   | 1M  | 2.13            |
| 17022.603       | 52.52          | 74.00          | -21.48      | 0.00        | 4.00       | Vertical   | 1M  | 2.10            |
| 17513.527       | 51.71          | 74.00          | -22.29      | 360.00      | 1.00       | Horizontal | 1M  | 2.17            |
| 17780.18        | 53.96          | 74.00          | -20.04      | 0.00        | 1.00       | Horizontal | 1M  | 2.33            |

**AVG (PASS) (7)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|-----------------|
| 7206.801        | 46.02          | 54.00          | -7.98       | 360.00      | 4.00       | Vertical   | 1M  | -10.25          |
| 9609.237        | 40.76          | 54.00          | -13.24      | 360.00      | 4.00       | Horizontal | 1M  | -8.04           |
| 16581.726       | 39.20          | 54.00          | -14.80      | 265.50      | 4.00       | Horizontal | 1M  | 1.57            |
| 16804.729       | 39.03          | 54.00          | -14.97      | 360.00      | 1.00       | Vertical   | 1M  | 2.13            |
| 17022.603       | 38.97          | 54.00          | -15.03      | 0.00        | 4.00       | Vertical   | 1M  | 2.10            |
| 17513.527       | 38.40          | 54.00          | -15.60      | 360.00      | 1.00       | Horizontal | 1M  | 2.17            |
| 17780.18        | 39.35          | 54.00          | -14.65      | 0.00        | 1.00       | Horizontal | 1M  | 2.33            |

BLE (NTD-Touchscreen), Low Channel, 18-25 GHz, Test Distance at 10cm, (Vertical & Horizontal Polarities)



11:27:33 AM 05/06/2024

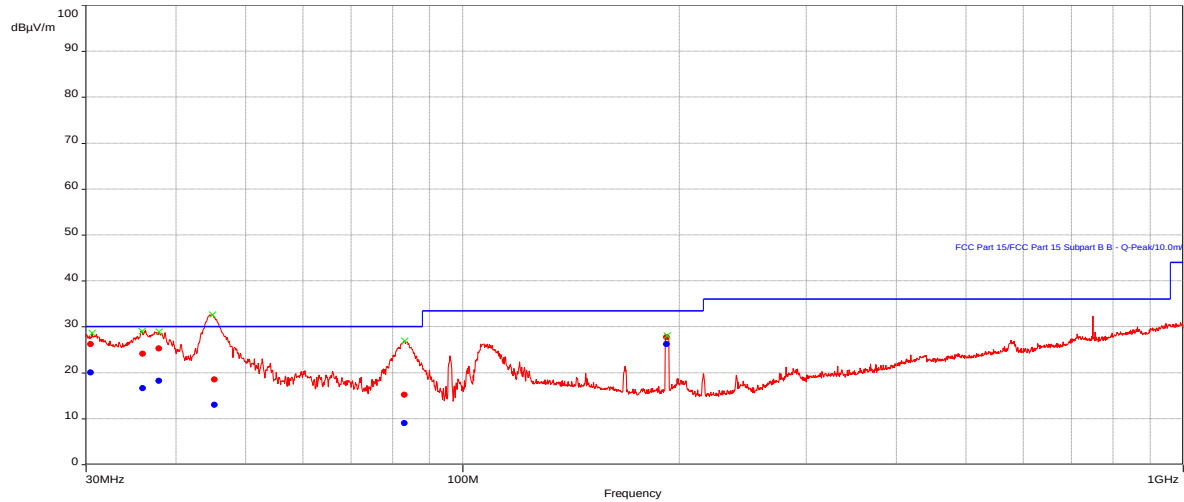


BLE (NTD-Touchscreen), Mid Channel, 30-1000 MHz, Test Distance at 10m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                              |
|---------------------------|--------------------------------------------------------------|
| Date and Time             | 5/6/2024 1:23:59 PM                                          |
| Client and Project Number | Sargent Assa Abloy (NTD & NTC - Touchscreen)                 |
| Engineer                  | Kouma Sinn                                                   |
| Temperature               | 23 deg C                                                     |
| Humidity                  | 45 %                                                         |
| Atmospheric Pressure      | 1007 mbars                                                   |
| Comments                  | Scan 9_BLE (NTD-Touchscreen), Tx Mid Channel, RE 30-1000 MHz |

**Graph:**



**Results:**

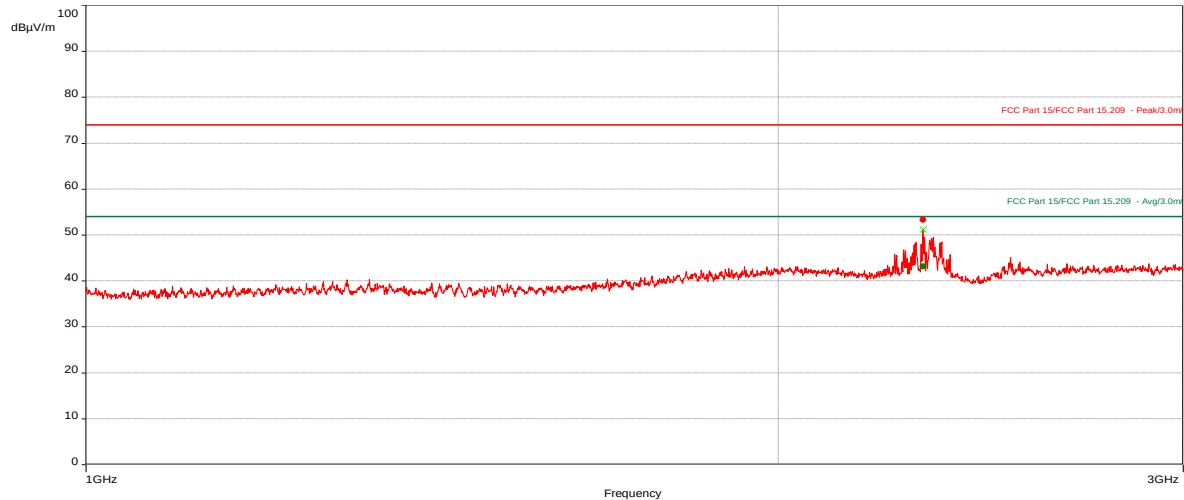
**QuasiPeak (PASS) (6)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.     | RBW  | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|----------|------|--------------|-----------------|
| 30.4788         | 20.05          | 30.00          | -9.95       | 22.90       | 1.39       | Vertical | 120k | 0.10         | -12.89          |
| 35.9907         | 16.63          | 30.00          | -13.37      | 153.30      | 3.22       | Vertical | 120k | 0.10         | -16.51          |
| 37.926          | 18.22          | 30.00          | -11.78      | 0.00        | 2.46       | Vertical | 120k | 0.10         | -17.75          |
| 45.2482         | 13.08          | 30.00          | -16.92      | 223.70      | 2.38       | Vertical | 120k | 0.10         | -22.86          |
| 83.0596         | 9.06           | 30.00          | -20.94      | 310.70      | 2.07       | Vertical | 120k | 0.10         | -25.52          |
| 192.0078        | 26.28          | 33.50          | -7.22       | 6.70        | 1.48       | Vertical | 120k | 0.10         | -20.38          |

BLE (NTD-Touchscreen), Mid Channel, 1-3 GHz, Test Distance at 3m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                          |
|---------------------------|----------------------------------------------------------|
| Date and Time             | 5/6/2024 10:58:32 AM                                     |
| Client and Project Number | Sargent Assa Abloy (NTD & NTC - Touchscreen)             |
| Engineer                  | Kouma Sinn                                               |
| Temperature               | 23 deg C                                                 |
| Humidity                  | 45 %                                                     |
| Atmospheric Pressure      | 1007 mbars                                               |
| Comments                  | Scan 5_BLE (NTD-Touchscreen), Tx Mid Channel, RE 1-3 GHz |

**Graph:****Results:****Peak (PASS) (1)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|-----------------|
| 2311.9          | 53.31          | 74.00          | -20.69      | 35.10       | 3.05       | Horizontal | 1M  | -17.91          |

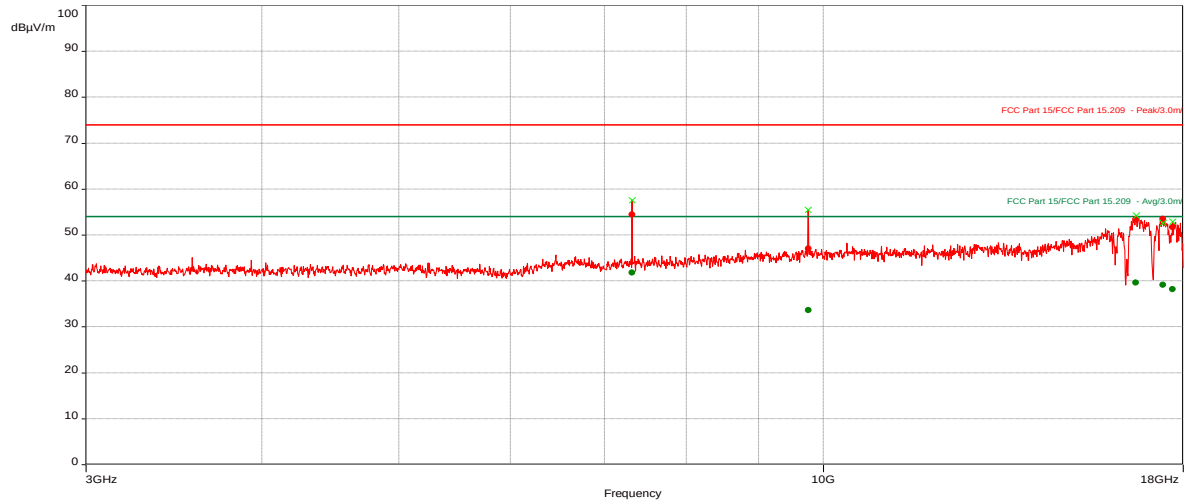
**AVG (PASS) (1)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|-----------------|
| 2311.9          | 43.13          | 54.00          | -10.87      | 35.10       | 3.05       | Horizontal | 1M  | -17.91          |

BLE (NTD-Touchscreen), Mid Channel, 3-18 GHz, Test Distance at 10m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                           |
|---------------------------|-----------------------------------------------------------|
| Date and Time             | 5/6/2024 9:24:50 AM                                       |
| Client and Project Number | Sargent Assa Abloy (NTD & NTC - Touchscreen)              |
| Engineer                  | Kouma Sinn                                                |
| Temperature               | 23 deg C                                                  |
| Humidity                  | 45 %                                                      |
| Atmospheric Pressure      | 1007 mbars                                                |
| Comments                  | Scan 2_BLE (NTD-Touchscreen), Tx Mid Channel, RE 3-18 GHz |

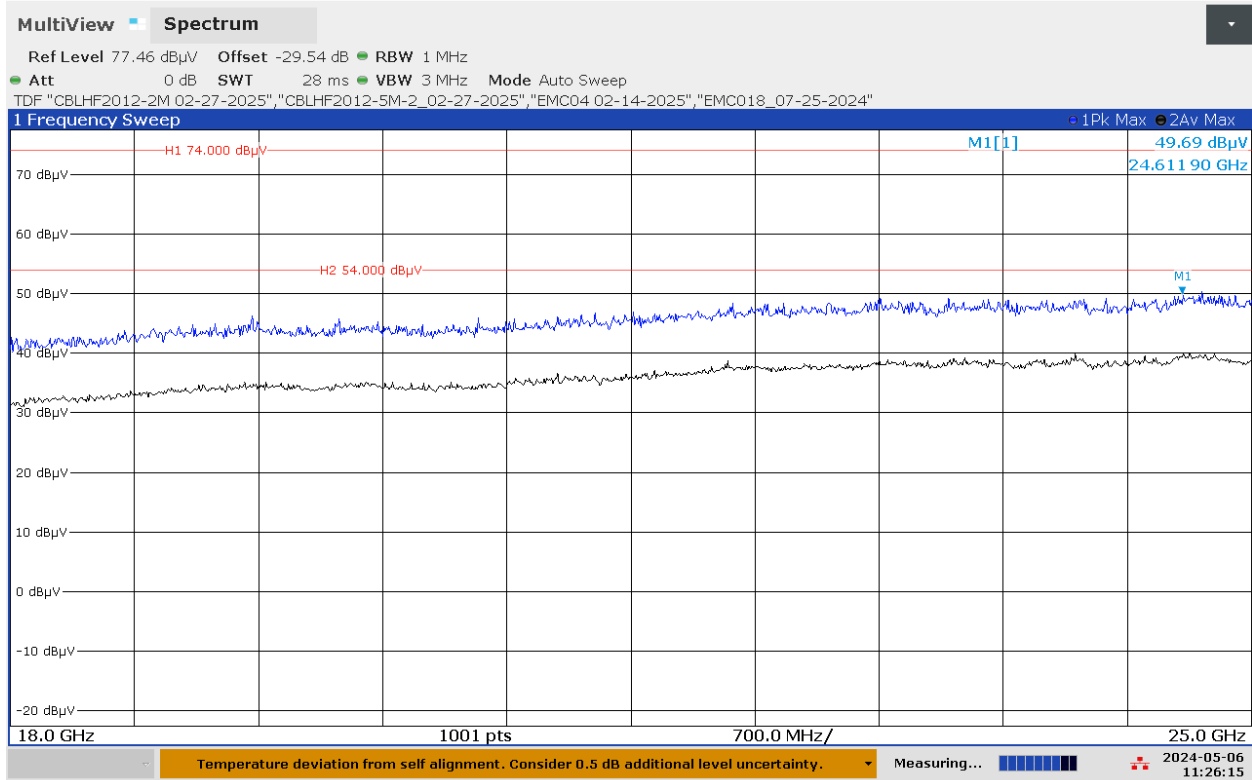
**Graph:****Results:****Peak (PASS) (5)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|-----------------|
| 7320.9          | 54.52          | 74.00          | -19.48      | 265.60      | 4.00       | Horizontal | 1M  | -10.18          |
| 9760.696        | 47.08          | 74.00          | -26.92      | 265.60      | 4.00       | Horizontal | 1M  | -7.69           |
| 16666.498       | 53.43          | 74.00          | -20.57      | 360.00      | 1.00       | Vertical   | 1M  | 1.81            |
| 17421.264       | 53.52          | 74.00          | -20.48      | 0.00        | 1.00       | Horizontal | 1M  | 2.07            |
| 17698.069       | 51.74          | 74.00          | -22.26      | 360.00      | 1.00       | Vertical   | 1M  | 2.24            |

**AVG (PASS) (5)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|-----------------|
| 7320.9          | 41.81          | 54.00          | -12.19      | 265.60      | 4.00       | Horizontal | 1M  | -10.18          |
| 9760.696        | 33.62          | 54.00          | -20.38      | 265.60      | 4.00       | Horizontal | 1M  | -7.69           |
| 16666.498       | 39.64          | 54.00          | -14.36      | 360.00      | 1.00       | Vertical   | 1M  | 1.81            |
| 17421.264       | 39.15          | 54.00          | -14.85      | 0.00        | 1.00       | Horizontal | 1M  | 2.07            |
| 17698.069       | 38.19          | 54.00          | -15.81      | 360.00      | 1.00       | Vertical   | 1M  | 2.24            |

BLE (NTD-Touchscreen), Mid Channel, 18-25 GHz, Test Distance at 10cm, (Vertical & Horizontal Polarities)



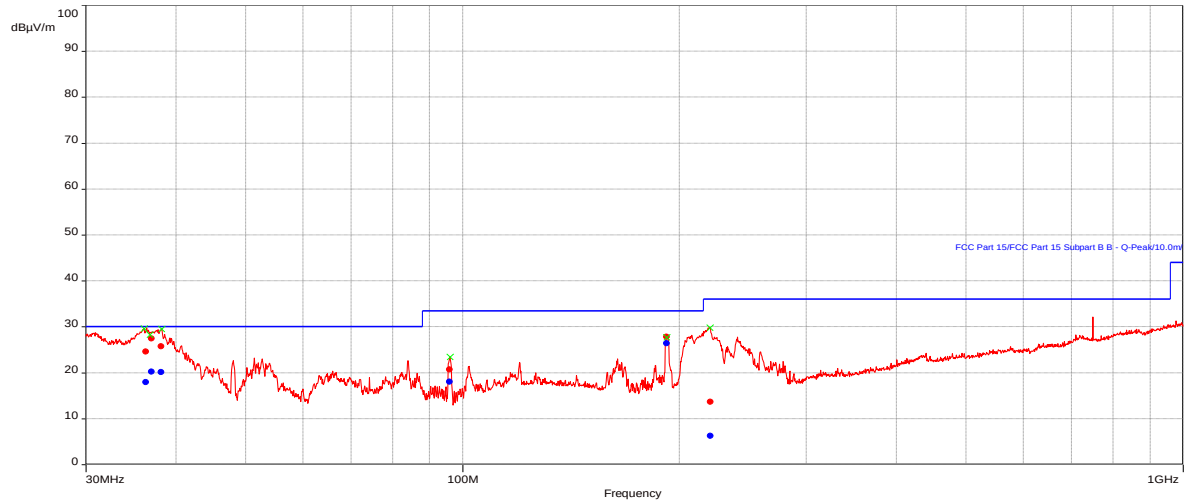
11:26:16 AM 05/06/2024

BLE (NTD-Touchscreen), High Channel, 30-1000 MHz, Test Distance at 10m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                                |
|---------------------------|----------------------------------------------------------------|
| Date and Time             | 5/6/2024 2:00:44 PM                                            |
| Client and Project Number | Sargent Assa Abloy (NTD & NTC - Touchscreen)                   |
| Engineer                  | Kouma Sinn                                                     |
| Temperature               | 23 deg C                                                       |
| Humidity                  | 45 %                                                           |
| Atmospheric Pressure      | 1007 mbars                                                     |
| Comments                  | Scan 10_BLE (NTD-Touchscreen), Tx High Channel, RE 30-1000 MHz |

**Graph:**



**Results:**

QuasiPeak (PASS) (6)

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW  | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|------|--------------|-----------------|
| 36.3324         | 17.95          | 30.00          | -12.05      | 22.80       | 3.95       | Vertical   | 120k | 0.10         | -16.74          |
| 37.0314         | 20.25          | 30.00          | -9.75       | 109.70      | 2.46       | Vertical   | 120k | 0.10         | -17.22          |
| 38.1706         | 20.13          | 30.00          | -9.87       | 115.50      | 3.05       | Vertical   | 120k | 0.10         | -17.90          |
| 95.9163         | 18.08          | 33.50          | -15.42      | 142.20      | 4.00       | Vertical   | 120k | 0.10         | -23.59          |
| 191.9982        | 26.39          | 33.50          | -7.11       | 349.00      | 1.32       | Vertical   | 120k | 0.10         | -20.38          |
| 220.784         | 6.28           | 36.00          | -29.72      | 316.30      | 4.00       | Horizontal | 120k | 0.10         | -20.88          |

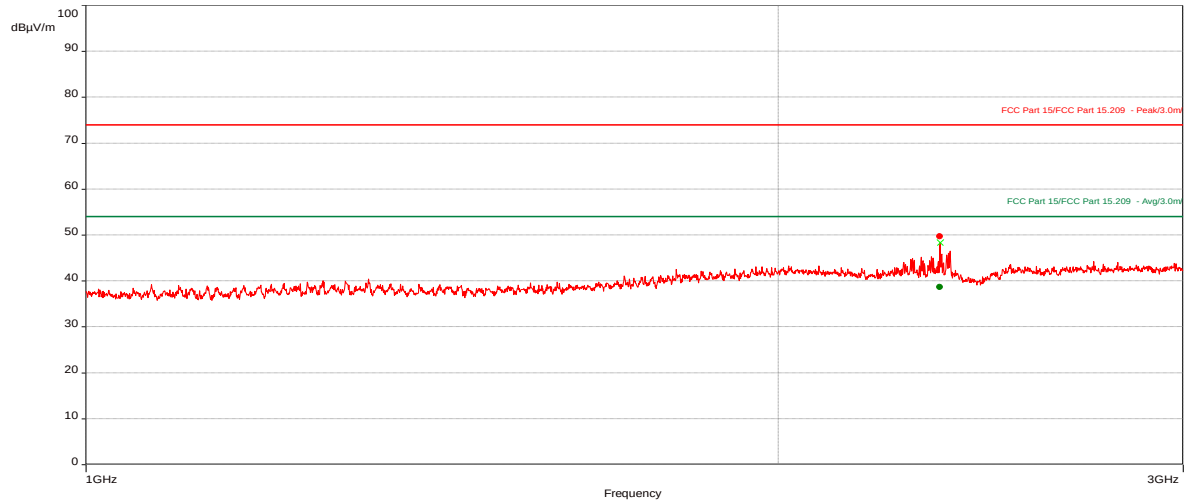


BLE (NTD-Touchscreen), High Channel, 1-3 GHz, Test Distance at 3m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                           |
|---------------------------|-----------------------------------------------------------|
| Date and Time             | 5/6/2024 10:46:34 AM                                      |
| Client and Project Number | Sargent Assa Abloy (NTD & NTC - Touchscreen)              |
| Engineer                  | Kouma Sinn                                                |
| Temperature               | 23 deg C                                                  |
| Humidity                  | 45 %                                                      |
| Atmospheric Pressure      | 1007 mbars                                                |
| Comments                  | Scan 4_BLE (NTD-Touchscreen), Tx High Channel, RE 1-3 GHz |

**Graph:**



**Results:**

Peak (PASS) (1)

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|-----------------|
| 2351.788        | 49.76          | 74.00          | -24.24      | 34.90       | 3.05       | Horizontal | 1M  | -17.88          |

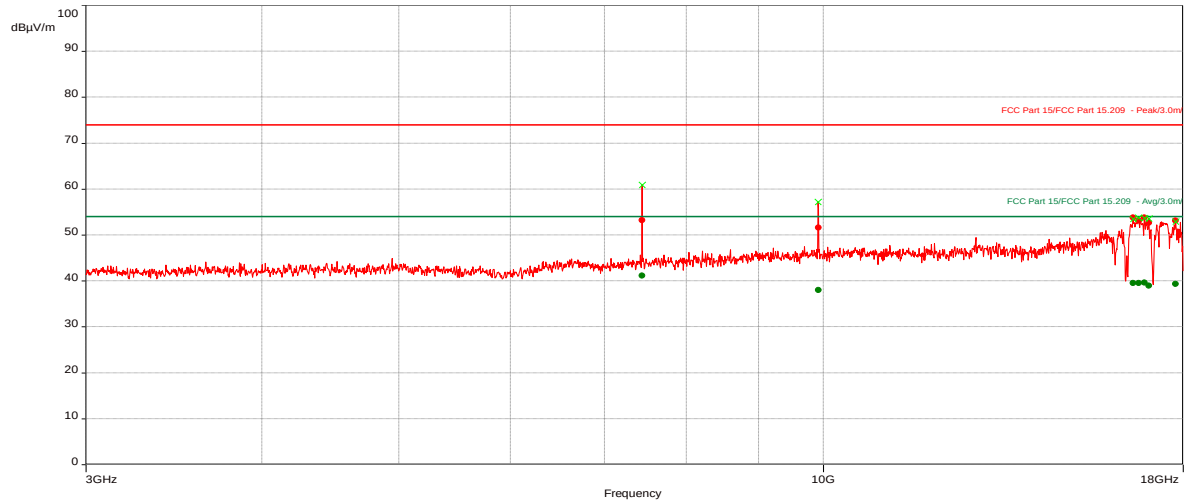
AVG (PASS) (1)

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|-----------------|
| 2351.788        | 38.67          | 54.00          | -15.33      | 34.90       | 3.05       | Horizontal | 1M  | -17.88          |

BLE (NTD-Touchscreen), High Channel, 3-18 GHz, Test Distance at 10m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                            |
|---------------------------|------------------------------------------------------------|
| Date and Time             | 5/6/2024 9:59:01 AM                                        |
| Client and Project Number | Sargent Assa Abloy (NTD & NTC - Touchscreen)               |
| Engineer                  | Kouma Sinn                                                 |
| Temperature               | 23 deg C                                                   |
| Humidity                  | 45 %                                                       |
| Atmospheric Pressure      | 1007 mbars                                                 |
| Comments                  | Scan 3_BLE (NTD-Touchscreen), Tx High Channel, RE 3-18 GHz |

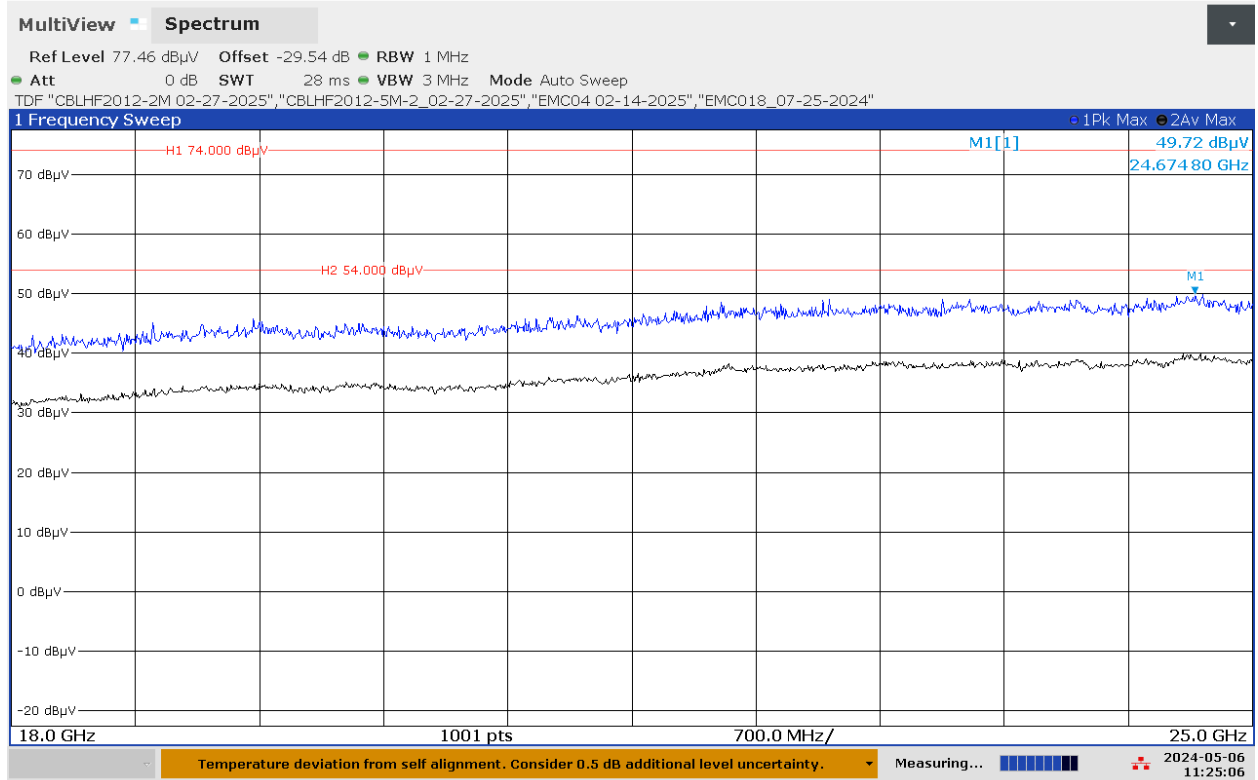
**Graph:****Results:****Peak (PASS) (7)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|-----------------|
| 7439.366        | 53.27          | 74.00          | -20.73      | 360.00      | 4.00       | Horizontal | 1M  | -10.16          |
| 9921.344        | 51.60          | 74.00          | -22.40      | 360.00      | 4.00       | Horizontal | 1M  | -7.39           |
| 16590.115       | 53.80          | 74.00          | -20.20      | 265.70      | 1.00       | Vertical   | 1M  | 1.59            |
| 16742.558       | 53.11          | 74.00          | -20.89      | 0.00        | 1.00       | Horizontal | 1M  | 2.04            |
| 16899.997       | 53.81          | 74.00          | -20.19      | 360.00      | 1.00       | Horizontal | 1M  | 2.13            |
| 17020.941       | 52.63          | 74.00          | -21.37      | 360.00      | 4.00       | Horizontal | 1M  | 2.10            |
| 17780.578       | 53.10          | 74.00          | -20.90      | 360.00      | 1.00       | Vertical   | 1M  | 2.33            |

**AVG (PASS) (7)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|-----------------|
| 7439.366        | 41.19          | 54.00          | -12.81      | 360.00      | 4.00       | Horizontal | 1M  | -10.16          |
| 9921.344        | 38.03          | 54.00          | -15.97      | 360.00      | 4.00       | Horizontal | 1M  | -7.39           |
| 16590.115       | 39.54          | 54.00          | -14.46      | 265.70      | 1.00       | Vertical   | 1M  | 1.59            |
| 16742.558       | 39.51          | 54.00          | -14.49      | 0.00        | 1.00       | Horizontal | 1M  | 2.04            |
| 16899.997       | 39.69          | 54.00          | -14.31      | 360.00      | 1.00       | Horizontal | 1M  | 2.13            |
| 17020.941       | 39.02          | 54.00          | -14.98      | 360.00      | 4.00       | Horizontal | 1M  | 2.10            |
| 17780.578       | 39.32          | 54.00          | -14.68      | 360.00      | 1.00       | Vertical   | 1M  | 2.33            |

BLE (NTD-Touchscreen), High Channel, 18-25 GHz, Test Distance at 10cm, (Vertical & Horizontal Polarities)



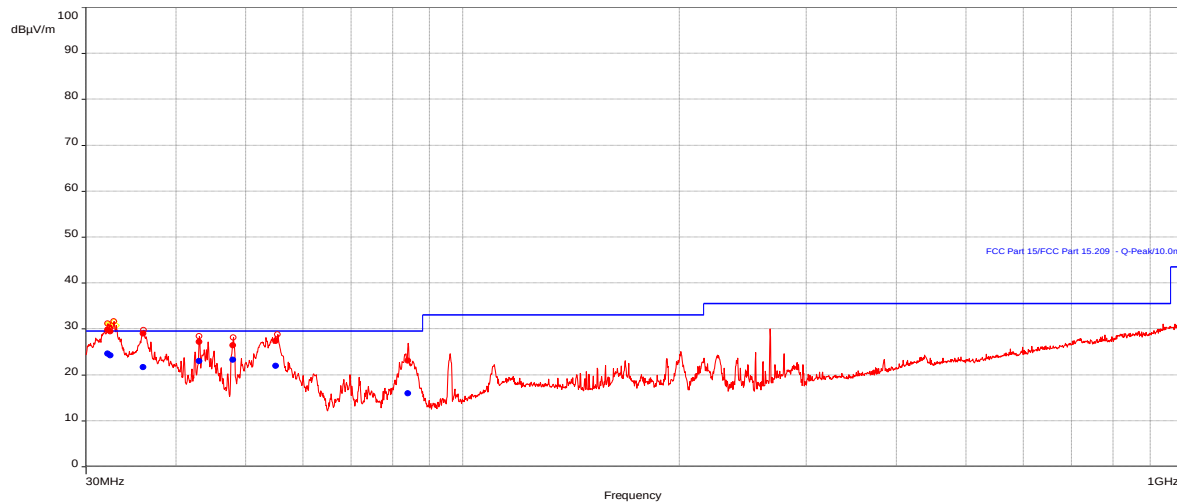
11:25:06 AM 05/06/2024

BLE (NTC-Touchscreen), Low Channel, 30-1000 MHz, Test Distance at 10m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                                 |
|---------------------------|-----------------------------------------------------------------|
| Date and Time             | 12/15/2024 7:26:28 AM                                           |
| Client and Project Number | Sargent G105779772                                              |
| Engineer                  | Vathana Ven                                                     |
| Temperature               | 24 deg C                                                        |
| Humidity                  | 15 %                                                            |
| Atmospheric Pressure      | 1036 mbars                                                      |
| Comments                  | Scan #1 RE 30-1000MHz BLE NTC - Touch Screen Tx Low CH 2402 MHz |

**Graph:**



**Results:**

**QuasiPeak (PASS) (7)**

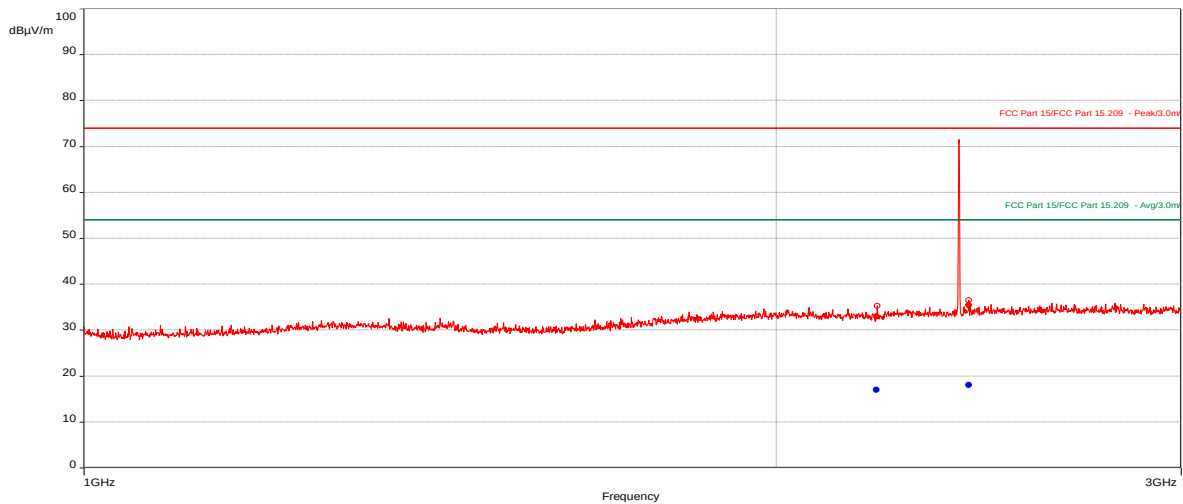
| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.     | RBW  | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|----------|------|--------------|-----------------|
| 32.166          | 24.65          | 29.54          | -4.89       | 55.40       | 1.61       | Vertical | 120k | 0.10         | -14.01          |
| 32.4459         | 24.22          | 29.54          | -5.32       | 82.90       | 1.62       | Vertical | 120k | 0.10         | -14.25          |
| 36.0406         | 21.67          | 29.54          | -7.87       | 337.80      | 4.00       | Vertical | 120k | 0.10         | -16.83          |
| 43.1174         | 23.04          | 29.54          | -6.50       | 238.70      | 4.00       | Vertical | 120k | 0.10         | -21.95          |
| 48.0375         | 23.31          | 29.54          | -6.23       | 151.40      | 4.00       | Vertical | 120k | 0.10         | -24.70          |
| 55.0867         | 21.94          | 29.54          | -7.60       | 103.70      | 1.62       | Vertical | 120k | 0.10         | -26.08          |
| 84.0449         | 15.94          | 29.54          | -13.60      | 159.00      | 4.00       | Vertical | 120k | 0.10         | -25.67          |

BLE (NTC-Touchscreen), Low Channel, 1-3 GHz, Test Distance at 3m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                                              |
|---------------------------|------------------------------------------------------------------------------|
| Date and Time             | 12/22/2024 10:30:06 AM                                                       |
| Client and Project Number | Sargent Assa Abloy                                                           |
| Engineer                  | Kouma Sinn                                                                   |
| Temperature               | 18 deg C                                                                     |
| Humidity                  | 17 %                                                                         |
| Atmospheric Pressure      | 1019 mbars                                                                   |
| Comments                  | Scan #14_RE 1 to 3 GHz_BLE (NTC-Touchscreen)_WEI32-BON001_Tx Low CH 2402 MHz |

**Graph:**



**Results:**

**Peak (PASS) (2)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time (s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|---------------|-----------------|
| 2211.591        | 33.00          | 74.00          | -41.00      | 230.80      | 4.00       | Vertical   | 1M  | 1.00          | -15.86          |
| 2426.037        | 35.44          | 74.00          | -38.56      | 270.70      | 4.00       | Horizontal | 1M  | 1.00          | -14.48          |

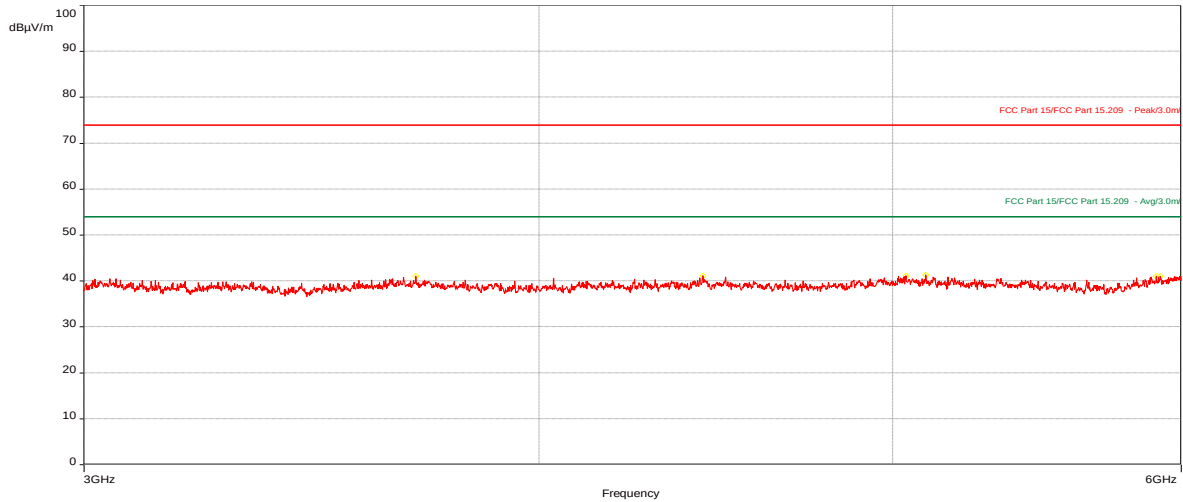
**AVG (PASS) (2)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time (s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|---------------|-----------------|
| 2211.591        | 16.98          | 54.00          | -37.02      | 230.80      | 4.00       | Vertical   | 1M  | 1.00          | -15.86          |
| 2426.037        | 18.09          | 54.00          | -35.91      | 270.70      | 4.00       | Horizontal | 1M  | 1.00          | -14.48          |

BLE (NTC-Touchscreen), Low Channel, 3-6 GHz, Test Distance at 10m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                                  |
|---------------------------|------------------------------------------------------------------|
| Date and Time             | 12/15/2024 12:42:36 PM                                           |
| Client and Project Number | Sargent G105779772                                               |
| Engineer                  | Vathana Ven                                                      |
| Temperature               | 24 deg C                                                         |
| Humidity                  | 15 %                                                             |
| Atmospheric Pressure      | 1036 mbars                                                       |
| Comments                  | Scan #13 RE 3 to 6 GHz BLE Tx Low CH 2402 MHz NTC - Touch Screen |

**Graph:**

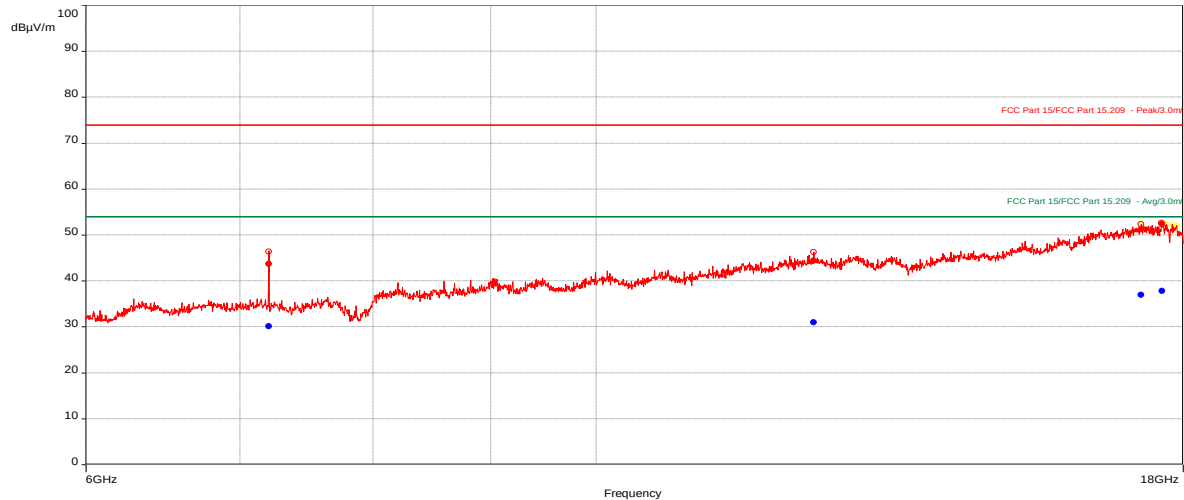
**Results:** No emission was detected.



BLE (NTC-Touchscreen), Low Channel, 6-18 GHz, Test Distance at 10m, (Vertical &amp; Horizontal Polarities)

**Test Information:**

|                           |                                                                  |
|---------------------------|------------------------------------------------------------------|
| Date and Time             | 12/15/2024 11:11:42 AM                                           |
| Client and Project Number | Sargent G105779772                                               |
| Engineer                  | Vathana Ven                                                      |
| Temperature               | 24 deg C                                                         |
| Humidity                  | 15 %                                                             |
| Atmospheric Pressure      | 1036 mbars                                                       |
| Comments                  | Scan #8_RE 6 to 18 GHz_BLE_Tx Low CH 2402 MHz_NTC - Touch Screen |

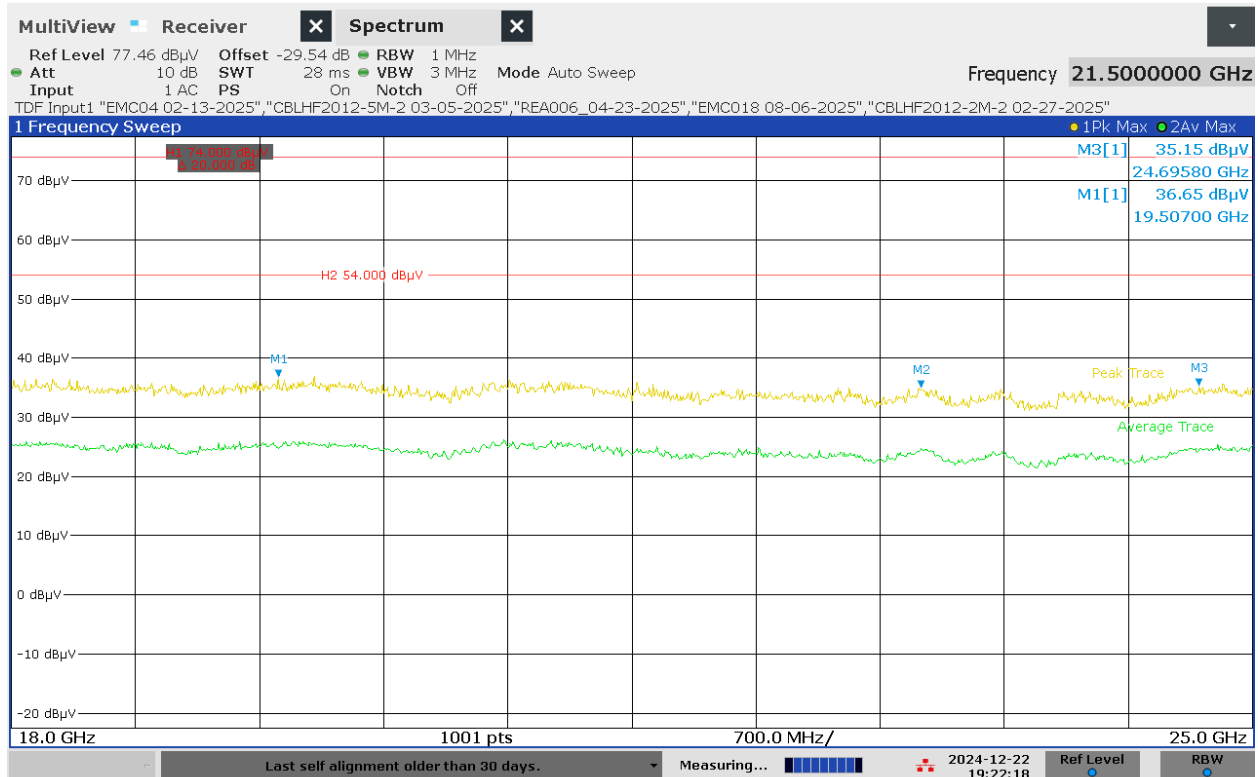
**Graph:****Results:****Peak (PASS) (4)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|--------------|-----------------|
| 7206.775        | 43.70          | 74.00          | -30.3       | 212.50      | 3.94       | Horizontal | 1M  | 0.100        | -5.60           |
| 12434.204       | 44.37          | 74.00          | -29.63      | 0.00        | 1.00       | Vertical   | 1M  | 0.100        | 2.41            |
| 17258.158       | 51.27          | 74.00          | -22.73      | 212.50      | 1.00       | Horizontal | 1M  | 0.100        | 8.20            |
| 17623.296       | 52.40          | 74.00          | -21.6       | 212.50      | 1.00       | Vertical   | 1M  | 0.100        | 8.39            |

**AVG (PASS) (4)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|--------------|-----------------|
| 7206.775        | 30.12          | 54.00          | -23.88      | 212.50      | 3.94       | Horizontal | 1M  | 0.100        | -5.60           |
| 12434.204       | 31.01          | 54.00          | -22.99      | 0.00        | 1.00       | Vertical   | 1M  | 0.100        | 2.41            |
| 17258.158       | 36.95          | 54.00          | -17.05      | 212.50      | 1.00       | Horizontal | 1M  | 0.100        | 8.20            |
| 17623.296       | 37.82          | 54.00          | -16.18      | 212.50      | 1.00       | Vertical   | 1M  | 0.100        | 8.39            |

BLE (NTC-Touchscreen), Low Channel, 18-25 GHz, Test Distance at 10cm, (Vertical & Horizontal Polarities)



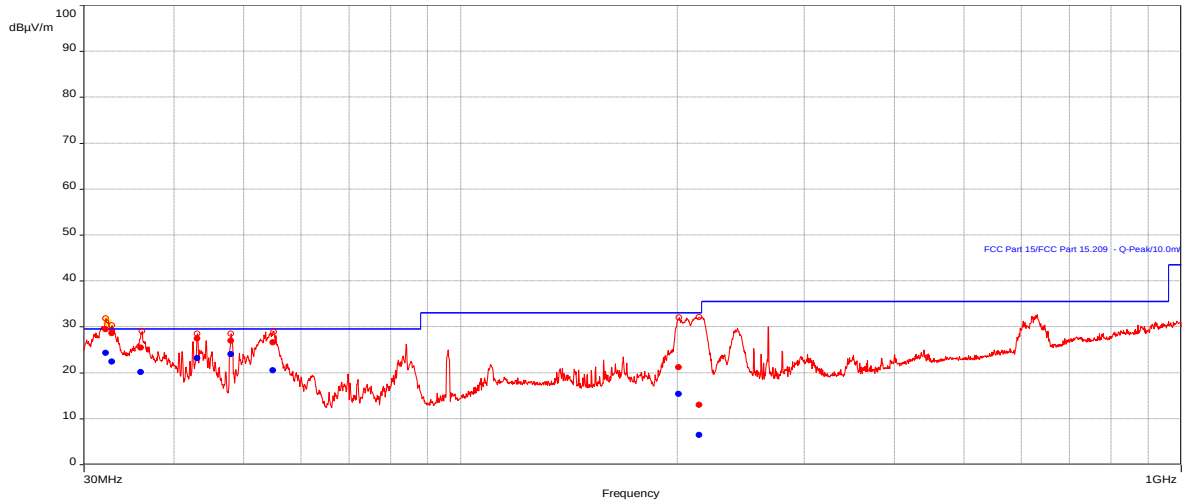
07:22:18 PM 12/22/2024

BLE (NTC-Touchscreen), Mid Channel, 30-1000 MHz, Test Distance at 10m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                                 |
|---------------------------|-----------------------------------------------------------------|
| Date and Time             | 12/15/2024 7:58:09 AM                                           |
| Client and Project Number | Sargent G105779772                                              |
| Engineer                  | Vathana Ven                                                     |
| Temperature               | 24 deg C                                                        |
| Humidity                  | 15 %                                                            |
| Atmospheric Pressure      | 1036 mbars                                                      |
| Comments                  | Scan #2_RE 30-1000MHz_BLE NTC - Touch Screen_Tx Mid CH 2440 MHz |

**Graph:**



**Results:**

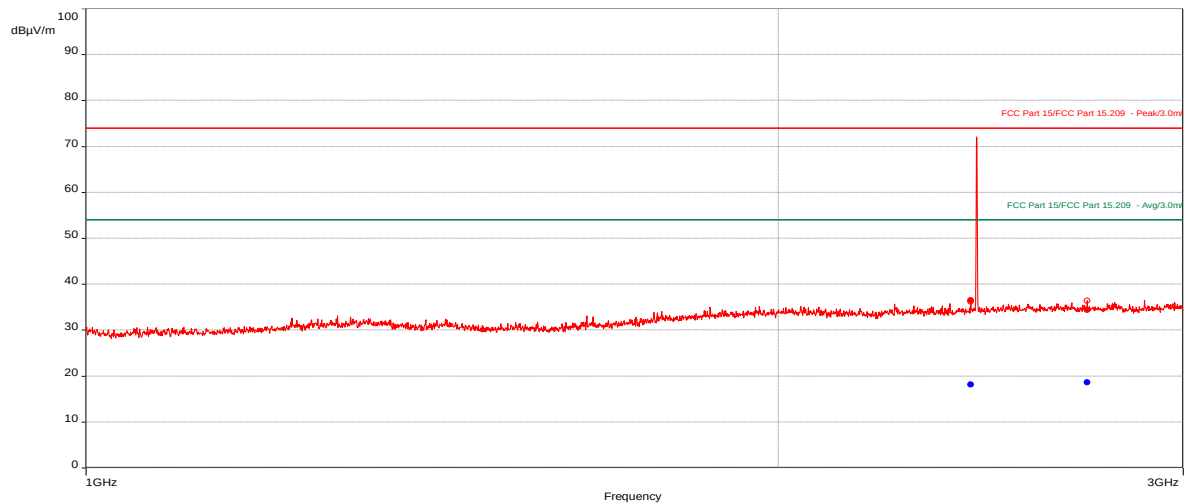
**QuasiPeak (PASS) (8)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.     | RBW  | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|----------|------|--------------|-----------------|
| 32.1525         | 24.32          | 29.54          | -5.22       | 161.30      | 1.68       | Vertical | 120k | 0.10         | -13.99          |
| 32.7766         | 22.42          | 29.54          | -7.12       | 188.00      | 1.61       | Vertical | 120k | 0.10         | -14.55          |
| 35.9748         | 20.14          | 29.54          | -9.40       | 310.60      | 4.00       | Vertical | 120k | 0.10         | -16.78          |
| 43.0696         | 23.24          | 29.54          | -6.30       | 145.20      | 3.19       | Vertical | 120k | 0.10         | -21.92          |
| 48.0299         | 24.05          | 29.54          | -5.49       | 297.20      | 1.62       | Vertical | 120k | 0.10         | -24.70          |
| 54.9064         | 20.57          | 29.54          | -8.97       | 354.20      | 4.00       | Vertical | 120k | 0.10         | -26.08          |
| 200.8488        | 15.37          | 33.06          | -17.69      | 169.70      | 1.32       | Vertical | 120k | 0.10         | -19.67          |
| 214.2884        | 6.45           | 33.06          | -26.61      | 77.50       | 2.66       | Vertical | 120k | 0.10         | -21.53          |

BLE (NTC-Touchscreen), Mid Channel, 1-3 GHz, Test Distance at 3m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                                              |
|---------------------------|------------------------------------------------------------------------------|
| Date and Time             | 12/22/2024 11:00:03 AM                                                       |
| Client and Project Number | Sargent Assa Abloy                                                           |
| Engineer                  | Kouma Sinn                                                                   |
| Temperature               | 18 deg C                                                                     |
| Humidity                  | 17 %                                                                         |
| Atmospheric Pressure      | 1019 mbars                                                                   |
| Comments                  | Scan #15_RE 1 to 3 GHz_BLE (NTC-Touchscreen)_WEI32-BON001_Tx Mid CH 2440 MHz |

**Graph:****Results:****Peak (PASS) (2)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time (s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|---------------|-----------------|
| 2426.063        | 36.53          | 74.00          | -37.47      | 0.00        | 1.44       | Vertical   | 1M  | 0.100         | -14.48          |
| 2725.227        | 34.38          | 74.00          | -39.62      | 360.00      | 3.05       | Horizontal | 1M  | 0.100         | -13.76          |

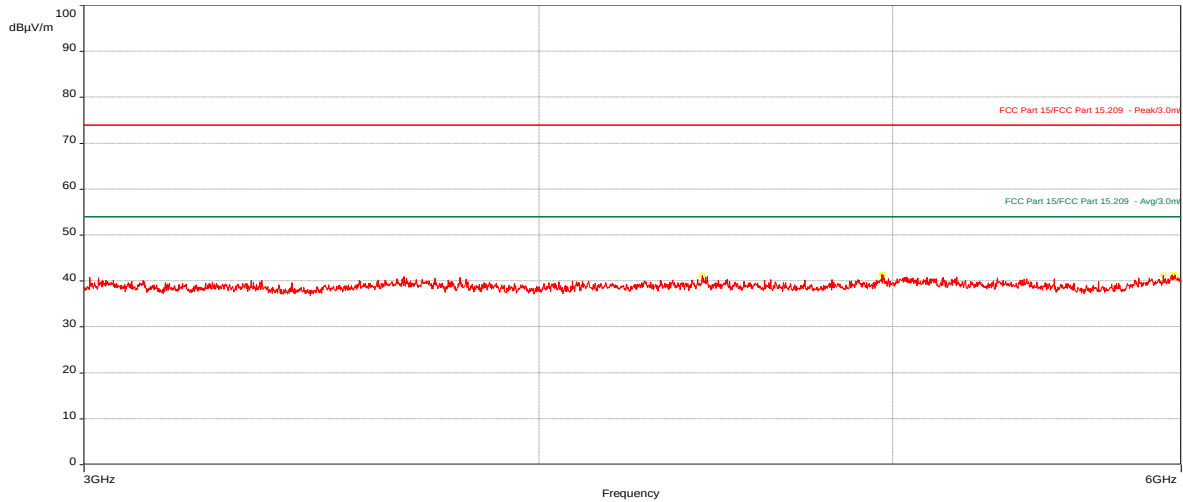
**AVG (PASS) (2)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time (s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|---------------|-----------------|
| 2426.063        | 18.14          | 54.00          | -35.86      | 0.00        | 1.44       | Vertical   | 1M  | 0.100         | -14.48          |
| 2725.227        | 18.62          | 54.00          | -35.38      | 360.00      | 3.05       | Horizontal | 1M  | 0.100         | -13.76          |

BLE (NTC-Touchscreen), Mid Channel, 3-6 GHz, Test Distance at 3m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                                  |
|---------------------------|------------------------------------------------------------------|
| Date and Time             | 12/15/2024 12:38:11 PM                                           |
| Client and Project Number | Sargent G105779772                                               |
| Engineer                  | Vathana Ven                                                      |
| Temperature               | 24 deg C                                                         |
| Humidity                  | 15 %                                                             |
| Atmospheric Pressure      | 1036 mbars                                                       |
| Comments                  | Scan #12 RE 3 to 6 GHz BLE Tx Mid CH 2440 MHz NTC - Touch Screen |

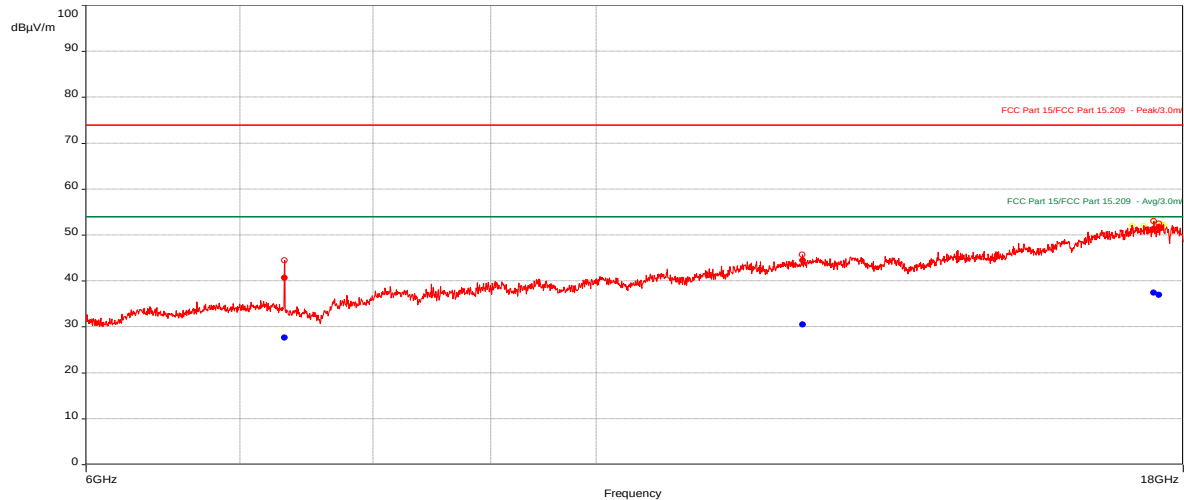
**Graph:**

**Results:** No emission was detected.

BLE (NTC-Touchscreen), Mid Channel, 6-18 GHz, Test Distance at 10m, (Vertical &amp; Horizontal Polarities)

**Test Information:**

|                           |                                                                 |
|---------------------------|-----------------------------------------------------------------|
| Date and Time             | 12/15/2024 11:42:38 AM                                          |
| Client and Project Number | Sargent G105779772                                              |
| Engineer                  | Vathana Ven                                                     |
| Temperature               | 24 deg C                                                        |
| Humidity                  | 15 %                                                            |
| Atmospheric Pressure      | 1036 mbars                                                      |
| Comments                  | San #9 RE 6 to 18 GHz_BLE Tx Mid CH 2440 MHz_NTC - Touch Screen |

**Graph:****Results:****Peak (PASS) (4)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|--------------|-----------------|
| 7319.363        | 40.74          | 74.00          | -33.26      | 212.40      | 3.94       | Horizontal | 1M  | 0.100        | -5.49           |
| 12297.448       | 44.49          | 74.00          | -29.51      | 212.50      | 4.00       | Horizontal | 1M  | 0.100        | 1.94            |
| 17476.651       | 51.35          | 74.00          | -22.65      | 0.00        | 4.00       | Horizontal | 1M  | 0.100        | 8.24            |
| 17569.296       | 51.68          | 74.00          | -22.32      | 0.00        | 3.94       | Horizontal | 1M  | 0.100        | 8.30            |

**AVG (PASS) (4)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|--------------|-----------------|
| 7319.363        | 27.67          | 54.00          | -26.33      | 212.40      | 3.94       | Horizontal | 1M  | 0.100        | -5.49           |
| 12297.448       | 30.50          | 54.00          | -23.50      | 212.50      | 4.00       | Horizontal | 1M  | 0.100        | 1.94            |
| 17476.651       | 37.50          | 54.00          | -16.50      | 0.00        | 4.00       | Horizontal | 1M  | 0.100        | 8.24            |
| 17569.296       | 36.98          | 54.00          | -17.02      | 0.00        | 3.94       | Horizontal | 1M  | 0.100        | 8.30            |

BLE (NTC-Touchscreen), Mid Channel, 18-25 GHz, Test Distance at 10cm, (Vertical & Horizontal Polarities)



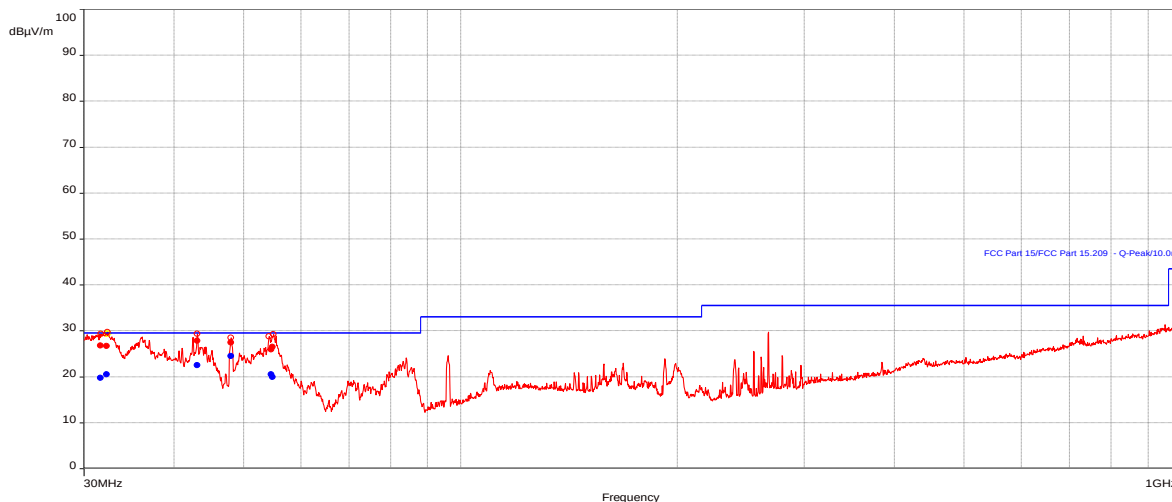
07:15:15 PM 12/22/2024



BLE (NTC-Touchscreen), High Channel, 30-1000 MHz, Test Distance at 10m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                                  |
|---------------------------|------------------------------------------------------------------|
| Date and Time             | 12/15/2024 8:33:38 AM                                            |
| Client and Project Number | Sargent G105779772                                               |
| Engineer                  | Vathana Ven                                                      |
| Temperature               | 24 deg C                                                         |
| Humidity                  | 15 %                                                             |
| Atmospheric Pressure      | 1036 mbars                                                       |
| Comments                  | Scan #3_RE 30-1000MHz_BLE NTC - Touch Screen_Tx High CH 2480 MHz |

**Graph:****Results:****QuasiPeak (PASS) (6)**

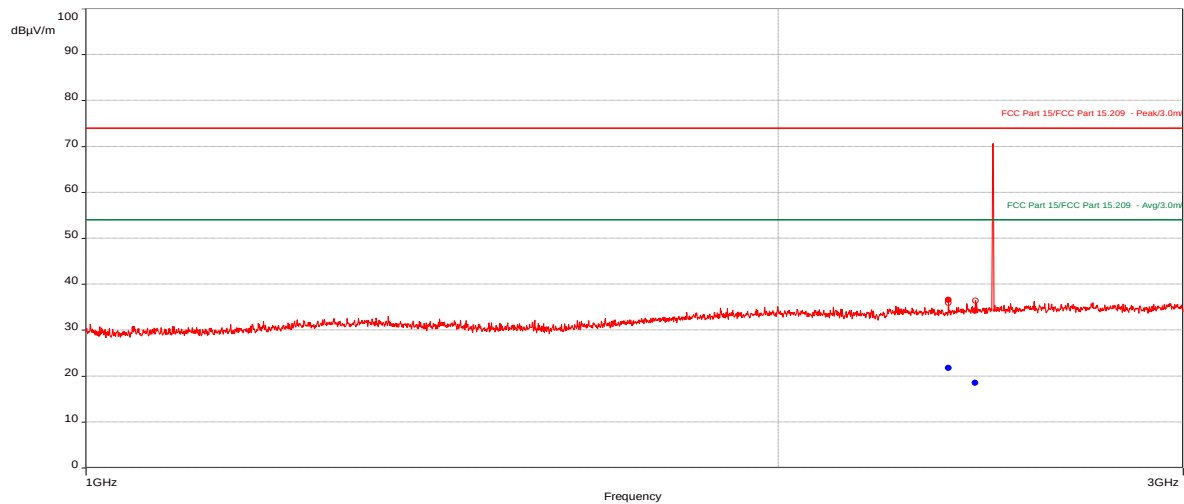
| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.     | RBW  | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|----------|------|--------------|-----------------|
| 31.6276         | 19.76          | 29.54          | -9.78       | 22.90       | 3.05       | Vertical | 120k | 0.10         | -13.65          |
| 32.2711         | 20.56          | 29.54          | -8.98       | 60.90       | 1.53       | Vertical | 120k | 0.10         | -14.10          |
| 43.1025         | 22.57          | 29.54          | -6.97       | 324.50      | 1.61       | Vertical | 120k | 0.10         | -21.94          |
| 48.0164         | 24.55          | 29.54          | -4.99       | 76.40       | 1.46       | Vertical | 120k | 0.10         | -24.70          |
| 54.602          | 20.51          | 29.54          | -9.03       | 352.60      | 2.21       | Vertical | 120k | 0.10         | -26.05          |
| 54.8104         | 19.97          | 29.54          | -9.57       | 280.90      | 4.00       | Vertical | 120k | 0.10         | -26.07          |

BLE (NTC-Touchscreen), High Channel, 1-3 GHz, Test Distance at 3m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                                               |
|---------------------------|-------------------------------------------------------------------------------|
| Date and Time             | 12/22/2024 11:18:06 AM                                                        |
| Client and Project Number | Sargent Assa Abloy                                                            |
| Engineer                  | Kouma Sinn                                                                    |
| Temperature               | 18 deg C                                                                      |
| Humidity                  | 17 %                                                                          |
| Atmospheric Pressure      | 1019 mbars                                                                    |
| Comments                  | Scan #16_RE 1 to 3 GHz_BLE (NTC-Touchscreen)_WEI32-BON001_Tx High CH 2480 MHz |

**Graph:**



**Results:**

Peak (PASS) (2)

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time (s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|---------------|-----------------|
| 2372.386        | 36.61          | 74.00          | -37.39      | 0.00        | 4.00       | Horizontal | 1M  | 0.100         | -14.96          |
| 2436.241        | 34.20          | 74.00          | -39.80      | 231.40      | 3.05       | Vertical   | 1M  | 0.100         | -14.41          |

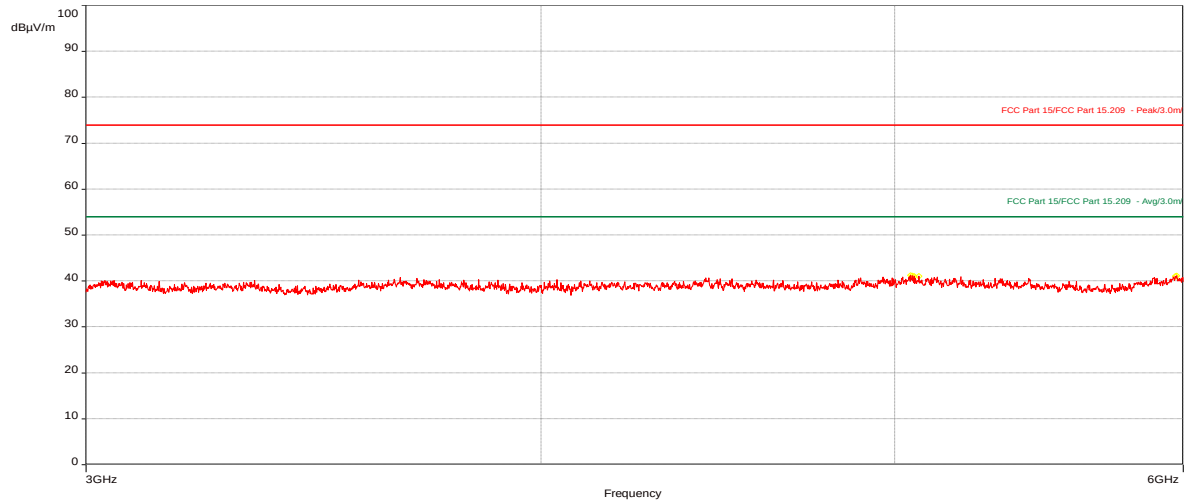
AVG (PASS) (2)

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time (s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|---------------|-----------------|
| 2372.386        | 21.76          | 54.00          | -32.24      | 0.00        | 4.00       | Horizontal | 1M  | 0.100         | -14.96          |
| 2436.241        | 18.54          | 54.00          | -35.46      | 231.40      | 3.05       | Vertical   | 1M  | 0.100         | -14.41          |

BLE (NTC-Touchscreen), High Channel, 3-6 GHz, Test Distance at 3m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                                  |
|---------------------------|------------------------------------------------------------------|
| Date and Time             | 12/15/2024 12:34:24 PM                                           |
| Client and Project Number | Sargent G105779772                                               |
| Engineer                  | Vathana Ven                                                      |
| Temperature               | 24 deg C                                                         |
| Humidity                  | 15 %                                                             |
| Atmospheric Pressure      | 1036 mbars                                                       |
| Comments                  | San #11_RE 3 to 6 GHz_BLE Tx High CH 2480 MHz_NTC - Touch Screen |

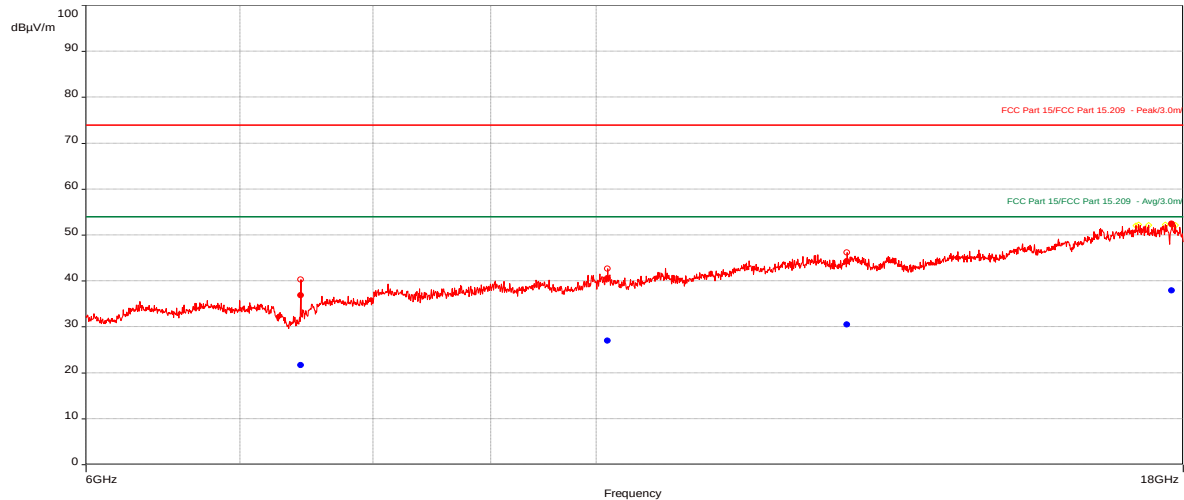
**Graph:**

**Results:** No emission was detected.

BLE (NTC-Touchscreen), High Channel, 6-18 GHz, Test Distance at 10m, (Vertical & Horizontal Polarities)

**Test Information:**

|                           |                                                                   |
|---------------------------|-------------------------------------------------------------------|
| Date and Time             | 12/15/2024 12:06:46 PM                                            |
| Client and Project Number | Sargent G105779772                                                |
| Engineer                  | Vathana Ven                                                       |
| Temperature               | 24 deg C                                                          |
| Humidity                  | 15 %                                                              |
| Atmospheric Pressure      | 1036 mbars                                                        |
| Comments                  | San #10_RE 6 to 18 GHz_BLE_Tx High CH 2480 MHz_NTC - Touch Screen |

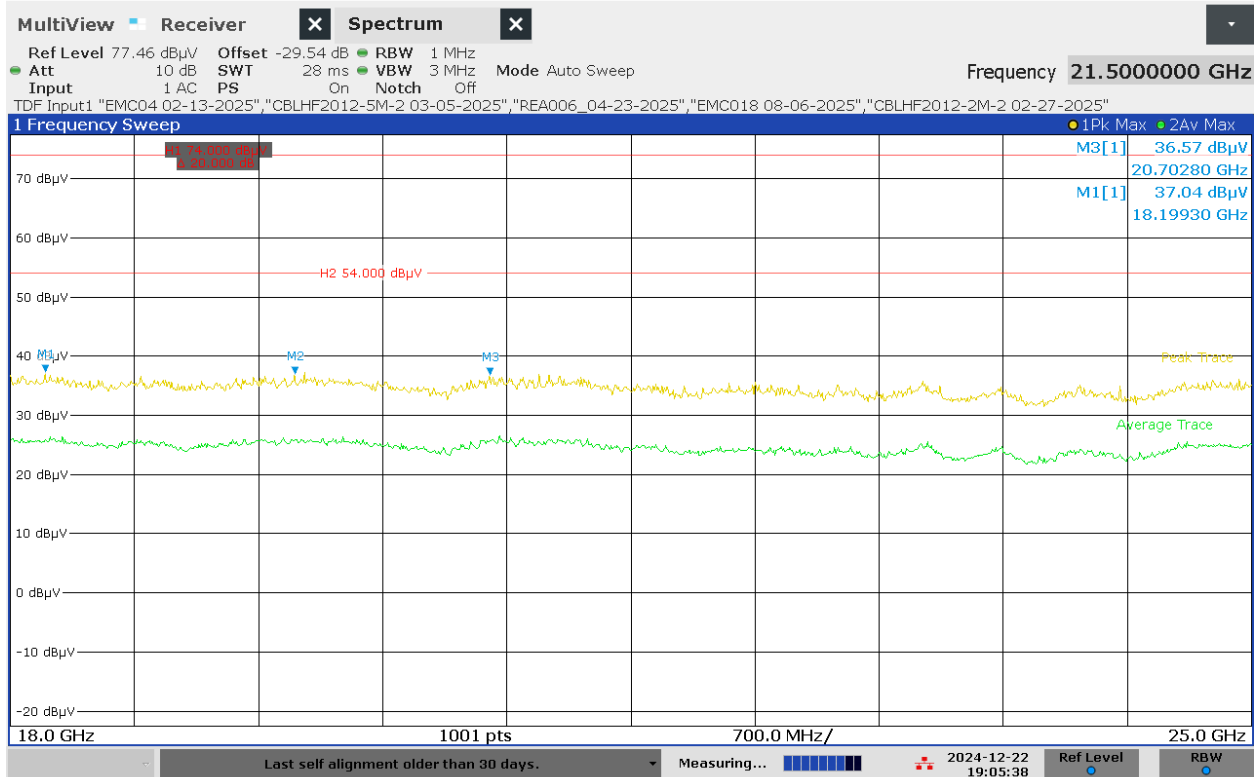
**Graph:****Results:****Peak (PASS) (4)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|--------------|-----------------|
| 7439.126        | 36.93          | 74.00          | -37.07      | 212.50      | 1.00       | Vertical   | 1M  | 0.100        | -5.19           |
| 10115.752       | 40.58          | 74.00          | -33.42      | 360.00      | 4.00       | Vertical   | 1M  | 0.100        | -1.90           |
| 12856.993       | 44.28          | 74.00          | -29.72      | 360.00      | 3.94       | Vertical   | 1M  | 0.100        | 2.54            |
| 17800.063       | 52.50          | 74.00          | -21.5       | 0.00        | 3.94       | Horizontal | 1M  | 0.100        | 8.66            |

**AVG (PASS) (4)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|--------------|-----------------|
| 7439.126        | 21.72          | 54.00          | -32.28      | 212.50      | 1.00       | Vertical   | 1M  | 0.100        | -5.19           |
| 10115.752       | 26.97          | 54.00          | -27.03      | 360.00      | 4.00       | Vertical   | 1M  | 0.100        | -1.90           |
| 12856.993       | 30.48          | 54.00          | -23.52      | 360.00      | 3.94       | Vertical   | 1M  | 0.100        | 2.54            |
| 17800.063       | 37.90          | 54.00          | -16.10      | 0.00        | 3.94       | Horizontal | 1M  | 0.100        | 8.66            |

BLE (NTC-Touchscreen), High Channel, 18-25 GHz, Test Distance at 10cm, (Vertical &amp; Horizontal Polarities)



07:05:39 PM 12/22/2024

| Product Standard: CFR47 FCC Part 15 15.225, RSS-210, FCC 47CFR15 Part 15 Subpart B, ISSED ICES-003 |                             |                                      |                 |                            | Limit applied: See Report Section 6.2<br>Pretest Verification w/BB source: Yes |                           |                                 |
|----------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------|-----------------|----------------------------|--------------------------------------------------------------------------------|---------------------------|---------------------------------|
| Test Date                                                                                          | Test Personnel/<br>Initials | Supervising<br>Engineer/<br>Initials | Input Voltage   | Mode                       | Atmospheric Data                                                               |                           |                                 |
|                                                                                                    |                             |                                      |                 |                            | Temp<br>C°                                                                     | Relative<br>Humidity<br>% | Atmospheric<br>Pressure<br>mbar |
| 05/06/2024                                                                                         | Kouma Sinn <i>KPS</i>       | N/A                                  | Battery Powered | Continuous<br>Transmitting | 23                                                                             | 45                        | 1007                            |
| 12/15/2024                                                                                         | Vathana F. Ven <i>VSV</i>   | N/A                                  | Battery Powered | Continuous<br>Transmitting | 24                                                                             | 15                        | 1036                            |
| 12/22/2024                                                                                         | Vathana F. Ven <i>VSV</i>   | N/A                                  | Battery Powered | Continuous<br>Transmitting | 18                                                                             | 17                        | 1019                            |

Deviations, Additions, or Exclusions: None

## 7 Digital Device Radiated Spurious Emissions

### 7.1 Method

Tests are performed in accordance with FCC Part 15 Subpart B, ISED ICES-003, and ANSI C 63.4.

**TEST SITE:** 10m ALSE

**The 10m ALSE** is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

#### Measurement Uncertainty

| Measurement             | Frequency Range | Expanded Uncertainty (k=2) | Ucisp  |
|-------------------------|-----------------|----------------------------|--------|
| Radiated Emissions, 10m | 30-1000 MHz     | 4.6dB                      | 6.3 dB |
| Radiated Emissions, 3m  | 30-1000 MHz     | 5.3 dB                     | 6.3 dB |
| Radiated Emissions, 3m  | 1-6 GHz         | 4.5 dB                     | 5.2 dB |
| Radiated Emissions, 3m  | 6-15 GHz        | 5.2 dB                     | 5.5 dB |
| Radiated Emissions, 3m  | 15-18 GHz       | 5.0 dB                     | 5.5 dB |
| Radiated Emissions, 3m  | 18-40 GHz       | 5.0 dB                     | 5.5 dB |

As shown in the table above our radiated emissions  $U_{lab}$  is less than the corresponding  $U_{CISPR}$  reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

#### Sample Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where

- FS = Field Strength in dB $\mu$ V/m
- RA = Receiver Amplitude (including preamplifier) in dB $\mu$ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

RA = 52.0 dB $\mu$ V  
 AF = 7.4 dB/m  
 CF = 1.6 dB  
 AG = 29.0 dB  
 FS = 32 dB $\mu$ V/m

To convert from dB $\mu$ V to  $\mu$ V or mV the following was used:

$UF = 10^{(NF / 20)}$  where UF = Net Reading in  $\mu$ V  
 NF = Net Reading in dB $\mu$ V

#### Example:

$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$   
 $UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$

Alternately, when BAT-EMC Emission Software is used, the "Level" includes all losses and gains and is compared directly in the "Margin" column to the "Limit". The "Correction" includes Antenna Factor, Preamp, and Cable Loss. These are already accounted for in the "Level" column.

## 7.2 Limit

§15.109 Radiated emission limits.

The field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values.

| Frequency of emission (MHz) | Field strength (microvolts/meter) | Field strength (dB $\mu$ V/m) |
|-----------------------------|-----------------------------------|-------------------------------|
| 30-88                       | 100                               | 40.00                         |
| 88-216                      | 150                               | 43.52                         |
| 216-960                     | 200                               | 46.02                         |
| Above 960                   | 500                               | 54.00                         |

Notes: The limits for ISSED ICES-003 are the same as the FCC limits above.



### 7.3 Test Equipment Used:

Test equipment used from 30-1000 MHz

| Asset    | Description                             | Manufacturer         | Model                | Serial      | Cal Date   | Cal Due    |
|----------|-----------------------------------------|----------------------|----------------------|-------------|------------|------------|
| DAV007'  | Weather Station Vantage Vue             | Davis                | 6250                 | MS191212003 | 03/27/2024 | 03/27/2025 |
| ROS014'  | Receiver 1Hz-44GHz                      | Rhode & Schwarz      | ESW 44               | 103232      | 06/10/2024 | 06/10/2025 |
| 145-420' | Receiver to floor cable                 | Utiflex              | UFB311A-2-0591-70070 | 145-420     | 02/27/2024 | 02/27/2025 |
| HS003'   | 10m under floor cable                   | Huber-Schuner        | 10m-1                | HS003       | 02/27/2024 | 02/27/2025 |
| IW006'   | DC-18GHz cable 8.4m long                | Insulated Wire       | 2800-NPS             | IW006       | 05/23/2024 | 05/23/2025 |
| HS001'   | DC-18GHz cable 1.5m long                | Huber & Suhner       | SucoFlex 106A        | HS001       | 01/30/2024 | 01/30/2025 |
| 145145'  | Broadband Hybrid Antenna 30 MHz - 3 GHz | Sunol Sciences Corp. | JB3                  | A122313     | 07/11/2024 | 07/11/2025 |
| PRE10'   | 30-1000MHz pre-amp                      | ITS                  | PRE10                | PRE10       | 02/27/2024 | 02/27/2025 |

Test equipment used from 1-13 GHz

| Asset    | Description                  | Manufacturer    | Model                | Serial      | Cal Date   | Cal Due    |
|----------|------------------------------|-----------------|----------------------|-------------|------------|------------|
| DAV007'  | Weather Station Vantage Vue  | Davis           | 6250                 | MS191212003 | 03/27/2024 | 03/27/2025 |
| ROS014'  | Receiver 1Hz-44GHz           | Rhode & Schwarz | ESW 44               | 103232      | 06/10/2024 | 06/10/2025 |
| 145-420' | Receiver to floor cable      | Utiflex         | UFB311A-2-0591-70070 | 145-420     | 02/27/2024 | 02/27/2025 |
| 145-414' | Cable 145-414                | Huber + Suhner  | 3m Track A cable     | 145-414     | 07/15/2024 | 07/15/2025 |
| 145-422' | 10Amp Pre-amp to under floor | Utiflex         | UFB311A-0-2756-70070 | 145-422     | 03/26/2024 | 03/26/2025 |
| IW003'   | 8.4 meter cable              | Insulated Wire  | 2800-NPS             | 003         | 01/17/2024 | 01/17/2025 |
| ETS002   | 1-18GHz DRG Horn Antenna     | ETS Lindgren    | 3117                 | 00143260    | 09/04/2024 | 09/04/2025 |
| BONN001  | 1-18GHz low noise pre-amp    | Bonn            | BLMA 0118-M          | 1811749     | 07/24/2024 | 07/24/2025 |

#### Software Utilized:

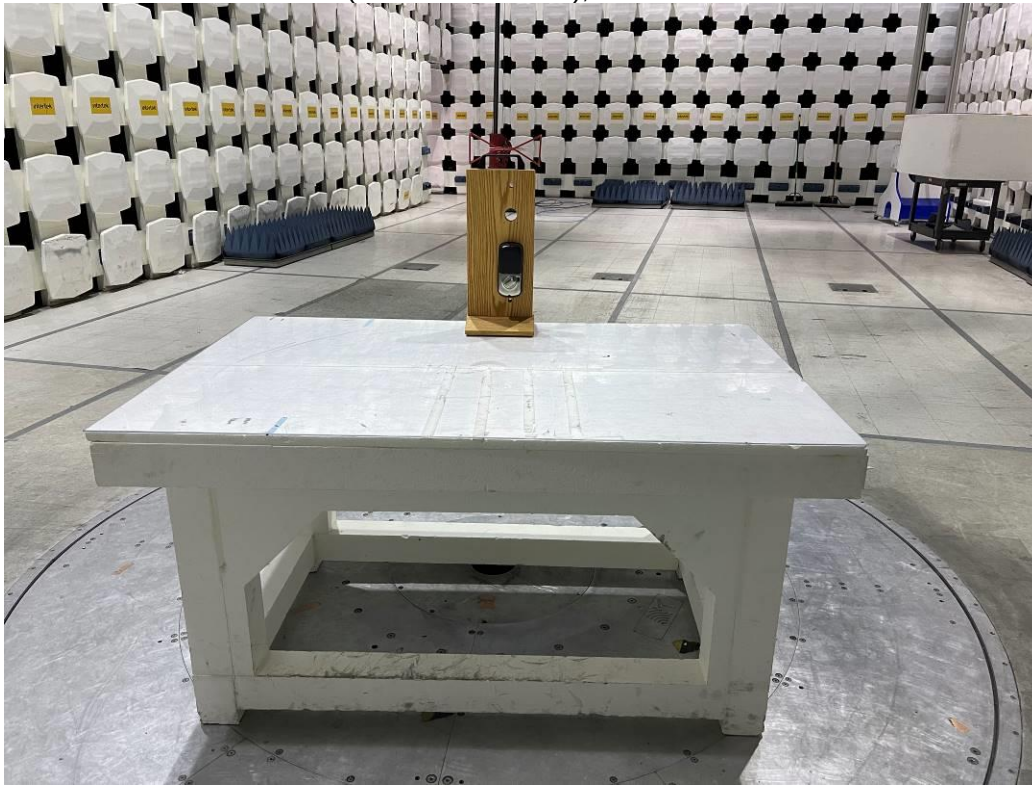
| Name    | Manufacturer | Version    |
|---------|--------------|------------|
| BAT-EMC | Nexio        | 2023.0.9.0 |

### 7.4 Results:

The sample tested was found to Comply.

## 7.5 Setup Photographs:

BLE (NTD-Touchscreen), 30-1000 MHz



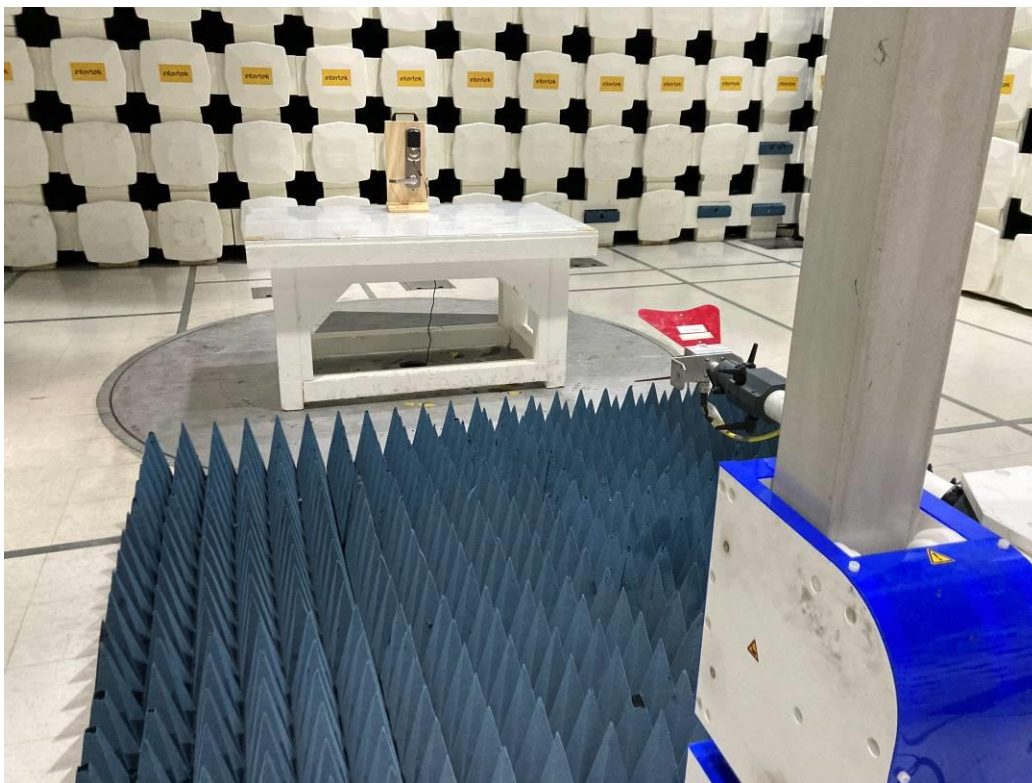
BLE (NTD-Touchscreen), 1-13 GHz  
Photos not available

BLE (NTC-Touchscreen), 30-1000 MHz





BLE (NTC-Touchscreen), 1-13 GHz



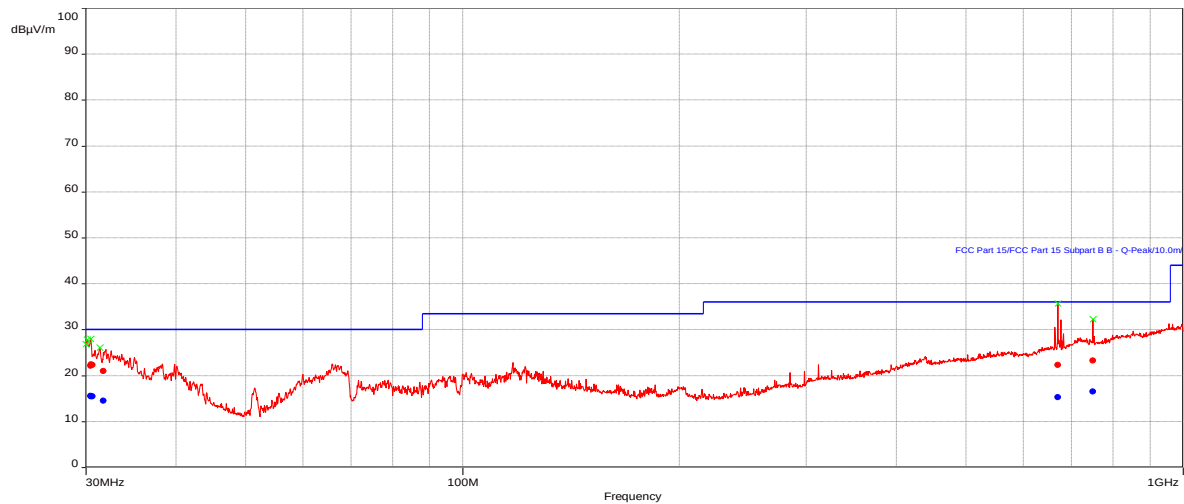
## 7.6 Plots/Data:

BLE (NDC), Radio in Idle, 13.56 MHz RFID on, 30-1000 MHz, at 10m, (V/H Polarities)

### Test Information:

|                           |                                                          |
|---------------------------|----------------------------------------------------------|
| Date and Time             | 5/6/2024 2:45:17 PM                                      |
| Client and Project Number | Sargent Assa Abloy (NTD & NTC - Touchscreen)             |
| Engineer                  | Kouma Sinn                                               |
| Temperature               | 23 deg C                                                 |
| Humidity                  | 45 %                                                     |
| Atmospheric Pressure      | 1007 mbars                                               |
| Comments                  | Scan 11_13.56 MHz RFID (NTD-Touchscreen), RE 30-1000 MHz |

### Graph:



### Results:

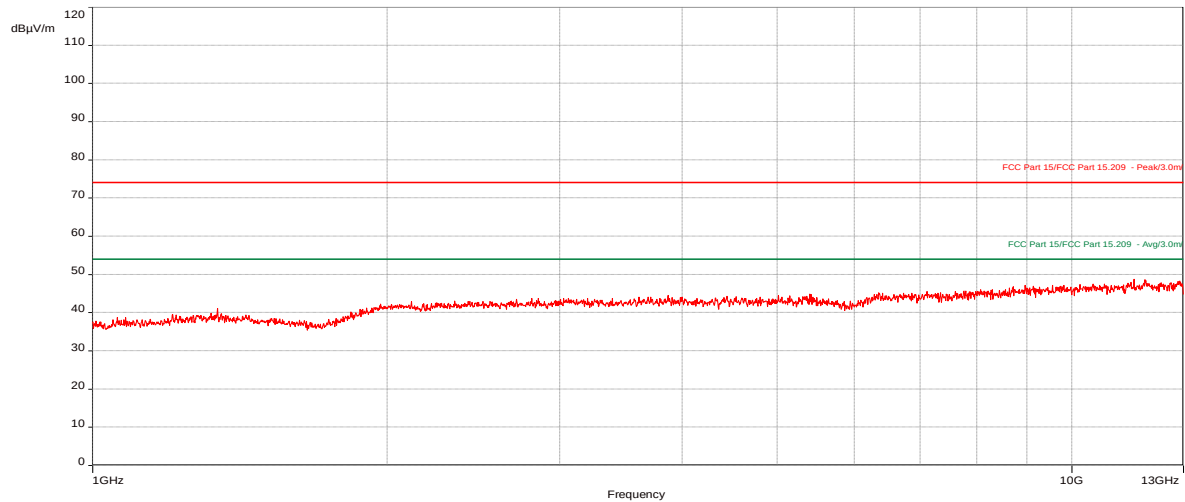
#### QuasiPeak (PASS) (6)

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW  | Meas.Time | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|------|-----------|-----------------|
| 30.4621         | 15.58          | 30.00          | -14.42      | 125.80      | 3.52       | Horizontal | 120k | 0.10      | -12.88          |
| 30.4975         | 15.54          | 30.00          | -14.46      | 137.00      | 2.70       | Horizontal | 120k | 0.10      | -12.90          |
| 30.6276         | 15.46          | 30.00          | -14.54      | 338.30      | 3.44       | Horizontal | 120k | 0.10      | -12.98          |
| 31.7242         | 14.59          | 30.00          | -15.41      | 158.60      | 2.67       | Horizontal | 120k | 0.10      | -13.69          |
| 670.7436        | 15.34          | 36.00          | -20.66      | 360.00      | 4.00       | Vertical   | 120k | 0.10      | -10.14          |
| 749.8788        | 16.52          | 36.00          | -19.48      | 321.40      | 3.89       | Vertical   | 120k | 0.10      | -8.65           |

BLE (NDC), Radio in Idle, 1-13 GHz, at 10m, (V/H Polarities)

**Test Information:**

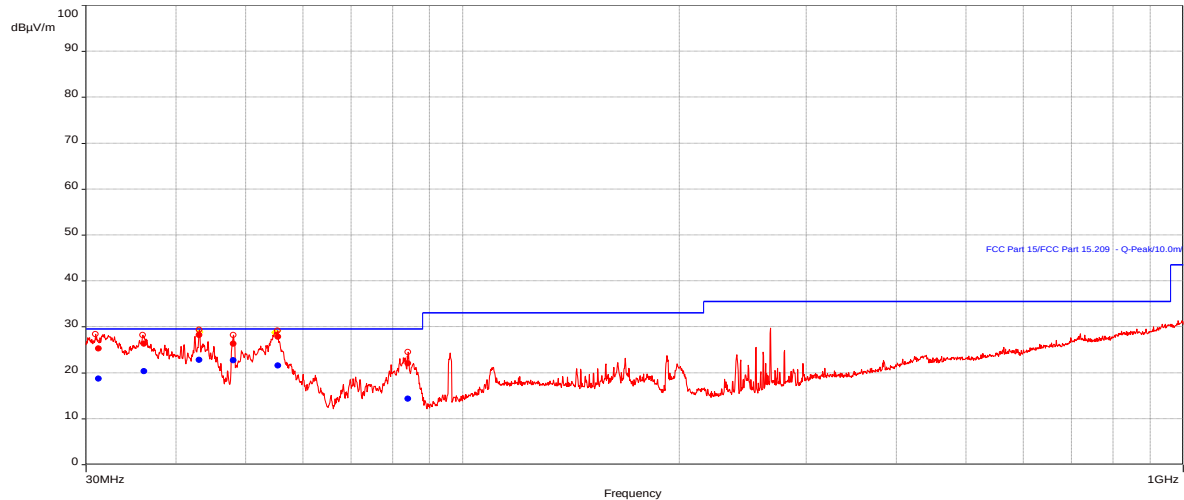
|                           |                                                                            |
|---------------------------|----------------------------------------------------------------------------|
| Date and Time             | 5/6/2024 12:18:46 PM                                                       |
| Client and Project Number | Sargent Assa Abloy (NTD & NTC - Touchscreen)                               |
| Engineer                  | Kouma Sinn                                                                 |
| Temperature               | 23 deg C                                                                   |
| Humidity                  | 45 %                                                                       |
| Atmospheric Pressure      | 1007 mbars                                                                 |
| Comments                  | Scan 7a_Repeat scan 7, BLE (NTD-Touchscreen), Rx High Channel, RE 1-13 GHz |

**Graph:****Results:** No emission was detected.

BLE (NTC), Radio in Idle, 30-1000 MHz, at 10m, (V/H Polarities)

**Test Information:**

|                           |                                                      |
|---------------------------|------------------------------------------------------|
| Date and Time             | 12/15/2024 9:03:02 AM                                |
| Client and Project Number | Sargent G105779772                                   |
| Engineer                  | Vathana Ven                                          |
| Temperature               | 24 deg C                                             |
| Humidity                  | 15 %                                                 |
| Atmospheric Pressure      | 1036 mbars                                           |
| Comments                  | Scan #4_RE 30-1000MHz_BLE NTC - Touch Screen_Rx mode |

**Graph:****Results:**

## QuasiPeak (PASS) (6)

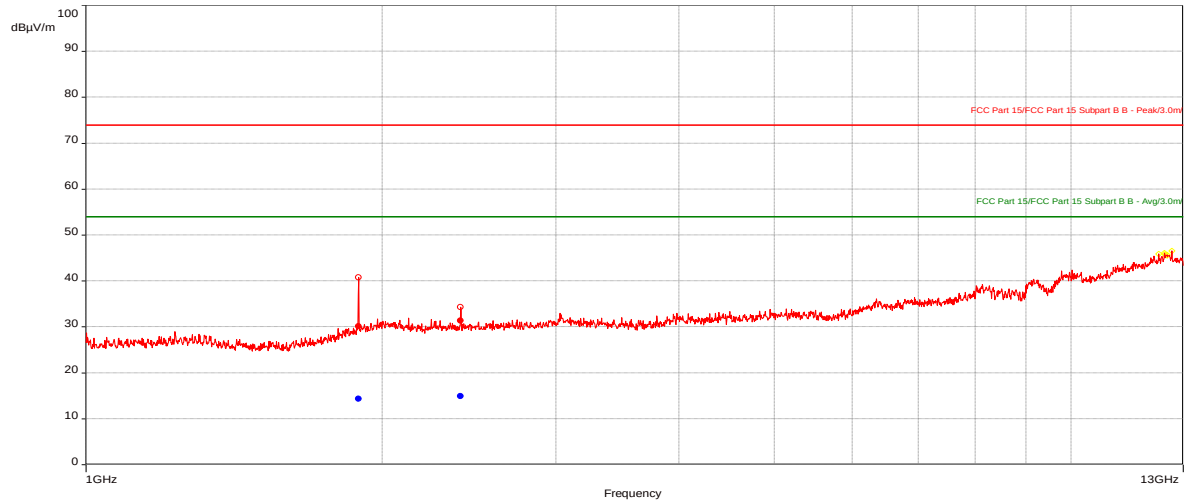
| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.     | RBW  | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|----------|------|--------------|-----------------|
| 31.2698         | 18.77          | 29.54          | -10.77      | 256.60      | 1.45       | Vertical | 120k | 0.10         | -13.44          |
| 36.1347         | 20.37          | 29.54          | -9.17       | 180.60      | 1.61       | Vertical | 120k | 0.10         | -16.89          |
| 43.077          | 22.83          | 29.54          | -6.71       | 213.30      | 1.61       | Vertical | 120k | 0.10         | -21.93          |
| 48.051          | 22.72          | 29.54          | -6.82       | 256.60      | 4.00       | Vertical | 120k | 0.10         | -24.71          |
| 55.4174         | 21.61          | 29.54          | -7.93       | 343.00      | 1.00       | Vertical | 120k | 0.10         | -26.04          |
| 83.9791         | 14.31          | 29.54          | -15.23      | 99.00       | 4.00       | Vertical | 120k | 0.10         | -25.66          |



BLE (NTC), Radio in Idle, 1-13 GHz, at 3m, (V/H Polarities)

**Test Information:**

|                           |                                                       |
|---------------------------|-------------------------------------------------------|
| Date and Time             | 12/15/2024 10:52:12 AM                                |
| Client and Project Number | Sargent G105779772                                    |
| Engineer                  | Vathana Ven                                           |
| Temperature               | 24 deg C                                              |
| Humidity                  | 15 %                                                  |
| Atmospheric Pressure      | 1036 mbars                                            |
| Comments                  | Scan #7 RE 1 to 13 GHz BLE Rx mode NTC - Touch Screen |

**Graph:****Results:****Peak (PASS) (2)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|--------------|-----------------|
| 1891.075        | 30.15          | 74.00          | -43.85      | 0.00        | 1.00       | Horizontal | 1M  | 0.100        | -16.26          |
| 2401.826        | 31.37          | 74.00          | -42.63      | 212.30      | 3.94       | Vertical   | 1M  | 0.100        | -14.74          |

**AVG (PASS) (2)**

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Azimuth (°) | Height (m) | Pol.       | RBW | Meas.Time(s) | Correction (dB) |
|-----------------|----------------|----------------|-------------|-------------|------------|------------|-----|--------------|-----------------|
| 1891.075        | 14.40          | 54.00          | -39.60      | 0.00        | 1.00       | Horizontal | 1M  | 0.100        | -16.26          |
| 2401.826        | 14.97          | 54.00          | -39.03      | 212.30      | 3.94       | Vertical   | 1M  | 0.100        | -14.74          |

| Product Standard: FCC 47CFR15 Part 15 Subpart B, ISSED ICES-003 |                          |                                |                  |      | Limit applied: See Report Section 7.2<br>Pretest Verification w/BB source: Yes |                     |                           |
|-----------------------------------------------------------------|--------------------------|--------------------------------|------------------|------|--------------------------------------------------------------------------------|---------------------|---------------------------|
| Test Date                                                       | Test Personnel/ Initials | Supervising Engineer/ Initials | Input Voltage    | Mode | Atmospheric Data                                                               |                     |                           |
|                                                                 |                          |                                |                  |      | Temp C°                                                                        | Relative Humidity % | Atmospheric Pressure mbar |
| 05/06/2024                                                      | Kouma Sinn <i>KPS</i>    | N/A                            | Internal battery | Idle | 23                                                                             | 45                  | 1007                      |
| 12/15/2024                                                      | Kouma Sinn <i>KPS</i>    | N/A                            | Internal battery | Idle | 24                                                                             | 15                  | 1036                      |

Deviations, Additions, or Exclusions: None

**8 Revision History**

# Intertek

Report Number: 105779772BOX-006.BLE

Issued: 01/16/2025

| Revision Level | Date       | Report Number        | Prepared By    | Reviewed By    | Notes          |
|----------------|------------|----------------------|----------------|----------------|----------------|
| 0              | 01/16/2025 | 105779772BOX-006.BLE | KPS <i>KPS</i> | VFV <i>VFV</i> | Original Issue |
|                |            |                      |                |                |                |
|                |            |                      |                |                |                |
|                |            |                      |                |                |                |
|                |            |                      |                |                |                |
|                |            |                      |                |                |                |