

# Sargent Manufacturing Company

## TEST REPORT

**SCOPE OF WORK**

Emissions Testing – Aperio RF Module, Model IN100

**REPORT NUMBER**

105746284BOX-001.125kHz

**ISSUE DATE**

May 29, 2024

**[REVISED DATE]**

Original issue

**DOCUMENT CONTROL NUMBER**

Non-Specific Radio Report Shell Rev. October 2022  
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## EMISSIONS TEST REPORT (FULL COMPLIANCE)

**Report Number:** 105746284BOX-001.125kHz

**Project Number:** G105746284

**Report Issue Date:** May 29, 2024

**Model(s) Tested:** IN100

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

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

**Standards:** CFR47 FCC Part 15 Subpart C, Section 15.209: 04/2024  
CFR47 FCC Part 15 Subpart C, Section 15.205: 04/2024  
CFR47 FCC Part 15 Subpart B, Section 15.109: 04/2024  
RSS-210 Issue 10 December 2019  
ISED ICES-003 Issue 7 October 2020  
RSS-Gen Issue 5 April 2018 +Amendment 1 March 2019

The product contains the following radio modules:  
The Limited Module FCC ID containing all 4 radios:  
FCC ID: U4A-SCYMCA1K  
IC: 6982A-SCYMCA1K  
Contains BLE Limited Module  
FCC ID: Y88-MBM1CC2640  
IC: 9504A-MBM1CC2640

Tested by:  
Intertek Testing Services NA, Inc.  
70 Codman Hill Road  
Boxborough, MA 01719  
USA

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

Report prepared by



Kouma Sinn / Senior Staff Engineer

Report reviewed by



Vathana Ven / Senior Staff Engineer

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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 product tested **complies** 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	Fundamental Field Strength CFR47 FCC Part 15 Subpart C, Section 15.209: 04/2024 RSS-210 Issue 10 December 2019	Pass
7	Transmitter spurious emissions CFR47 FCC Part 15 Subpart C, Section 15.209: 04/2024 CFR47 FCC Part 15 Subpart B 15.109: 04/2024 RSS-210 Issue 10 December 2019 ISED ICES-003 Issue 7 October 2020	Pass
---	AC Mains Conducted Emissions FCC 47CFR Part 15.107: 04/2024 ISED ICES-003 Issue 7 October 2020	N/A
8	Revision History	--

Notes: The EUT is battery powered. The radio does not transmit simultaneously with other radio 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:** Paul Wehbe  
**Telephone:** 203-498-5536  
**Email:** paul.wehbe@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 Aperio RF Module (Plastic Enclosure)	Sargent Manufacturing Company	IN100	PCI24082CRAPES0003
Electronic access control system with Aperio RF Module (Metal Enclosure)	Sargent Manufacturing Company	IN100	PCI24081CRAPES0004

<b>Receive Date:</b>	04/02/2024
<b>Received Condition:</b>	Good
<b>Type:</b>	Production
<b>Test Date(s):</b>	04/02/2024-04/03/2024, 04/25/2024

Description of Equipment Under Test (provided by client)
<p>Electronic access control system. It contains the radio modules as below.</p> <p>The Limited Module FCC ID containing all 4 radios is:                      FCC ID: U4A-SCYMCA1K                      IC: 6982A-SCYMCA1K</p> <p>Contains BLE Limited Module                      FCC ID: Y88-MBM1CC2640                      IC: 9504A-MBM1CC2640</p>

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

**Operating modes of the EUT:**

No.	Descriptions of EUT Exercising
1	Transmit continuously

**Software used by the EUT:**

No.	Descriptions of EUT Exercising
1	Pre-programmed to transmit continuously using HyperTerminal

125 kHz RFID

Radio/Receiver Characteristics	
<b>Frequency Band(s)</b>	See FCC ID # U4A-SCYMCA1K
<b>Modulation Type(s)</b>	See FCC ID # U4A-SCYMCA1K
<b>Maximum Field Strength (Plastic Enclosure)</b>	67.39 dBuV/m at 3 meters
<b>Maximum Field Strength (Metal Enclosure)</b>	66.32 dBuV/m at 3 meters
<b>Test Channels</b>	125 kHz
<b>Occupied Bandwidth</b>	See FCC ID # U4A-SCYMCA1K
<b>Frequency Hopper: Number of Hopping Channels</b>	N/A
<b>Frequency Hopper: Channel Dwell Time</b>	N/A
<b>Frequency Hopper: Max interval between two instances of use of the same channel</b>	N/A
<b>MIMO Information (# of Transmit and Receive antenna ports)</b>	N/A
<b>Equipment Type</b>	Limited Module
<b>Antenna Type and Gain</b>	See FCC ID # U4A-SCYMCA1K

**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**

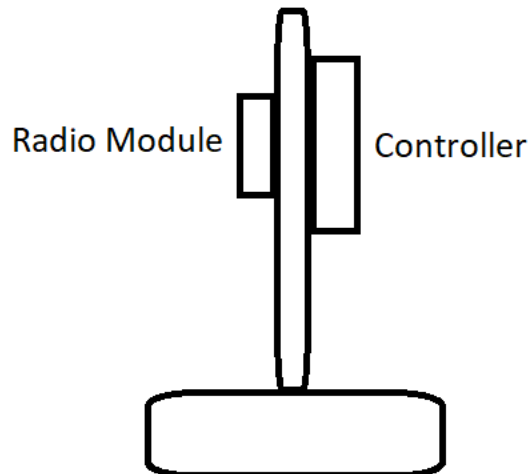
Cables					
ID	Description	Length (m)	Shielding	Ferrites	Termination
--	None	N/A	N/A	N/A	N/A

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
None			

**5.1 Method:**

Configuration as required by ANSI C63.10-2013 and RSS-Gen Issue 5 April 2018.

**5.2 EUT Block Diagram:**



## 6 Fundamental Field Strength

### 6.1 Method

Tests are performed in accordance with ANSI C63.10 and RSS-Gen.

**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.

### 6.2 Limits:

Limits – FCC Part §15.209 (a) The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300

Notes: The limit for RSS-210 is the same as the FCC limits above.

### 6.3 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV007	Weather Station Vantage Vue	Davis	6250	MS191212003	03/27/2024	03/27/2025
IW001	2 meter cable	Insulated Wire	2801-NPS	001	07/19/2023	07/19/2024
HS001	DC-18GHz cable 1.5m long	Huber & Suhner	SucoFlex 106A	HS001	01/30/2024	01/30/2025
HS002	DC-18GHz cable 1.5M long	Huber & Suhner	SucoFlex 106A	HS002	07/19/2023	07/19/2024
145-408	10m Chamber - 3m Track B In-floor Cable	Huber + Suhner	sucoflex 106-11000mm	001	07/19/2023	07/19/2024
ROS011	ESW44 receiver 1Hz-44GHz	Rhode and Schwarz	ESW44	103296	06/28/2023	06/28/2024
145-019	Active Loop Antenna (9 KHz to 30 MHz)	EMCO	6502/1	9902-3267	03/05/2024	03/05/2025

#### Software Utilized:

Name	Manufacturer	Version
None	N/A	N/A

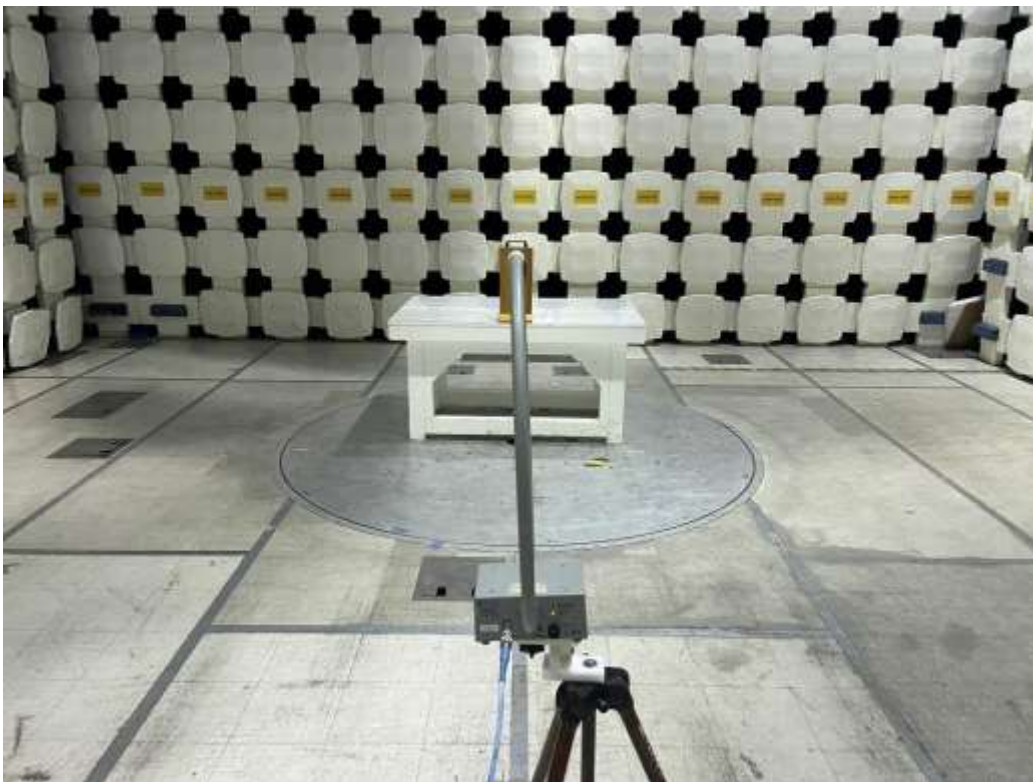
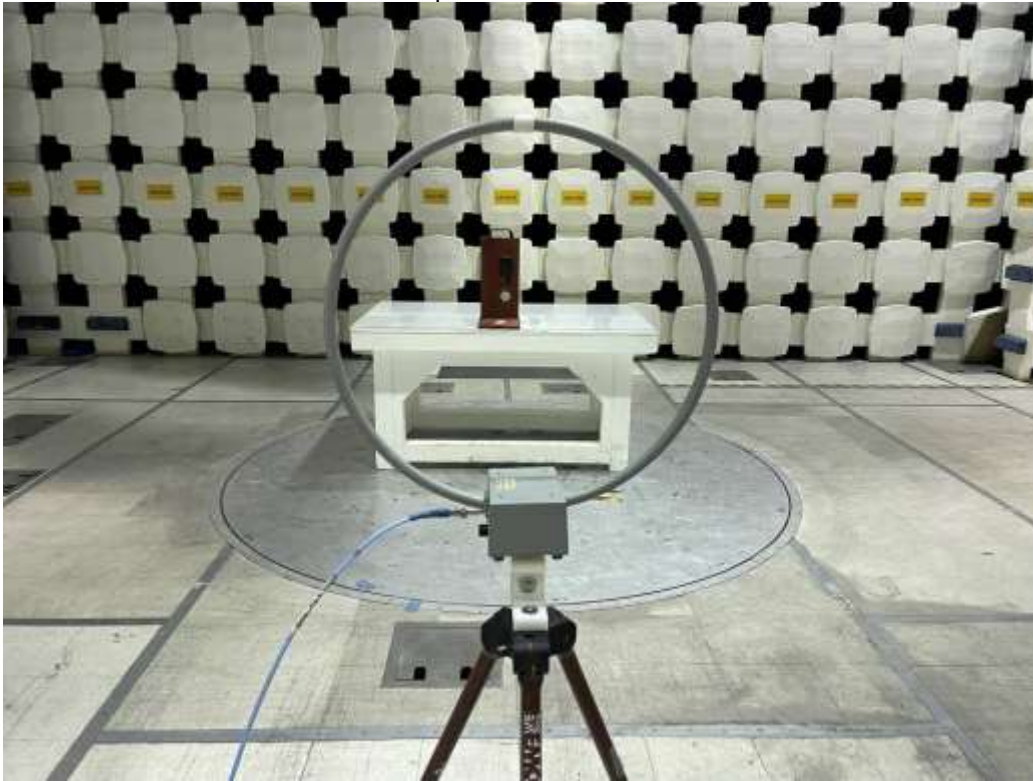
### 6.4 Results:

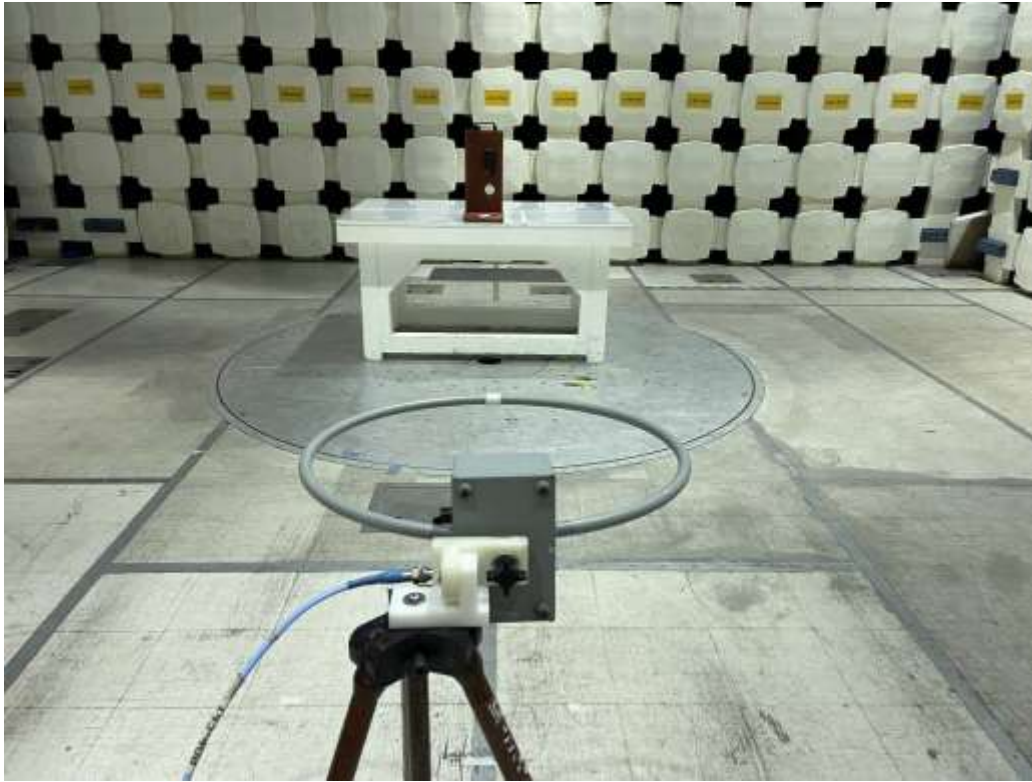
The sample tested was found to Comply.



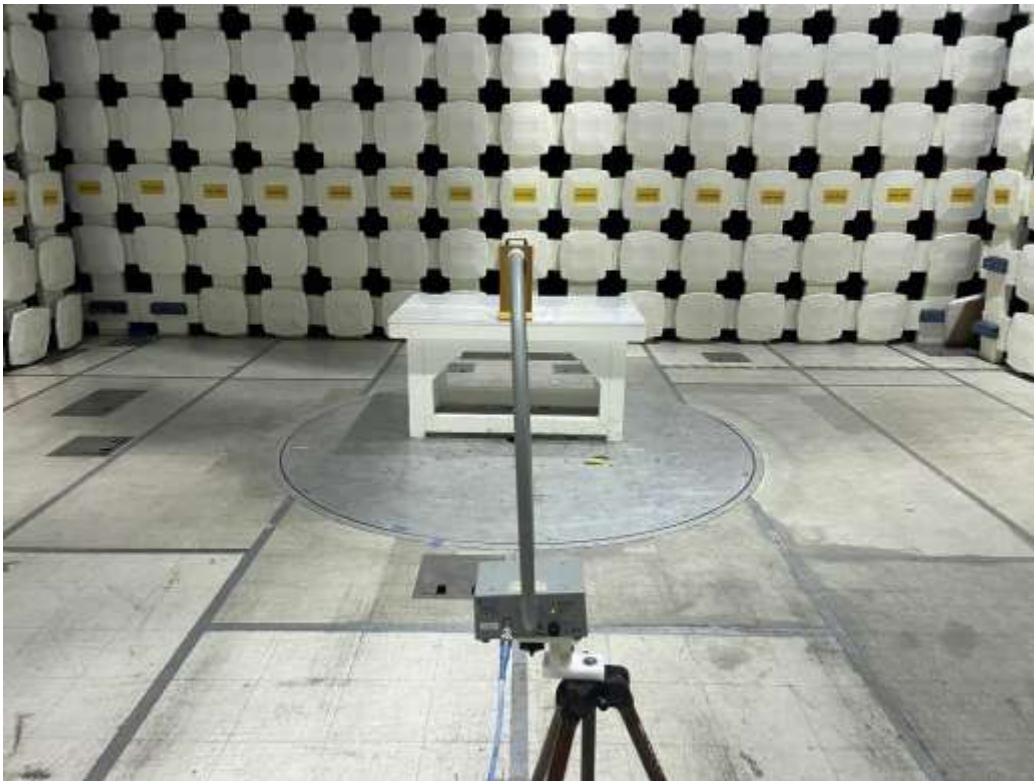
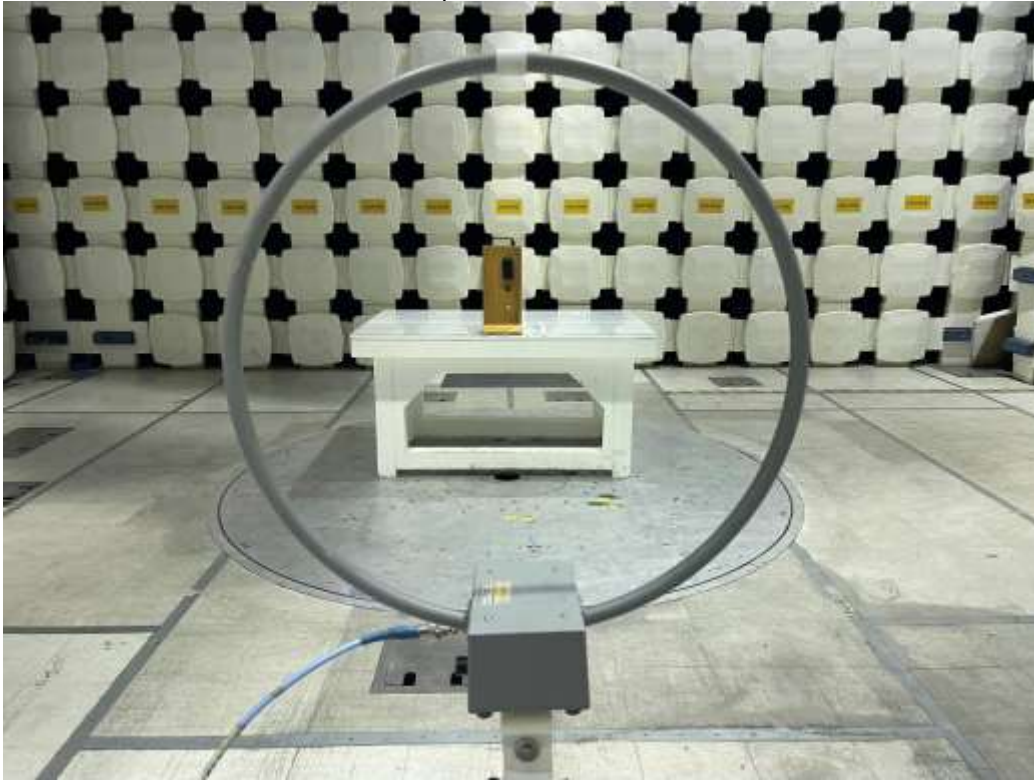
6.5 Setup Photographs:

Test Setup With Plastic Enclosure





Test Setup With Metal Enclosure





**6.6 Test Data:**

125 kHz RFID With Plastic Enclosure – Fundamental Field Strength

Frequency (kHz)	Field Strength at 3 meters (dBuV/m)	*Field Strength Limit at 3 meters (dBuV/m)	Results
125	67.39	105.69	Compliance

Limit was calculated as  $20 \cdot \log(2400/124.6075) = 25.69$  dBuV/m at 300 meters and adjusted to 3 meters with distance factor of  $40 \cdot \log(3/300)$  or  $25.69$  dBuV/m + 80 = 105.69 dBuV/m

125 kHz RFID With Metal Enclosure – Fundamental Field Strength

Frequency (kHz)	Field Strength at 3 meters (dBuV/m)	*Field Strength Limit at 3 meters (dBuV/m)	Results
125	66.32	105.69	Compliance

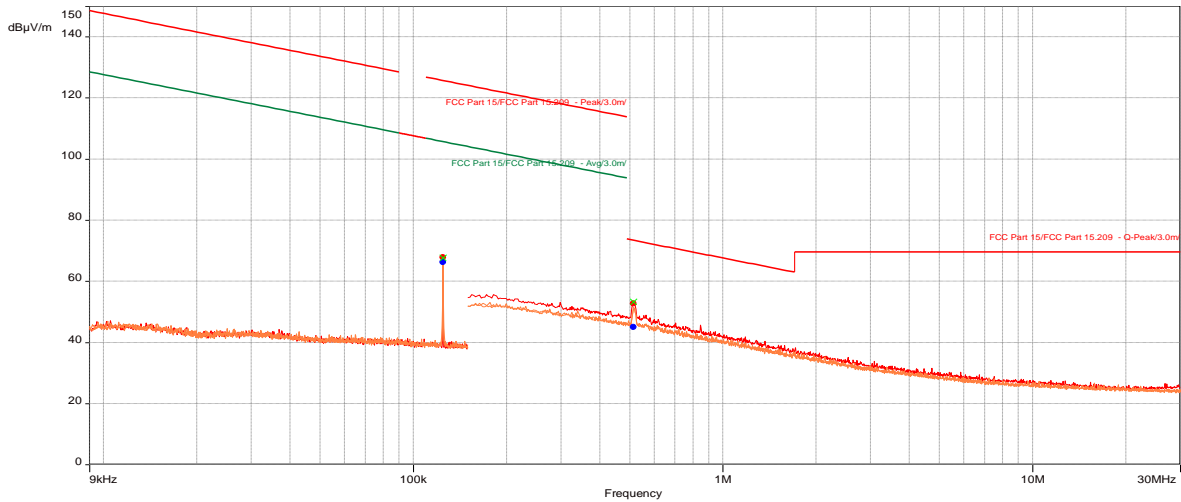
Limit was calculated as  $20 \cdot \log(2400/124.6775) = 25.69$  dBuV/m at 300 meters and adjusted to 3 meters with distance factor of  $40 \cdot \log(3/300)$  or  $25.69$  dBuV/m + 80 = 105.69 dBuV/m

125 kHz RFID With Metal Enclosure – Radiated Fundamental Field Strength at 3m

**Test Information:**

Date and Time	4/25/2024 7:14:16 PM
Client and Project Number	Sargent Assa Abloy
Engineer	Kouma Sinn
Temperature	23 deg C
Humidity	17 %
Atmospheric Pressure	1014 mbars
Comments	Scan 5_125 kHz RFID With Modulation (Metal Enclosure), RE 9kHz-30MHz Loop antenna, Electric Field, 3M Location (FCC 15.209)

**Graph:**



**Results:**

Peak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	RBW	Meas.Time	Correction (dB)
0.1246775	67.93	--	--	0.00	Vertical	200	0.10	13.84
0.51495	52.73	--	--	12.10	Horizontal	9k	0.10	13.25

QuasiPeak (PASS) (2)

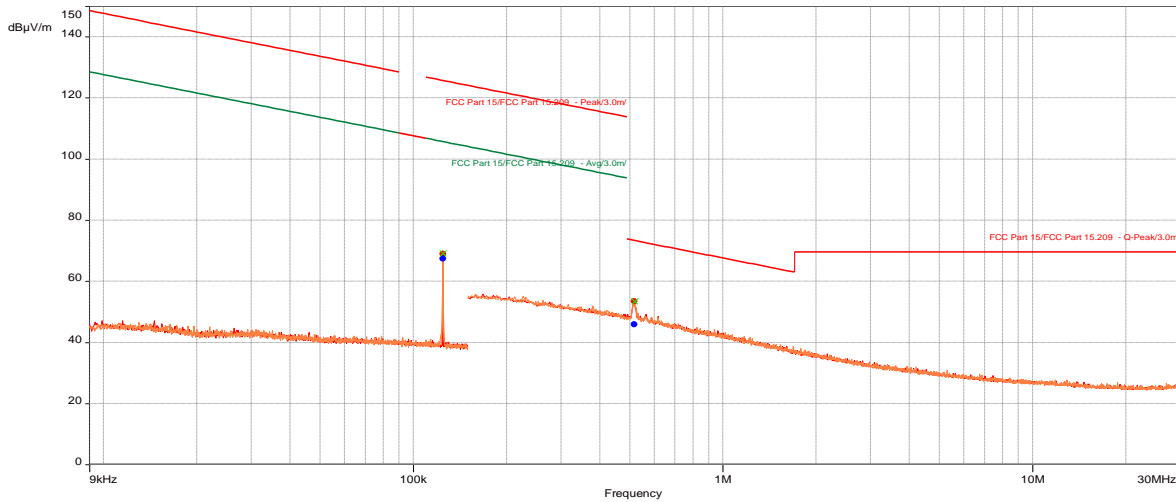
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	RBW	Meas.Time	Correction (dB)
0.1246775	66.32	105.69	-39.37	0.00	Vertical	200	0.10	13.84
0.51495	45.12	73.38	-28.26	12.10	Horizontal	9k	0.10	13.25

**125 kHz RFID With Plastic Enclosure – Radiated Fundamental Field Strength at 3m**

**Test Information:**

Date and Time	4/25/2024 9:02:32 PM
Client and Project Number	Sargent Assa Abloy
Engineer	Kouma Sinn
Temperature	23 deg C
Humidity	17 %
Atmospheric Pressure	1014 mbars
Comments	Scan 8_125 kHz RFID With Modulation (Plastic Enclosure), RE 9kHz-30MHz Loop antenna, Electric Field, 3M Location (FCC 15.209)

**Graph:**



**Results:**

Peak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	RBW	Meas.Time	Correction (dB)
0.1246075	68.98	--	--	7.20	Vertical	200	0.10	13.84
0.51676	53.51	--	--	202.10	Vertical	9k	0.10	13.25

QuasiPeak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	RBW	Meas.Time	Correction (dB)
0.1246075	67.39	105.69	-39.37	7.20	Vertical	200	0.10	13.84
0.51676	45.91	73.34	-27.43	202.10	Vertical	9k	0.10	13.25

Product Standard: FCC Part 15 15.209 and RSS-210				Limit applied: See Report Section 6.2			
Test Date	Test Personnel/ Initials	Supervising Engineer/ Initials	Input Voltage	Mode	Atmospheric Data		
					Temp C°	Relative Humidity %	Atmospheric Pressure mbar
04/25/2024	Kouma Sin <i>K.S.</i>	Vathana F. Ven <i>V.F.V.</i>	Internal battery	Continuous transmitting	23	17	1014

Deviations, Additions, or Exclusions: None

## 7 Transmitter spurious emissions

### 7.1 Method

Tests are performed in accordance with ANSI C63.10, ANSI C 63.4, and RSS-Gen.

**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)	Ucisprr
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 Limits**

Limits – FCC Part §15.209 (a) The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100	3
88–216	150	3
216–960	200	3
Above 960	500	3

Notes: The limit for RSS-210 is the same as the FCC limits above.

**7.3 Test Equipment Used:**

Test equipment used from 9 kHz-30 MHz

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV007'	Weather Station Vantage Vue	Davis	6250	MS191212003	03/27/2024	03/27/2025
IW001'	2 meter cable	Insulated Wire	2801-NPS	001	07/19/2023	07/19/2024
HS001'	DC-18GHz cable 1.5m long	Huber & Suhner	SucoFlex 106A	HS001	01/30/2024	01/30/2025
HS002'	DC-18GHz cable 1.5M long	Huber & Suhner	SucoFlex 106A	HS002	07/19/2023	07/19/2024
145-408'	10m Chamber - 3m Track B In-floor Cable	Huber + Suhner	sucoflex 106-11000mm	001	07/19/2023	07/19/2024
145019'	Active Loop Antenna (9 KHz to 30 MHz)	EMCO	6502/1	9902-3267	03/05/2024	03/05/2025
ROS011'	ESW44 receiver 1Hz-44GHz	Rhode and Schwarz	ESW44	103296	06/28/2023	06/28/2024

**Software Utilized:**

Name	Manufacturer	Version
None	N/A	N/A

Test equipment used from 30-1000 MHz

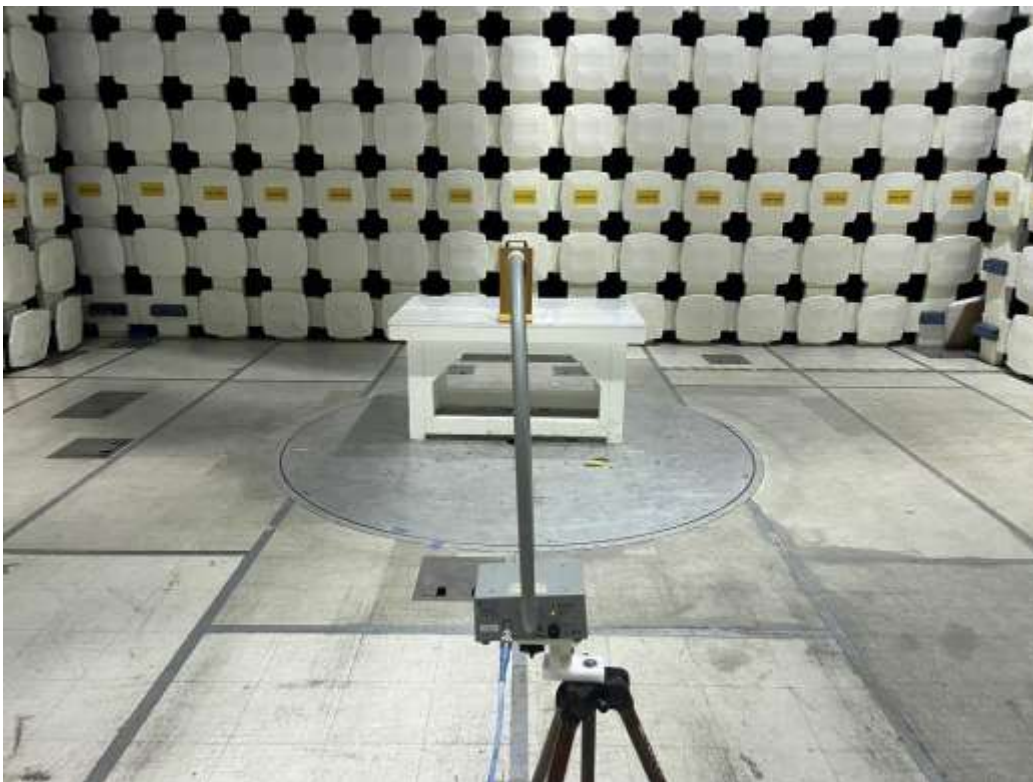
Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV007'	Weather Station Vantage Vue	Davis	6250	MS191212003	03/27/2024	03/27/2025
IW001'	2 meter cable	Insulated Wire	2801-NPS	001	07/19/2023	07/19/2024
145-406'	10m Track A In-floor Cable #1	Huber + Suhner	sucoflex 160-19220mm	001	07/19/2023	07/19/2024
145-414'	Cable 145-414	Huber + Suhner	3m Track A cable	145-414	07/19/2023	07/19/2024
147-326'	Immunity Cable	Huber + Suhner	Sucoflex 106	233089-005	07/19/2023	07/19/2024
PRE11'	50dB gain pre-amp	Pasternack	PRE11	PRE11	09/15/2023	09/15/2024
145106'	Bilog Antenna (30MHz - 5GHz)	Sunol Sciences	JB5	A111003	09/14/2023	09/14/2024
ROS011'	ESW44 receiver 1Hz-44GHz	Rhode and Schwarz	ESW44	103296	06/28/2023	06/28/2024

**7.4 Results:**

The sample tested was found to Comply.

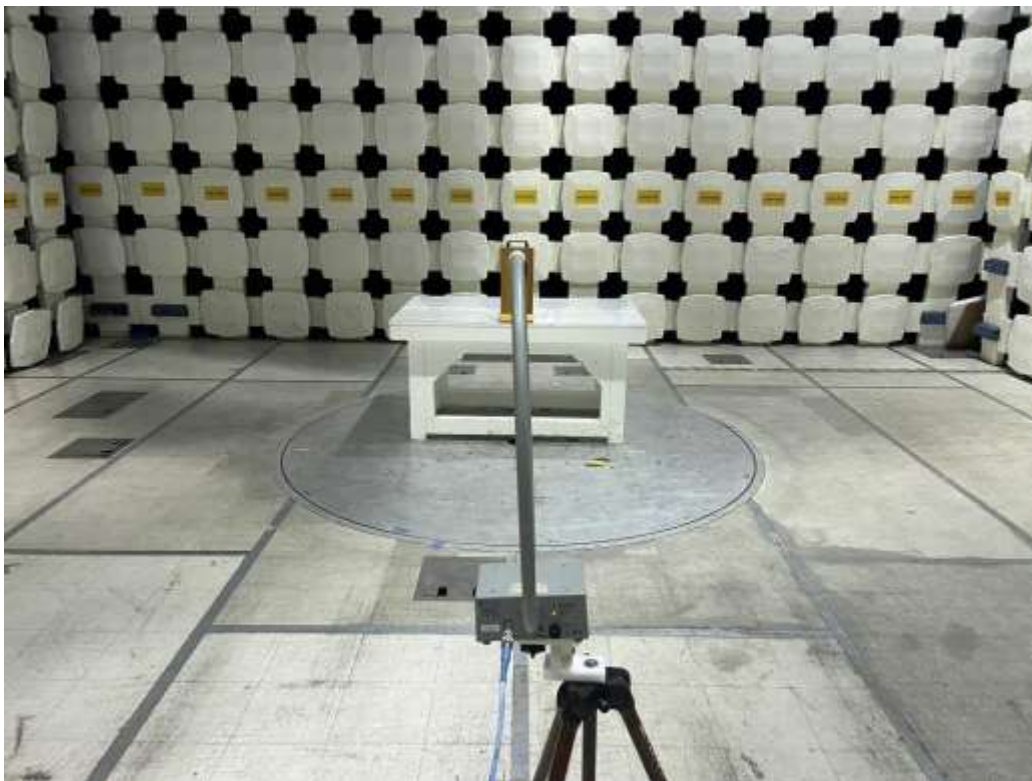
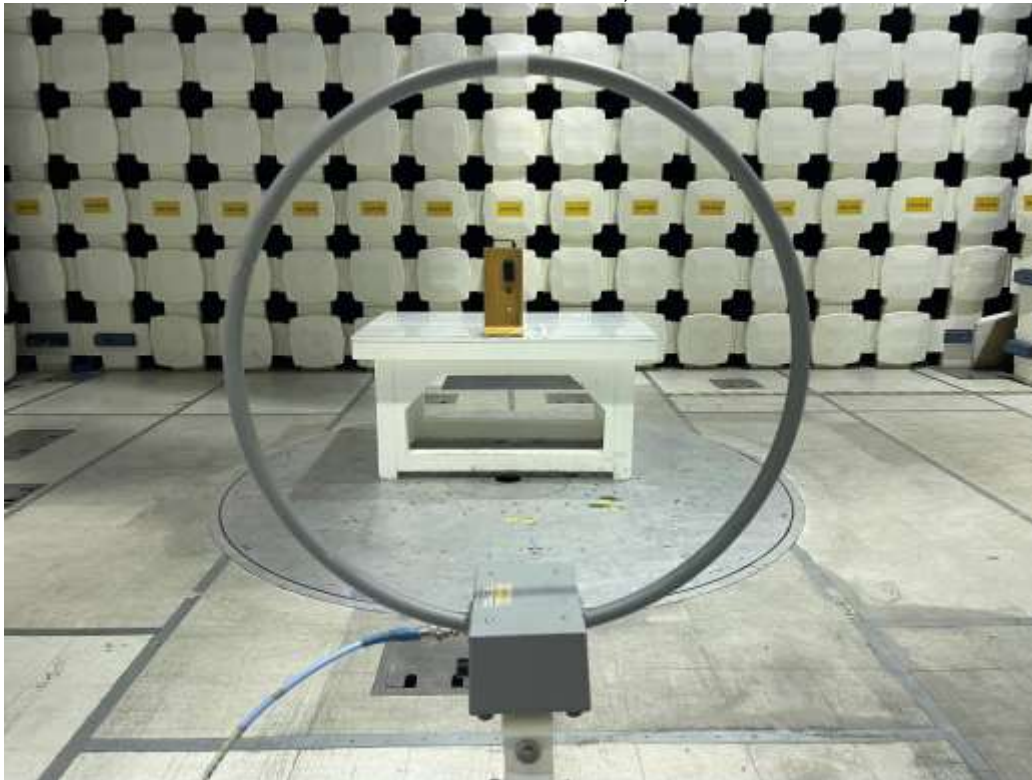
7.5 Setup Photographs:

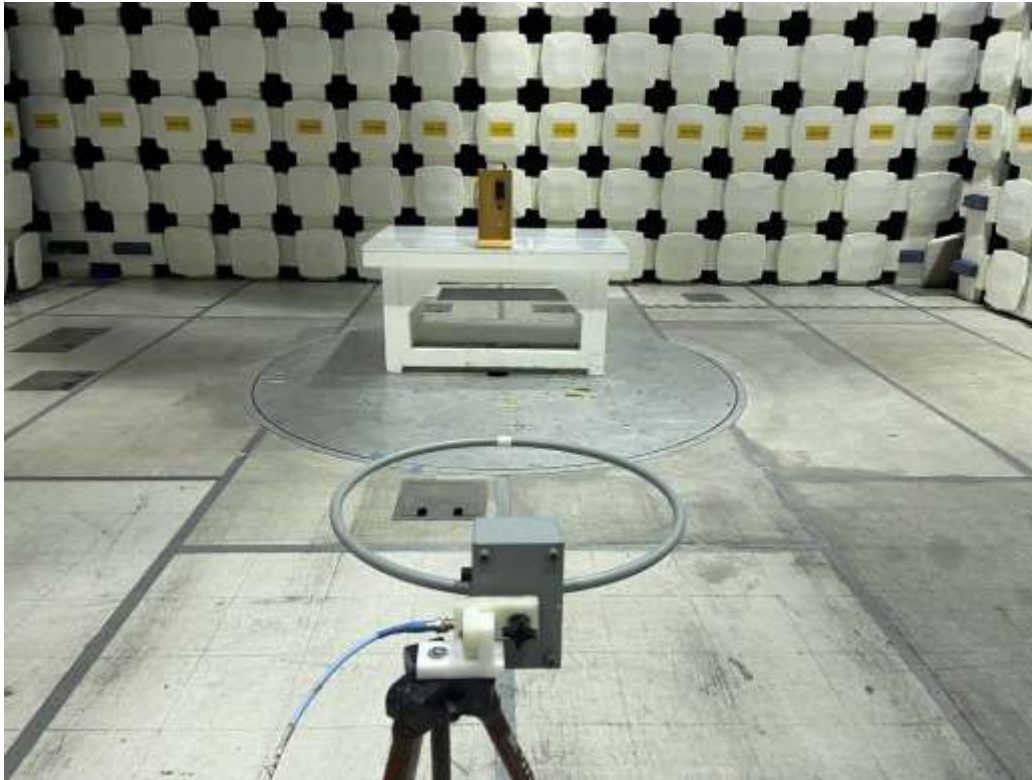
125 kHz RFID With Plastic Enclosure, RE 9 kHz-30 MHz



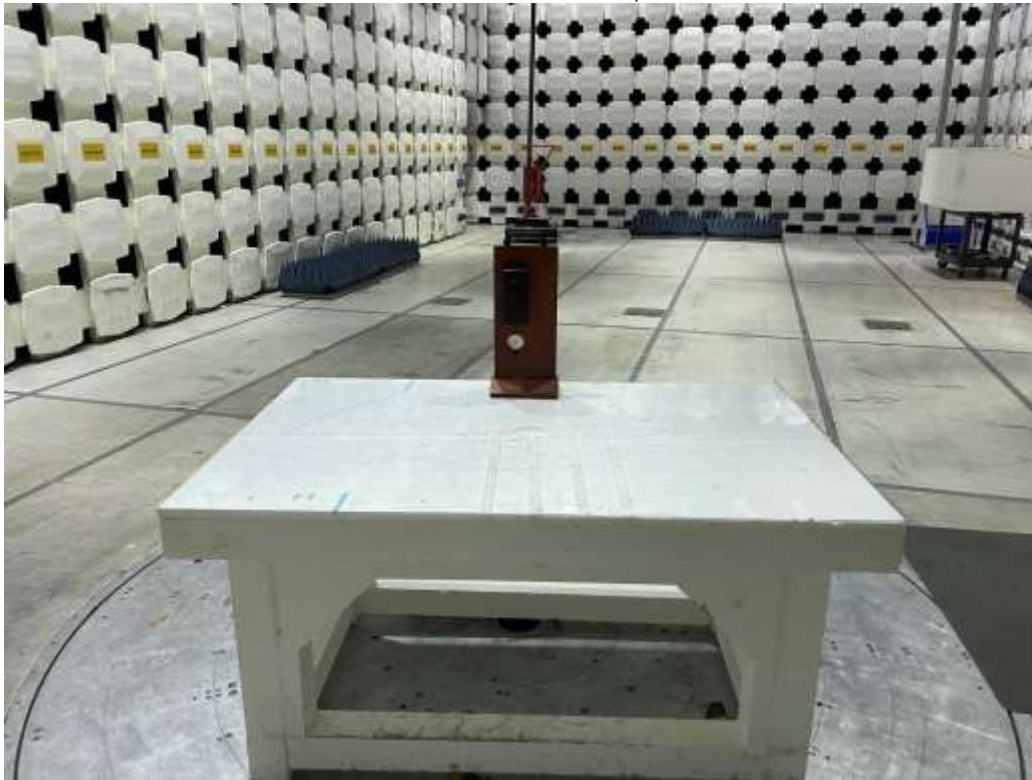


125 kHz RFID With Metal Enclosure, RE 9 kHz-30 MHz



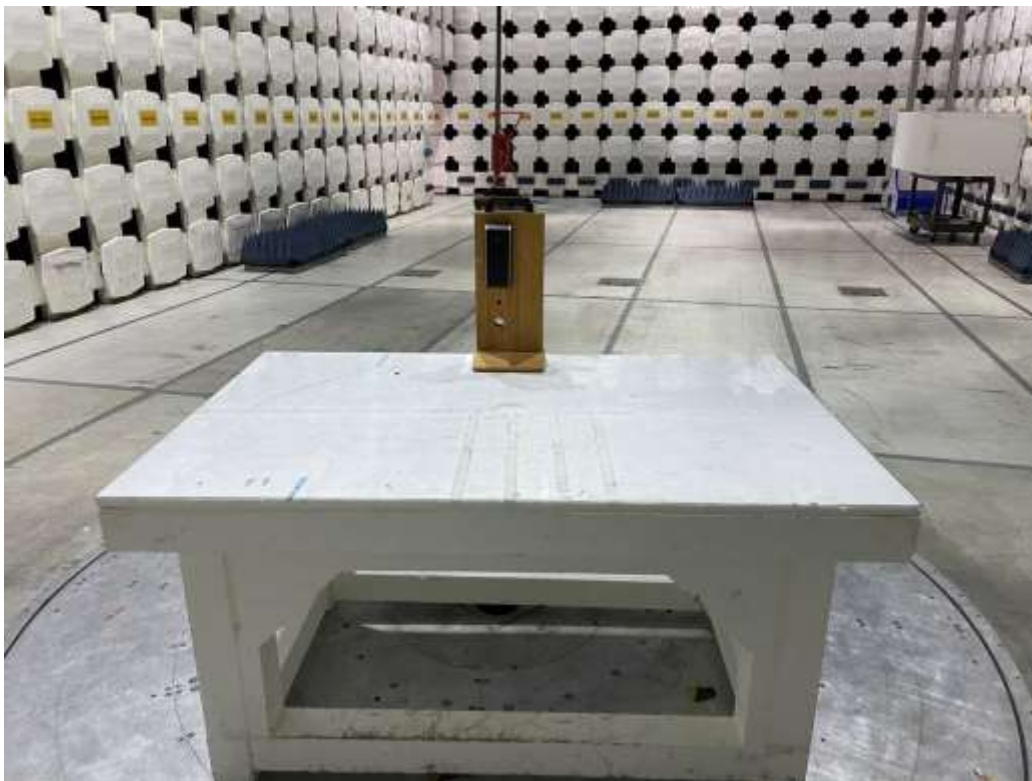


125 kHz RFID With Plastic Enclosure, RE 30-1000 MHz





125 kHz RFID With Metal Enclosure, RE 30-1000 MHz



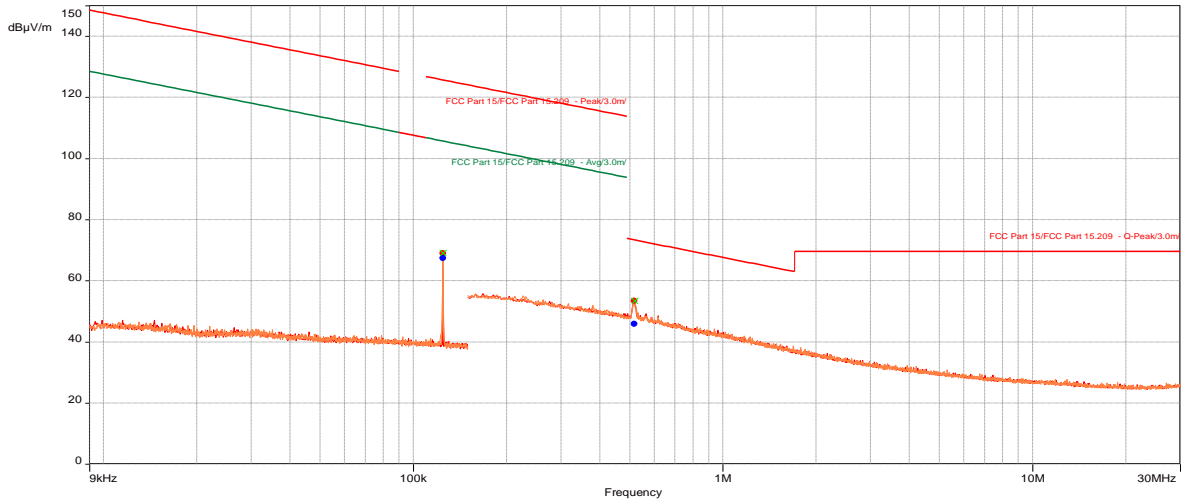
**7.6 Plots/Data:**

125 kHz RFID With Plastic Enclosure, RE 9 kHz-30 MHz

**Test Information:**

Date and Time	4/25/2024 9:02:32 PM
Client and Project Number	Sargent Assa Abloy
Engineer	Kouma Sinn
Temperature	23 deg C
Humidity	17 %
Atmospheric Pressure	1014 mbars
Comments	Scan 8_125 kHz RFID With Modulation (Plastic Enclosure), RE 9kHz-30MHz Loop antenna, Electric Field, 3M Location (FCC 15.209)

**Graph:**



**Results:**

Peak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	RBW	Meas.Time	Correction (dB)
0.1246075	68.98	--	--	7.20	Vertical	200	0.10	13.84
0.51676	53.51	--	--	202.10	Vertical	9k	0.10	13.25

QuasiPeak (PASS) (2)

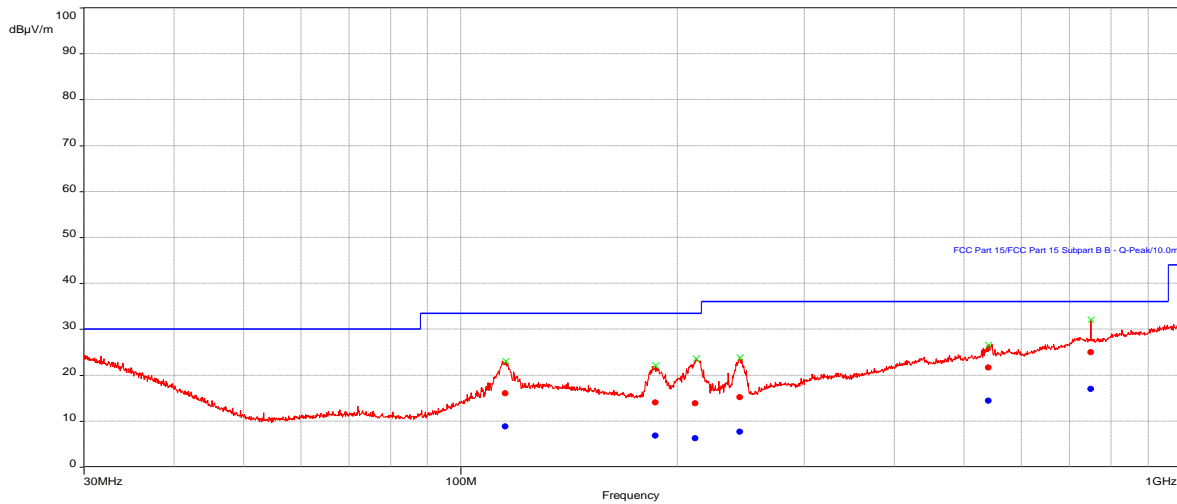
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	RBW	Meas.Time	Correction (dB)
0.1246075	67.39	105.69	-39.37	7.20	Vertical	200	0.10	13.84
0.51676	45.91	73.34	-27.43	202.10	Vertical	9k	0.10	13.25

125 kHz RFID With Plastic Enclosure, RE 30-1000 MHz

**Test Information:**

Date and Time	4/2/2024 2:29:07 PM
Client and Project Number	Sargent / Assa Abloy
Engineer	Kouma Sinn
Temperature	23 C
Humidity	27 %
Atmospheric Pressure	1008 mbars
Comments	Scan 7: 125 kHz RFID (Plastic Enclosure), RE 30-1000 MHz

**Graph:**



**Results:**

Peak (6)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas. Time (s)	Correction (dB)
115.4165	16.07	--	--	6.70	4.00	Horizontal	120k	20	-19.17
186.4183	14.07	--	--	44.60	2.80	Horizontal	120k	20	-20.88
211.8464	13.90	--	--	175.00	2.66	Horizontal	120k	20	-21.32
244.1189	15.20	--	--	82.80	1.54	Horizontal	120k	20	-20.15
540.3376	21.67	--	--	218.30	1.00	Horizontal	120k	20	-12.35
750.184	25.02	--	--	191.50	4.00	Horizontal	120k	20	-8.64

QuasiPeak (PASS) (6)

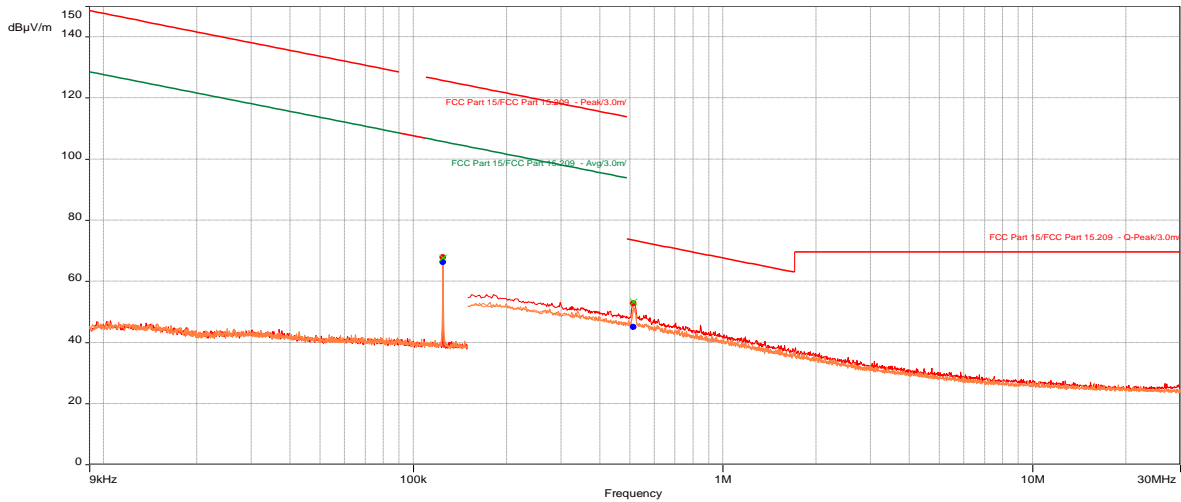
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas. Time (s)	Correction (dB)
115.4165	8.83	33.50	-24.67	6.70	4.00	Horizontal	120k	20	-19.17
186.4183	6.87	33.50	-26.63	44.60	2.80	Horizontal	120k	20	-20.88
211.8464	6.28	33.50	-27.22	175.00	2.66	Horizontal	120k	20	-21.32
244.1189	7.75	36.00	-28.25	82.80	1.54	Horizontal	120k	20	-20.15
540.3376	14.50	36.00	-21.50	218.30	1.00	Horizontal	120k	20	-12.35
750.184	17.06	36.00	-18.94	191.50	4.00	Horizontal	120k	20	-8.64

125 kHz RFID With Metal Enclosure, RE 9 kHz-30 MHz

**Test Information:**

Date and Time	4/25/2024 7:14:16 PM
Client and Project Number	Sargent Assa Abloy
Engineer	Kouma Sinn
Temperature	23 deg C
Humidity	17 %
Atmospheric Pressure	1014 mbars
Comments	Scan 5_125 kHz RFID With Modulation (Metal Enclosure), RE 9kHz-30MHz Loop antenna, Electric Field, 3M Location (FCC 15.209)

**Graph:**



**Results:**

Peak (PASS) (2)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	RBW	Meas.Time	Correction (dB)
0.1246775	67.93	--	--	0.00	Vertical	200	0.10	13.84
0.51495	52.73	--	--	12.10	Horizontal	9k	0.10	13.25

QuasiPeak (PASS) (2)

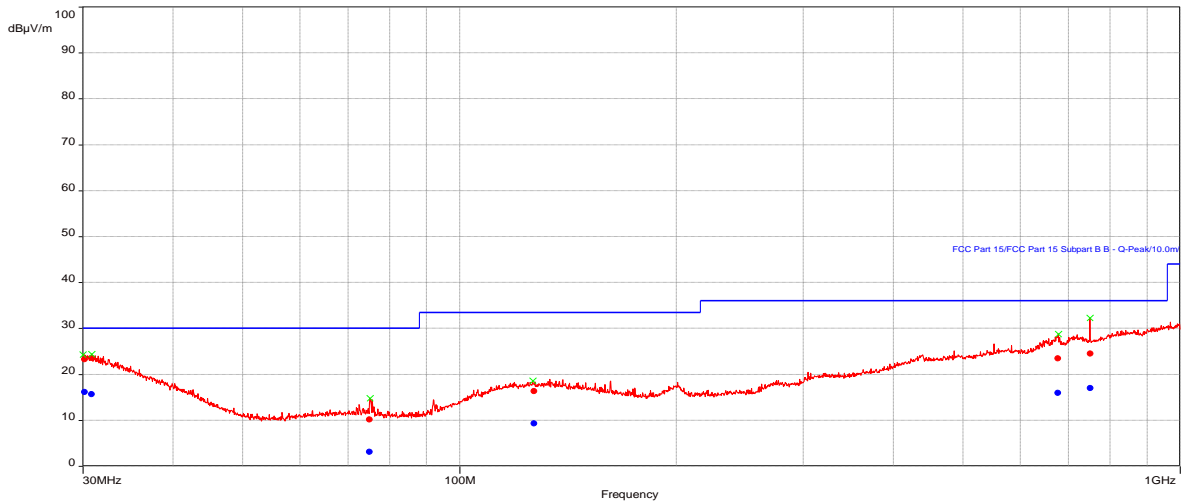
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	RBW	Meas.Time	Correction (dB)
0.1246775	66.32	105.69	-39.37	0.00	Vertical	200	0.10	13.84
0.51495	45.12	73.38	-28.26	12.10	Horizontal	9k	0.10	13.25

125 kHz RFID With Metal Enclosure, RE 30-1000 MHz

**Test Information:**

Date and Time	4/3/2024 10:26:45 AM
Client and Project Number	Sargent Assa Abloy
Engineer	Kouma Sinn
Temperature	22 deg C
Humidity	28 %
Atmospheric Pressure	1004 mbars
Comments	Scan 10: 125 kHz RFID (Metal Enclosure), RE 30-1000 MHz

**Graph:**



**Results:**

Peak (6)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
30.1938	23.29	--	--	158.90	1.55	Vertical	120k	20	-12.72
30.8834	23.59	--	--	325.40	3.84	Vertical	120k	20	-13.13
74.9792	10.15	--	--	244.50	3.53	Horizontal	120k	20	-25.11
126.8614	16.32	--	--	61.00	1.84	Horizontal	120k	20	-18.52
677.2092	23.53	--	--	354.40	1.70	Vertical	120k	20	-10.08
750.38	24.57	--	--	218.90	4.00	Horizontal	120k	20	-8.62

QuasiPeak (PASS) (6)

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW	Meas.Time (s)	Correction (dB)
30.1938	16.17	30.00	-13.83	158.90	1.55	Vertical	120k	20	-12.72
30.8834	15.69	30.00	-14.31	325.40	3.84	Vertical	120k	20	-13.13
74.9792	3.14	30.00	-26.86	244.50	3.53	Horizontal	120k	20	-25.11
126.8614	9.36	33.50	-24.14	61.00	1.84	Horizontal	120k	20	-18.52
677.2092	15.95	36.00	-20.05	354.40	1.70	Vertical	120k	20	-10.08
750.38	16.99	36.00	-19.01	218.90	4.00	Horizontal	120k	20	-8.62

Product Standard: FCC Part 15 15.209 and RSS-210				Limit applied: See Report Section 7.2 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
04/02/2024	Kouma Sinn <i>KPS</i>	N/A	Battery Powered	Continuous Transmitting	23	27	1008
04/03/2024	Kouma Sinn <i>KPS</i>	N/A	Battery Powered	Continuous Transmitting	22	28	1004
04/25/2024	Kouma Sinn <i>KPS</i>	N/A	Battery Powered	Continuous Transmitting	23	17	1014

Deviations, Additions, or Exclusions: None

**8 Revision History**

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	05/29/2024	105746284BOX-001.125kHz	KPS <i>KPS</i>	VFV <i>VFV</i>	Original Issue