



- The RvA is a signatory to the EA MLA.
- The RvA is a signatory to the ILAC MRA.
- The RvA is a signatory to the IAF MLA.
- FCC Registration Number: NL0002 / 375449
- ISED CABid: NL0003 / Company number: 27051

Test report No:
2285019.0503B-RSM

Test report

USA FCC Part 15.225, 15.209

CANADA RSS-210, RSS-Gen

(*) Identification of item tested	Apparatus intended for ophthalmic surgery
(*) Trademark	VIRTUOSO
(*) Model and /or type reference	EQ00.R02
(*) Features	RFID 13.56MHz and BT-EDR.
Other identification of the product	FCC ID: 2BNUMIRIS Contains FCC ID: SQGBT700 Contains IC: 3147A-BT700
(*) Derived model(s)	EQ00.R01, EQ00.R03
(*) Applicant's name / address	DEMCON Life Sciences & Health Enschede B.V. Institutenweg 25, 7521 PH Enschede, Netherlands
Test method requested, standard	USA FCC Part 15.225 (10–1–24 Edition): Operation within the band 13.110–14.010. USA FCC Part 15.209 (10–1–24 Edition): Radiated emission limits, general requirements. CANADA RSS-210 Issue 11 (June 2024). CANADA RSS-Gen Issue 5 (April 2018) / Amendment 1 (March 2019) / Amendment 2 (February 2021) ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024: American National Standard for Testing Unlicensed Wireless Devices.
Verdict Summary	IN COMPLIANCE (refer to chapter 3 for details)
Tested by (name / position & signature)	Jose Carlos Luque Technical Professional EMC&Wireless
Approved by (name / position & signature)	Sedat Eser Operational Manager EMC
Date of issue	2026-01-13
Report template No	TRF_RSM_FCC15.225 R1.0 (*) "Data provided by the applicant"

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COMPETENCES AND GUARANTEES

The DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

GENERAL CONDITIONS

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

UNCERTAINTY

Uncertainties have been calculated according to the DEKRA internal document AMS#2224. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%. Refer to the Annex 1 for further information.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%
Atmospheric pressure	86 kPa – 106 kPa

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

DEFINITION OF SYMBOLS USED IN THIS TEST REPORT

☒ Indicates that the listed condition, standard or equipment is applicable for this report/test/EUT.			
☐ Indicates that the listed condition, standard or equipment is not applicable for this report/test/EUT.			
Decimal separator used in this report	☐	Comma (,)	☒ Point (.)

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test
DUT	: Device Under Test
QP	: Quasi-Peak
PK	: Peak
AV	: Average
SAC	: Semi-Anechoic Chamber
OATS	: Open Area Test Site
RBW	: Resolution Bandwidth
VBW	: Video Bandwidth
Tx	: Transmitter
Rx	: Receiver
N/A	: Not Applicable
N/M	: Not Measured
RGP	: Reference Ground Plane
TX	: Transmission
RX	: Reception

DATA PROVIDED BY THE APPLICANT

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested", Features and "Derived model(s)").
2. Derived models not tested. These models have been declared by the applicant as being the same as the model under test.
3. Similarity declaration in Annex 3.

DEKRA Certification B.V. declines any responsibility with respect to the information provided by the applicant and that may affect the validity of results.

DOCUMENT HISTORY

Report nr.	Date	Description
2285019.0503-RSM	2025-03-19	First release.
2285019.0503A-RSM	2025-12-10	Second release. Some typos were corrected This revision of the test report cancels and replaces the test report with a reference number 2285019.0503-RSM.
2285019.0503B-RSM	2026-01-13	Third release. It was updated the version of ANSI C63.10 to the last version. This revision of the test report cancels and replaces the test report with a reference number 2285019.0503A-RSM.

CONCLUSION, REMARKS AND COMMENTS

The equipment under test (EUT) does meet the requirements of the stated standard(s)/test(s).

The test results stated in this report of model " EQ00.R02 " are also representative for models in chapter 1.3.

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Description of the item	A multifunctional surgical equipment for use in anterior and posterior segment ophthalmic surgeries
Model / Type number	EQ00.R02
Serial number	IR230113
Trademark	VIRTUOSO®
Manufacturer.....	Vitrec
Address	Seggelant-Noord 2, 3237 MG Vierpolders, The Netherlands

Operating frequency range(s) –	13.56 MHz
Operating frequency range(s) –	13.56 MHz
Type of Modulation.....	ASK (8% to 30%)
Antenna type	PCB Antenna
Antenna gain.....	H-field@3m= 6.47 dBuA/m
Product class	1

Rated power supply	Voltage and Frequency		Power connection type				
			L1	L2	L3	N	PE
	☐	AC:	☐	☐	☐	☐	☐
	☒	AC: 100 – 240 V, 50/60 Hz	☒	☐	☐	☒	☒
	☐	DC:					
	☐	Battery:					
Rated Power	500VA / 6A						
Clock frequencies	See screenshot below ^{a)}						
Other parameters.....	RFID 13.56MHz, BT 2.4 GHz						
Software version	11.0.X						
Hardware version.....	DMR02776						
Dimensions in cm (W x H x D).....	64.0 x 171.0 x 75.5						
Mounting position.....	☐	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☒	Floor standing equipment					
	☐	Hand-held equipment					
	☐	Other:					

a)

Frequency (MHz)	Description	Frequency (MHz)	Description
25	Clock frequency references (FPGA, DSP, Ethernet switch)	0.65	Boost Converter Diathermy
100	Internal FPGA	10	SPI clock ADC's (ADC1, ADC2, ADC5, ADC6, ADC7, ADC8)
25	RGMII interface	0.5	SPI clock Pressure sensors
0.1152	UART	1.25	SPI clock Pump
0.5	RS232 UART Laser	10	SPI clock Vitrectomy ADC
0.5	RS232 Video Overlay	1	SPI clock Diathermy ADC
0.1	PWM PSD LED's	1	SPI clock Phaco ADC
1	PWM Illumination LED Drivers	1	SPI clock Laser I/O ADC (ADC4)
0.035	PWM BLDC Motors	2.1	SPI clock Laser ID transceiver
0.025	PWM FAN's	1	SPI clock ADuM devices
0.04	PWM Phaco		
0.2	PWM Diathermy		

Intended use of the Equipment Under Test (EUT)

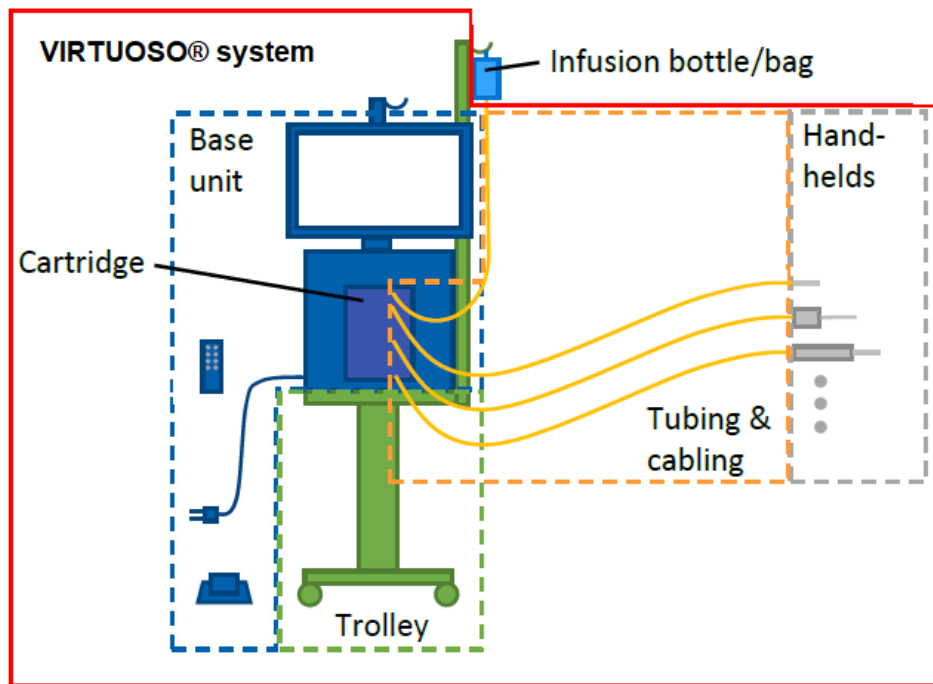
The VIRTUOSO® system is an equipment intended for anterior and posterior segment ophthalmic surgery. The system capabilities include:

- fluid irrigation,
- air irrigation,
- fluid/air aspiration, phaco-emulsification,
- diathermy,
- vitrectomy,
- viscous fluid injection,
- viscous fluid extraction,
- illumination, and
- laser coagulation.

System overview:

The following figures give a definition of the various parts of the VIRTUOSO® system, including the system boundaries. The different blocks contain the following elements:

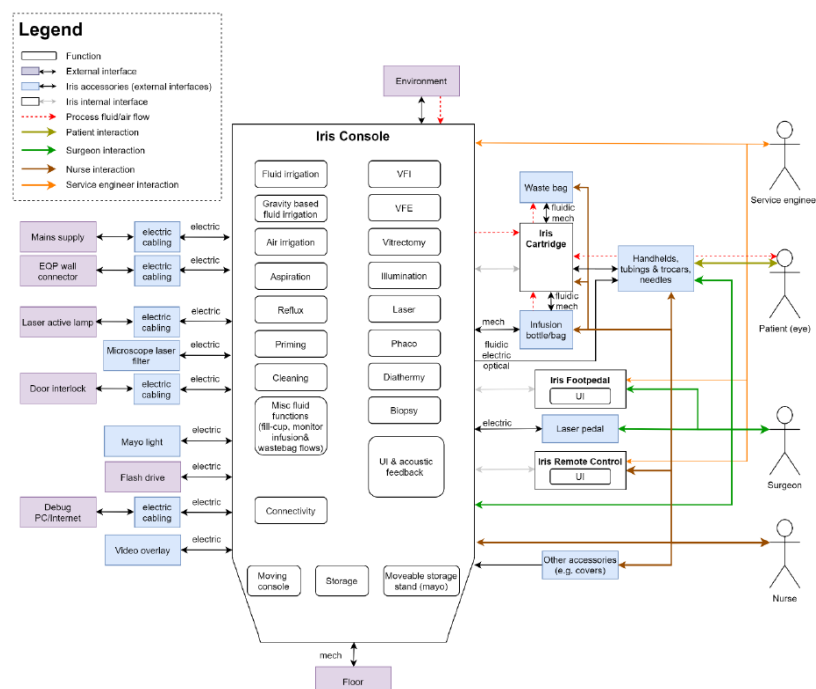
- Base unit: the desktop part of the system, including touch screen, foot pedal(s) and remote control. The base unit also encloses two (2) Bluetooth radio modules used for communication with the foot pedal and the remote control units and RFID interface related to laser function.
- Cartridge: disposable part of irrigation/aspiration pump function
- Trolley: the movable trolley (also contains Air Supply parts)
- Tubing & cabling: all electrical cables, optical fibers and disposable tubes that are connected to the cartridge, base unit, infusion bottle/bag and the handhelds
- Handhelds: all instruments connected to the tubing or base unit, including light or laser fibers



The battery operated foot pedal is a separate unit which can be connected with a cable (length = 4 m) or a BT RF connection. In the wired configuration the foot pedal is powered via the cable. In the wireless configuration the foot pedal is battery powered.

A battery operated remote control can be connected via Bluetooth connection.

Block diagram demonstration of the system:



No	Module/parts of test item	Type	Manufacturer
1	Mainboard	D664301_F	Demcon
2	Laser Frontpanel	D242197_D	Demcon
3	Footpedal	2X0783 Rev 0	Vitrec B.V.
4	Remote control	D745561_A	Demcon
5			

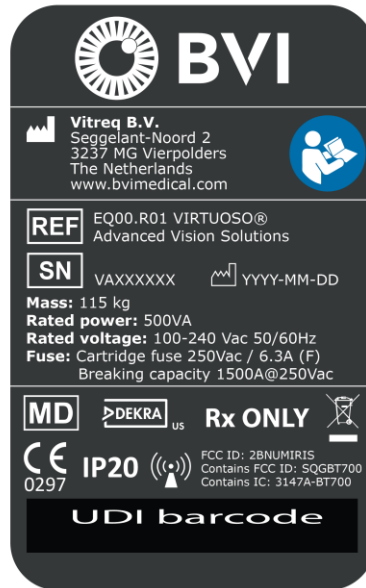
No	Documents as provided by the applicant - Description	File name	Issue date
1.	Application form for testing EN 300 330 V2.1.1.	20240604 Iris surgery system - 06 EN 300 330 Application form v3.0	2024-06-17
2.	General information form	20240604 Iris surgery system - 01 General information form v1.0	2024-06-17
3.	Similarity declaration	Declaration of Similarity - Option 1	2024-12-10

Modifications to the test item during testing	☐	N/A	☒	Refers Chapter 5.
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Copy of marking plate:



EQ00.R02



EQ00.R01



EQ00.R03

1.2 Test data

Test Location	DEKRA Certification B.V., The Netherlands
Date (start)	2024-07-16
Date (finish)	2024-07-30

1.3 Derived models

See Annex 3.

2 DESCRIPTION OF TEST SETUP

2.1 Sample(s) used for tests

During the tests the following sample(s) has(have) been used.

Sample	Logistics number	Module / parts of test system	Type	Serial number	Remark(s) / Changes
01	100781 / 1-1	VIRTUOSO® Main System (Full surgical unit)	EQ00.R02	IR230113	See 1
02	100781 / 1-2	VIRTUOSO® Main System (Full surgical unit)	EQ00.R02	---	See 2
Supplementary information: 1. Base unit of Virtuoso system. Radiated sample. 2. Reduced Base unit of Virtuoso system. Conducted sample.					

2.2 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

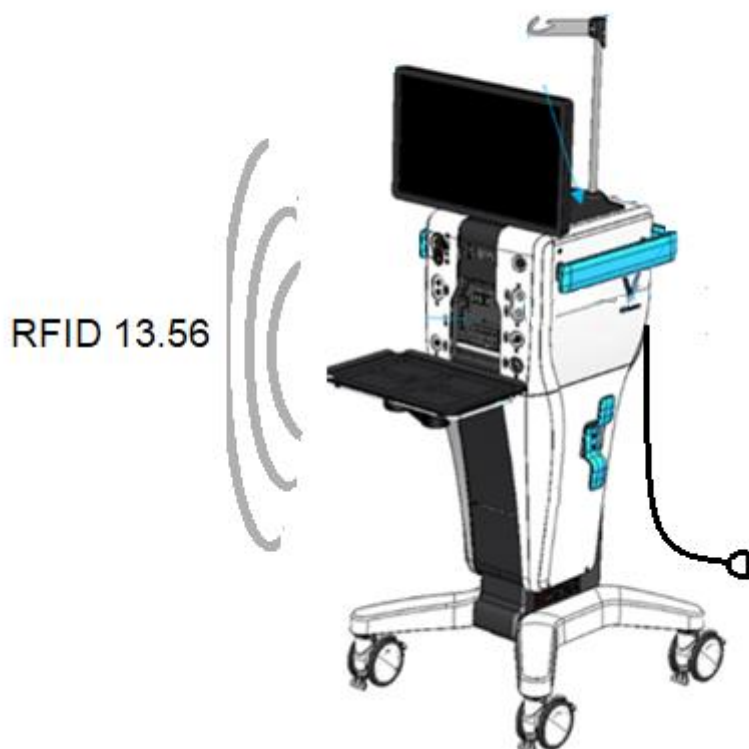
Operating mode	Description of the operating mode	Used for testing
1	EUT ON. Transmission at 13.56MHz. 120Vac 60Hz.	☒
Supplemental information: ---		

2.3 Port(s) of the EUT

Port name and description	Connected to / Termination	Cable		
		Length used during test [m]	Attached during test	Shielded
AC Power Input	AC mains	4	☒	☐
Potential equalization port	No	3	☐	☐
Phaco handpiece	No	2	☐	☐
Diathermy handpiece	No	3.5	☐	☐
Ethernet	No	> 3	☐	☐
Foot pedal	No	> 3	☐	☐
Laser foot pedal	No	> 3	☐	☐
Laser interlock and lamp (See 1)	No	> 3	☐	☐
Laser filter	No	> 3	☐	☐
2 x power LED lamps (See 2)	No	0.4	☐	☐
USB (See 3)	No	N/A	☐	☐
Supplemental information: 1. External contact (interlock) + internal contact (lamp). Cable is not supplied with the equipment but supplied by the hospital. 2. 5V USB-A connector (no data). This port is only used to mount a LED lamp and is not part of the EMC testing. 3. Isolated USB 2.0. This port is used to plug in memory stick for maintenance purposes and is not part of the EMC testing.				

2.4 Test Configuration / Block diagram used for tests

The following block diagram has been used during the tests:



2.5 Test conditions

Temperature (C):

Tn = +15 to +35.

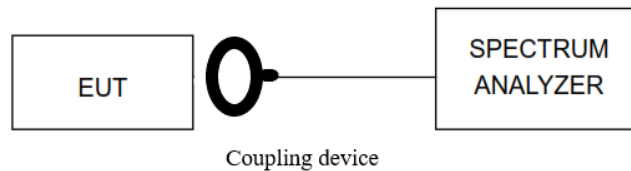
Tmin= -20

Tmax= +50

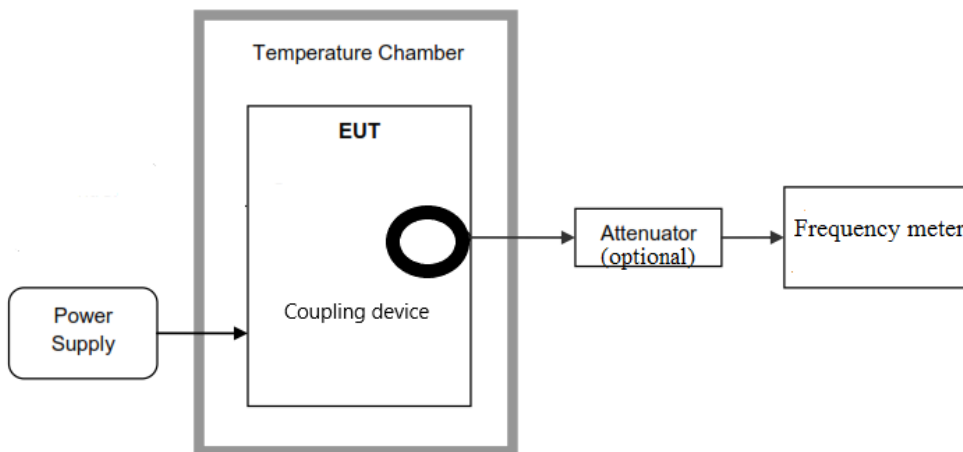
The EQ00.R02 is placed inside an anechoic chamber on a turntable.

CONDUCTED MEASUREMENTS

The equipment under test was set up in a shielded room and it is directly connected to the spectrum analyzer through a coupling device.



For frequency stability test the EUT was placed inside a climatic chamber and connected to a frequency meter using a low loss cable and a coupling device. An external DC power supply was connected to the EUT for voltage variation test.



TEST Setup

All radiated tests were performed in a semi-anechoic chamber. The used measurement antenna's are:

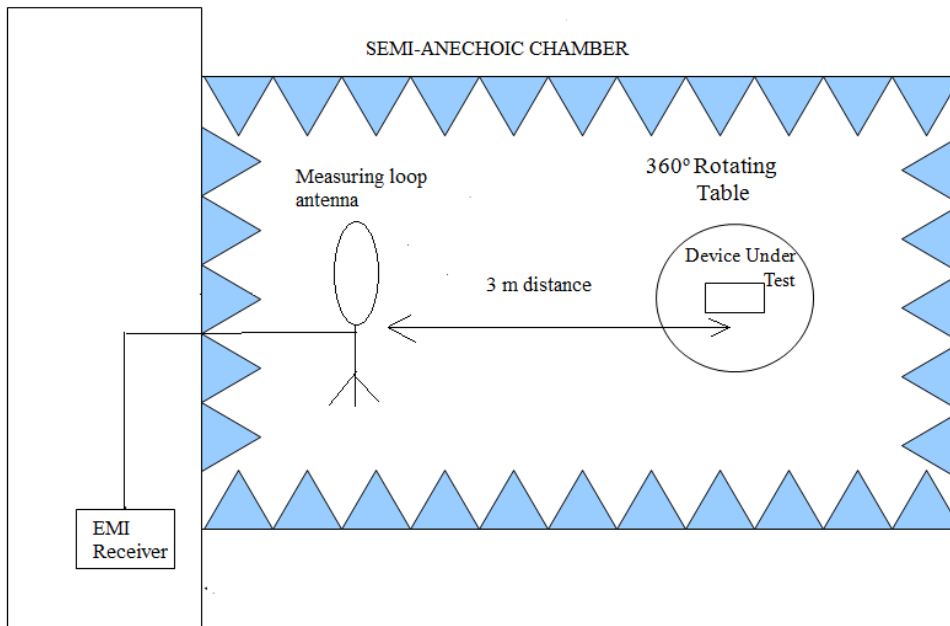
- Loop antenna situated at a distance of 3 m for the range between 9 KHz to 30 MHz.
- Ultralog antenna situated at a distance of 3 m for the range between 30 MHz to 1000 MHz.

For radiated emissions in the range 9 kHz to 30 MHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 40 dB per decade is used to normalize the measured data for determining compliance.

The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and in the range between 30 MHz and 200 MHz the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

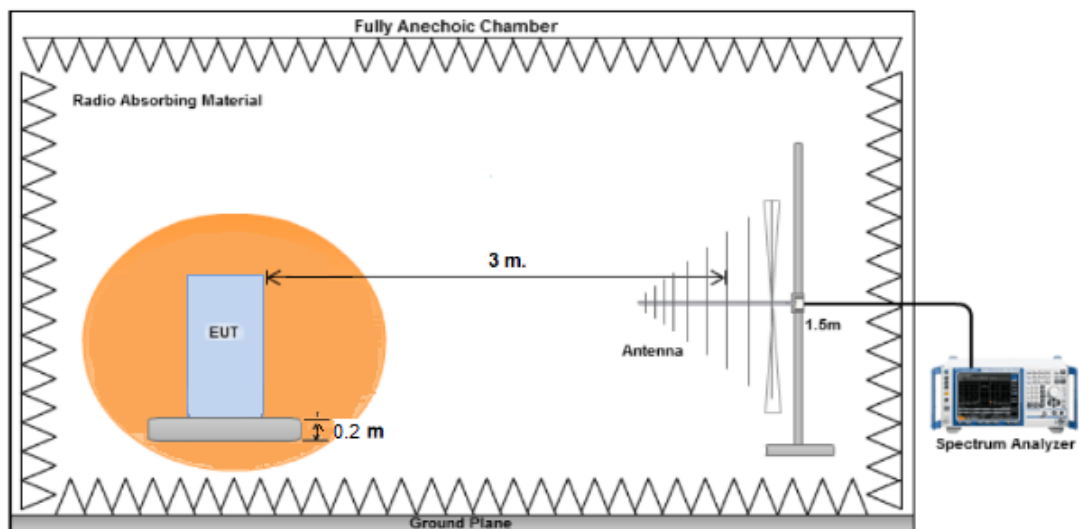
In the range between 9 kHz and 30 MHz the measurements were made in the three different orientation planes of the loop antenna to determine the maximum received field.

In the range between 30 MHz and 200 MHz the measurements were made in both horizontal and vertical planes of polarization.



Shielded Control Room For
Radiated Measurements

Radiated measurements setup from 30 MHz to 200 MHz:



3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
FCC Rules & Regulations 47 CFR Chapter I - Part 15 Subpart C Clause 15.225	2024-01	Operation within the bands 13.110-14.010MHz..
RSS-210	2024-06	Licence-Exempt Radio Apparatus: Category I Equipment

3.2 Overview of results – 13.56MHz

Test case	Standard	Verdict	Remarks
Occupied Bandwidth	2.1049 / RSS Gen 6.7	Pass	
Field strength of emissions within the band 13.553 - 13.567 MHz	15.225 Subclause (a) / RSS-210 Clause B.6 (a.i).	Pass	
Field strength of emissions within the band 13.410 - 13.553 MHz and 13.567 – 13.710 MHz	15.225 Subclause (b) / RSS-210 Clause B.6 (a.ii).	Pass	
Field strength of emissions within the band 13.110 - 13.410 MHz and 13.710 – 14.010 MHz	15.225 Subclause (c) / RSS-210 Clause B.6 (a.iii).	Pass	
Field strength of emissions outside of the band 13.110 MHz -14.010 MHz	15.225 Subclause (d) / RSS-210 Clause B.6 (a.iv).	Pass	
Frequency tolerance of the carrier signal	15.225 Subclause (e) / RSS-210 Clause B.6 (b)	Pass	
<u>Supplementary information:</u>			

3.3 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards:
N/A.

4 TEST RESULTS

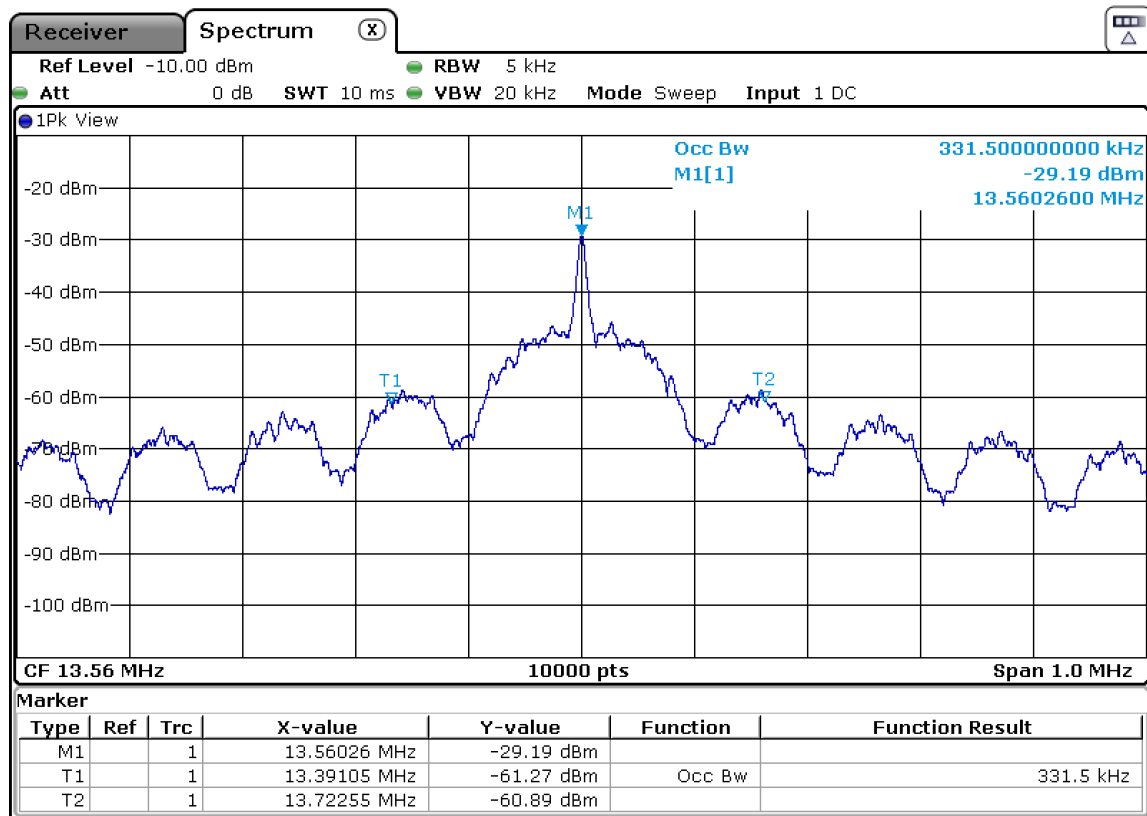
4.1 Occupied Bandwidth

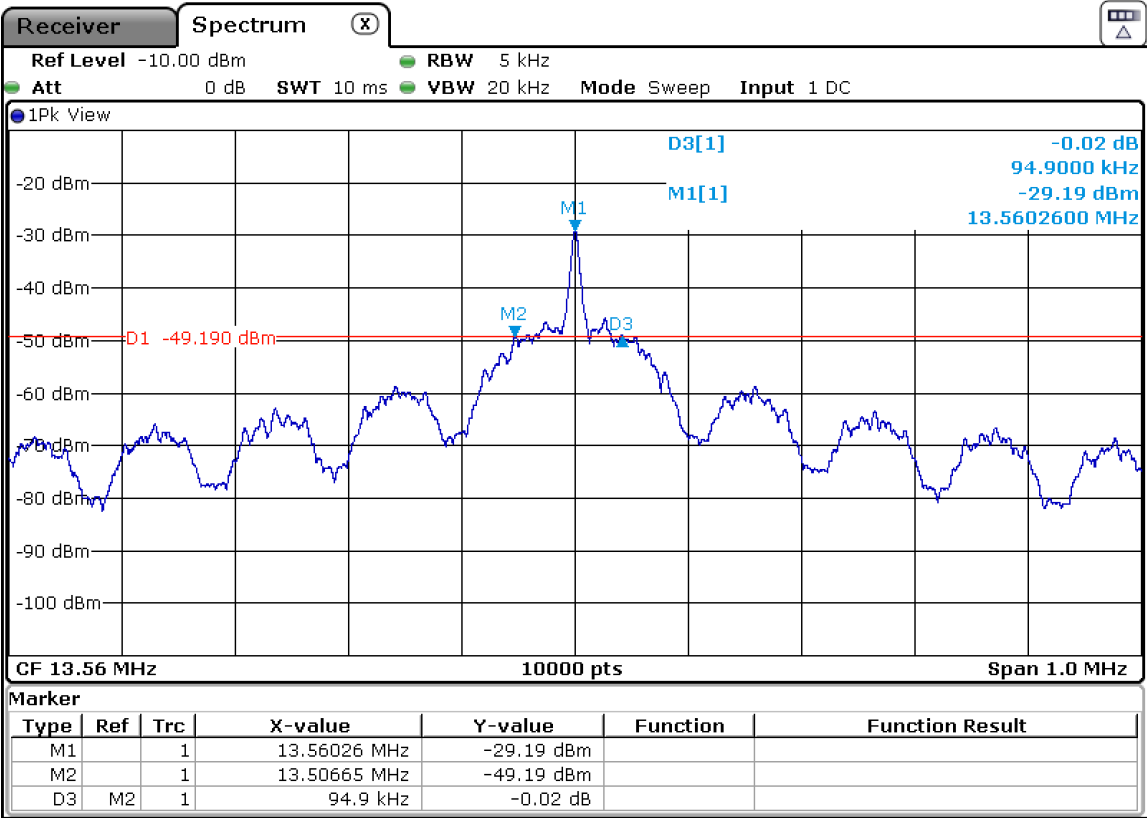
RESULTS:

99 % Occupied Bandwidth and 20 dB Bandwidth.

•RFID 13.56 MHz.

Operation Mode	99% Occupied Bandwidth (kHz)	20 dB Bandwidth (kHz)
TX at 13.56MHz	331.500	94.900
Measurement uncertainty (kHz)	<±0.05	





Verdict: PASS.

4.2 Field strength of emissions within the band 13.553 – 13.567 MHz.

SPECIFICATION:

The field strength of any emissions within the band 13.553 – 13.567 MHz shall not exceed 15,848 microvolts/meter (84 dB μ V/m) at 30 meters.

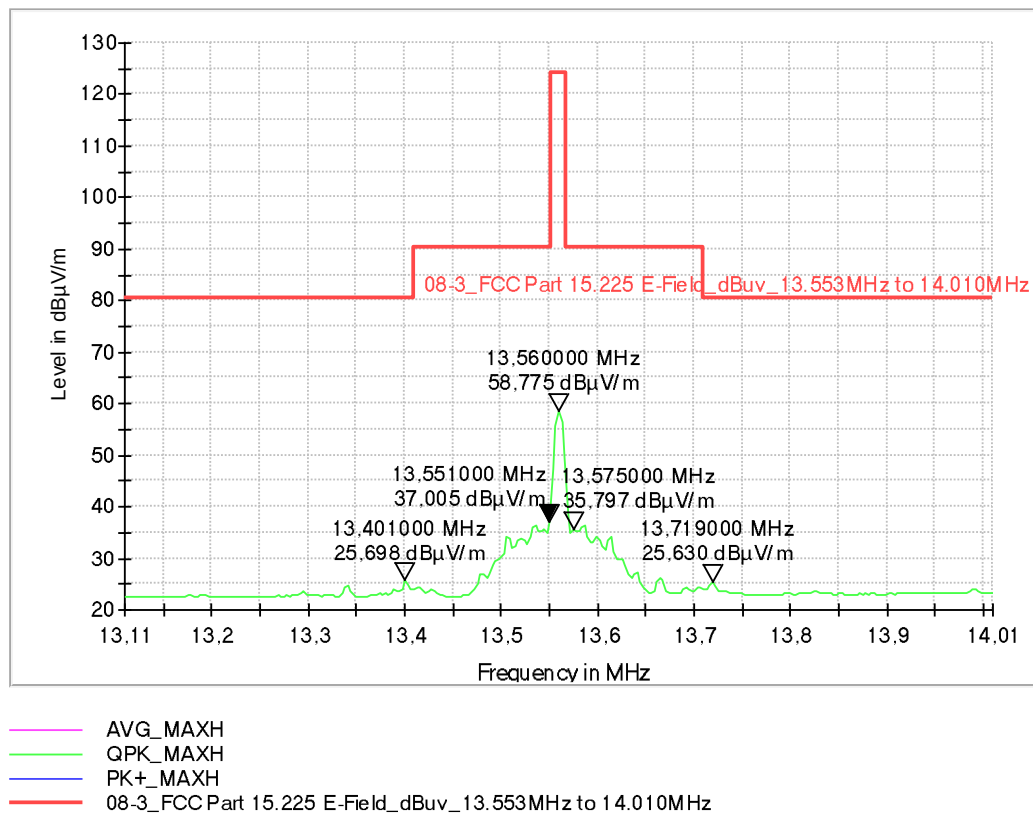
RESULTS:

Measurement distance: 3 meters. Worst case.

•RFID 13.56 MHz.

The maximum field strength of fundamental emission:

Frequency (MHz)	Maximum field strength (dB μ V/m) measured at 3 m (quasi-peak detector)	Maximum field strength (dB μ V/m) extrapolated to 30 m (40 dB/decade)
13.56000	58.80	18.80
Measurement uncertainty (dB)	< $\pm$ 3.82	



The limit shown in the above plot is extrapolated to 3 meters

Verdict: PASS

4.3 Field strength of emissions within the band 13.410 – 13.553 MHz.

SPECIFICATION:

Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter (50.47 dB μ V/m) at 30 meters.

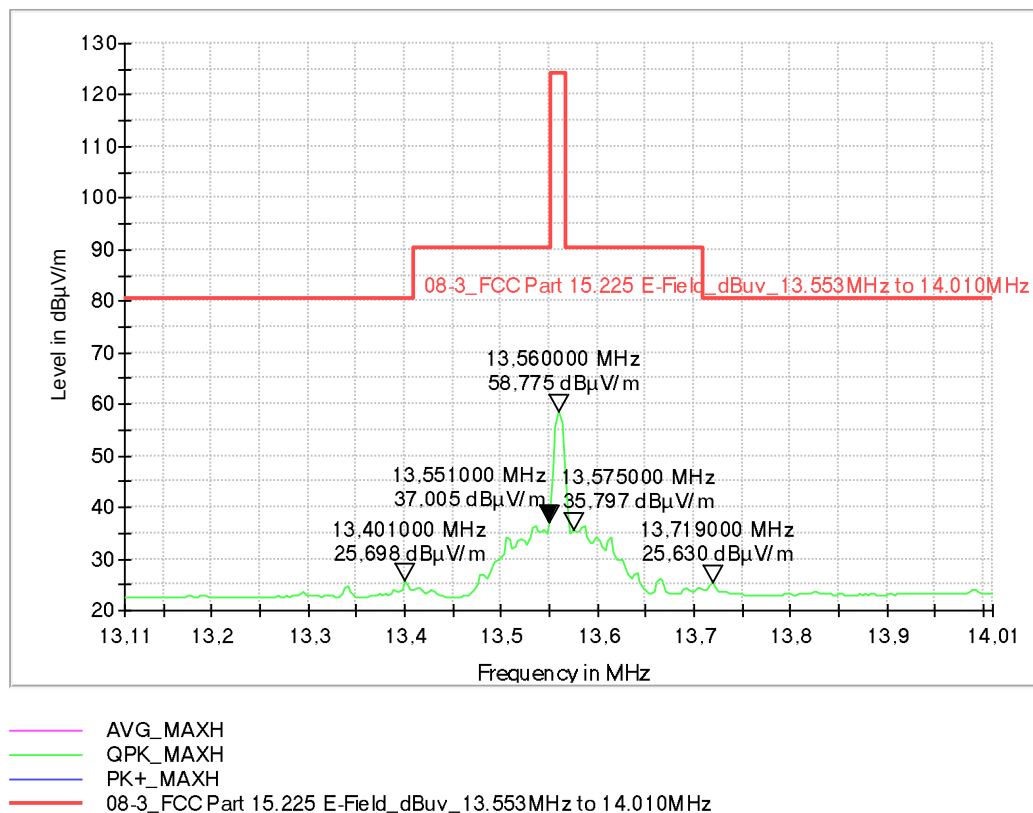
RESULTS:

Measurement distance: 3 meters. Worst case.

- Band 13.410 - 13.553 MHz

•RFID 13.56 MHz.

Frequency (MHz)	Maximum field strength (dB μ V/m) measured at 3 m (quasi-peak detector)	Maximum field strength (dB μ V/m) extrapolated to 30 m (40 dB/decade)
13.551	37.00	-3.00
Measurement uncertainty (dB)	< $\pm$ 3.82	



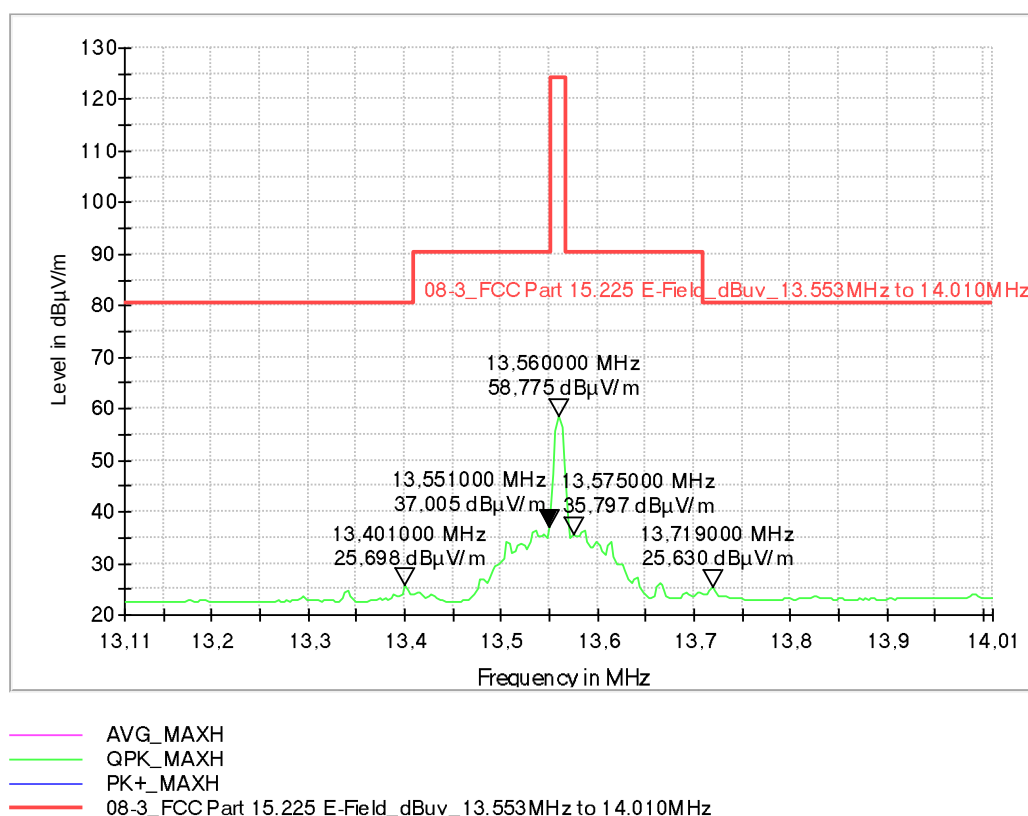
The limit shown in the above plot is extrapolated to 3 meters

Verdict: PASS

- Band 13.567-13.710 MHz

•RFID 13.56 MHz.

Frequency (MHz)	Maximum field strength (dB μ V/m) measured at 3 m (quasi-peak detector)	Maximum field strength (dB μ V/m) extrapolated to 30 m (40 dB/decade)
13.575000	35.80	-4.20
Measurement uncertainty (dB)	< $\pm$ 3.82	



The limit shown in the above plot is extrapolated to 3 meters

Verdict: PASS

4.4 Field strength of emissions within the band 13.110 – 13.410 MHz and 13.710 – 14.010 MHz

SPECIFICATION:

Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz, the field strength of any emissions shall not exceed 106 microvolts/meter (40.51 dB μ V/m) at 30 meters.

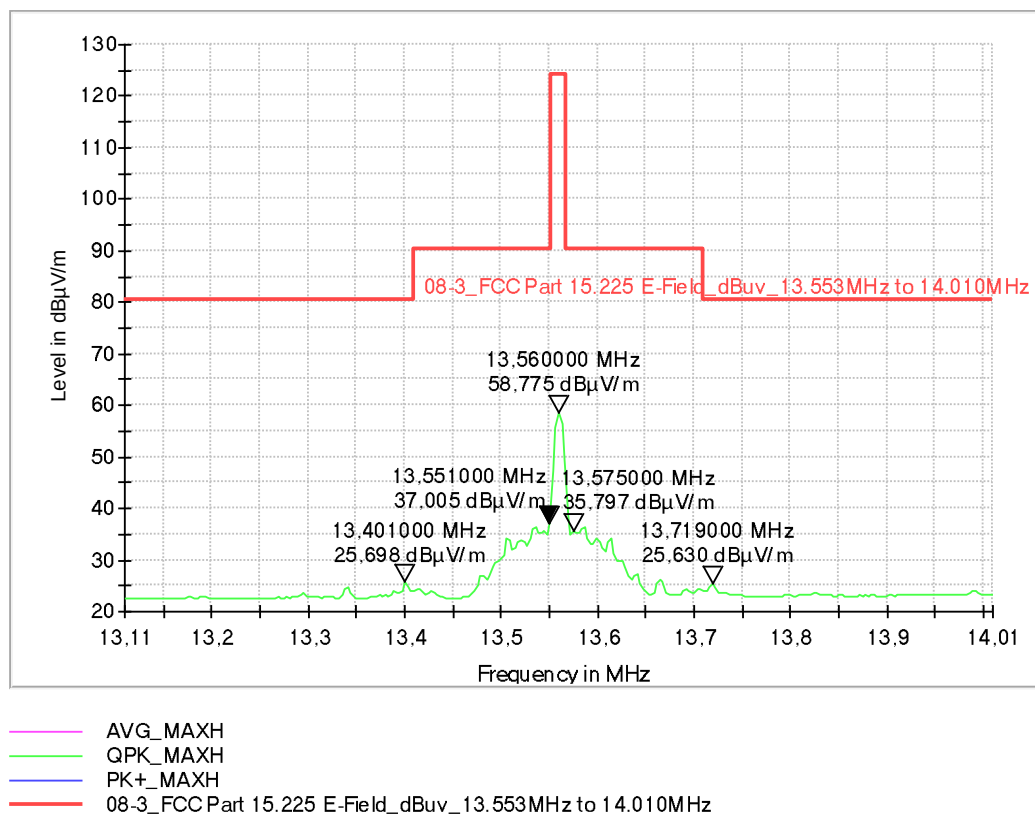
RESULTS:

Measurement distance: 3 meters. Worst case.

- Band 13.110-13.410 MHz

•RFID 13.56 MHz.

Frequency (MHz)	Maximum field strength (dB μ V/m) measured at 3 m (quasi-peak detector)	Maximum field strength (dB μ V/m) extrapolated to 30 m (40 dB/decade)
13.401000	25.70	-14.30
Measurement uncertainty (dB)	< $\pm$ 3.82	



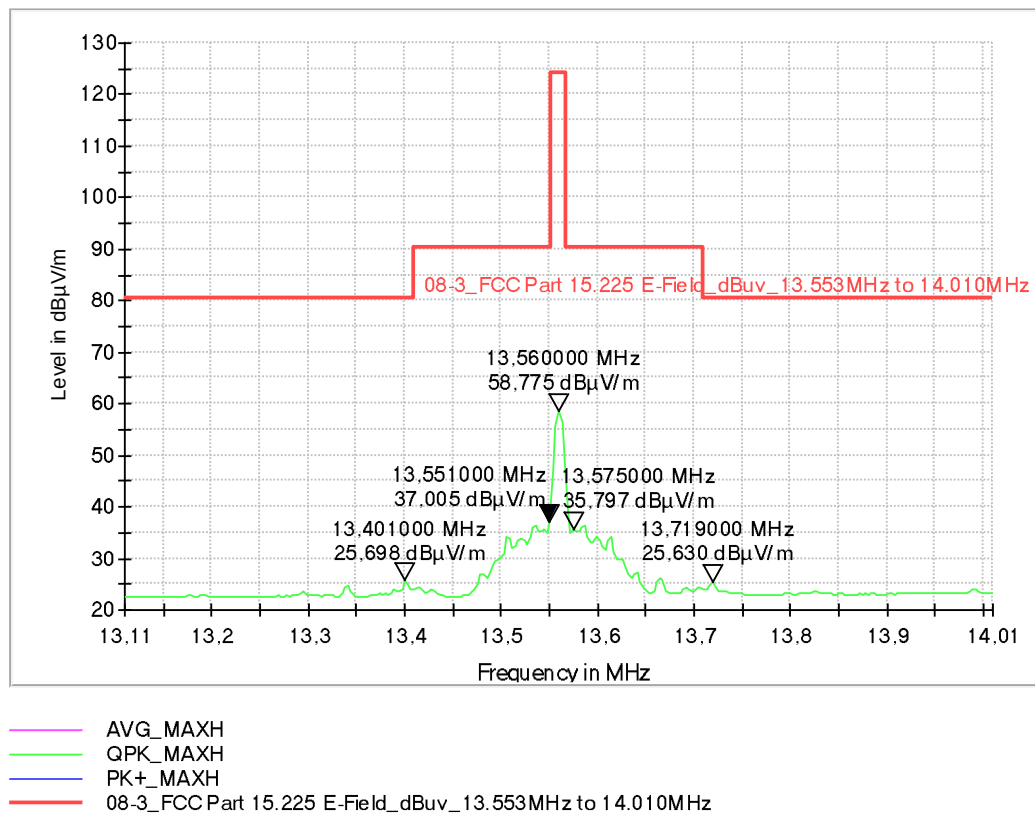
The limit shown in the above plot is extrapolated to 3 meters

Verdict: PASS

- Band 13.710-14.010 MHz

•RFID 13.56 MHz.

Frequency (MHz)	Maximum field strength (dB μ V/m) measured at 3 m (quasi-peak detector)	Maximum field strength (dB μ V/m) extrapolated to 30 m (40 dB/decade)
13.719000	25.60	-14.40
Measurement uncertainty (dB)	< $\pm$ 3.82	



The limit shown in the above plot is extrapolated to 3 meters

Verdict: PASS

4.5 Field strength of emissions outside of the band 13.110 – 14.010 MHz

SPECIFICATION:

Field strength of any emissions appearing outside of the band 13.110 MHz - 14.010 MHz band shall not exceed the general radiated emission limits in 15.209/RSS-Gen:

Frequency Range (MHz)	Field strength ($\mu\text{V/m}$)	Field strength ($\text{dB}\mu\text{V/m}$)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705 - 30.0	30	29.54	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

RESULTS:

All tests were performed in a semi-anechoic chamber at a distance of 3 m. Worst case.

The spectrum was inspected from 9 kHz to 200 MHz searching for spurious signals.

The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifier gain.

Performed measurements

The following configuration(s) and parameter(s) was/were used for testing:

Port under test	Enclosure (with cabling)		
Test method	X	Semi Anechoic Chamber	
		Open Area Test Site (OATS)	
		In-Situ (at user/manufacture premises)	
		GTEM cell	
	Other:	---	
Test set-up	X	Equipment on a table of 80 cm height	
		Equipment on the floor (insulated from the reference ground plane)	
	Other:		

Technology	Mode / Modulation	Channel / Freq.	Frequency range	Antenna Polar. / axis	P/F	Sup. Info / Remark
13.56MHz	01 / TX at 13.56MHz.	13.56 MHz	0.009 - 30 MHz	X	P	
13.56MHz	01 / TX at 13.56MHz.	13.56 MHz	0.009 - 30 MHz	Y	P	
13.56MHz	01 / TX at 13.56MHz.	13.56 MHz	0.009 - 30 MHz	Z	P	
13.56MHz	01 / TX at 13.56MHz.	13.56 MHz	30 - 200 MHz	H/V	P	
26 Supplementary information / Remark:						

FREQUENCY RANGE 9 KHz - 30 MHz:

Measurement data			AXIS X																																
Operating mode / Info		Mode 1 / TX 13.56MHz.																																	
Common Information EUT/Sample # / OM# : EQ00.R02 / 01 / 01 Voltage/Frequency : 120 Vac / 60 Hz Port/Terminal under test : Enclosure Remark/Comment : EUT ON. RFID reading @13.56MHz.Axis X.																																			
130 120 100 80 60 40 20 0 9k 20 30 50 100k 200 300 500 1M 2M 3M 5M 10M 20 30M Level in dBµV/m Frequency in Hz Preview Result 1-PK+ 08-1_FCC Part 15.225 E-Field_dBuv Final_Result PK+																																			
Final_Result <table><tr><th>Frequency (MHz)</th><th>MaxPeak (dBµV/m)</th><th>Limit (dBµV/m)</th><th>Margin (dB)</th><th>Bandwidth (kHz)</th><th>Height (cm)</th><th>Pol</th><th>Azimuth (deg)</th></tr><tr><td>0.733060</td><td>49.25</td><td>70.11</td><td>20.86</td><td>9.000</td><td>100.0</td><td>V</td><td>0.0</td></tr><tr><td>1.699967</td><td>49.01</td><td>62.99</td><td>13.99</td><td>9.000</td><td>100.0</td><td>V</td><td>163.0</td></tr><tr><td>13.560432</td><td>60.90</td><td>69.54</td><td>8.64</td><td>9.000</td><td>100.0</td><td>V</td><td>2.0</td></tr></table>				Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	0.733060	49.25	70.11	20.86	9.000	100.0	V	0.0	1.699967	49.01	62.99	13.99	9.000	100.0	V	163.0	13.560432	60.90	69.54	8.64	9.000	100.0	V	2.0
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13.560432	60.90	69.54	8.64	9.000	100.0	V	2.0																												
Remark	The quasipeak value is lower than peak value.																																		

Measurement data			AXIS Y				
Operating mode / Info		Mode 1 / TX 13.56MHz.					
Common Information							
EUT/Sample # / OM#		: EQ00.R02 / 01 / 01					
Voltage/Frequency		: 120 Vac / 60 Hz					
Port/Terminal under test		: Enclosure					
Remark/Comment		: EUT ON. RFID reading @13.56MHz.Axis Y.					
130 120 100 80 60 40 20 0 9k 20 30 50 100k 200 300 500 1M 2M 3M 5M 10M 20 30M Level in dBµV/m Frequency in Hz Preview Result 1-PK+ 08-1_FCC Part 15.225 E-Field_dBuv Final_Result QPK Critical_Freqs PK+ Final_Result PK+							
Final Result							
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.733060	49.25	70.11	20.86	9.000	100.0	V	0.0
1.699967	45.01	62.99	17.98	9.000	100.0	V	163.0
13.560432	52.90	69.54	16.64	9.000	100.0	V	2.0
Remark	The quasipeak value is lower than peak value.						

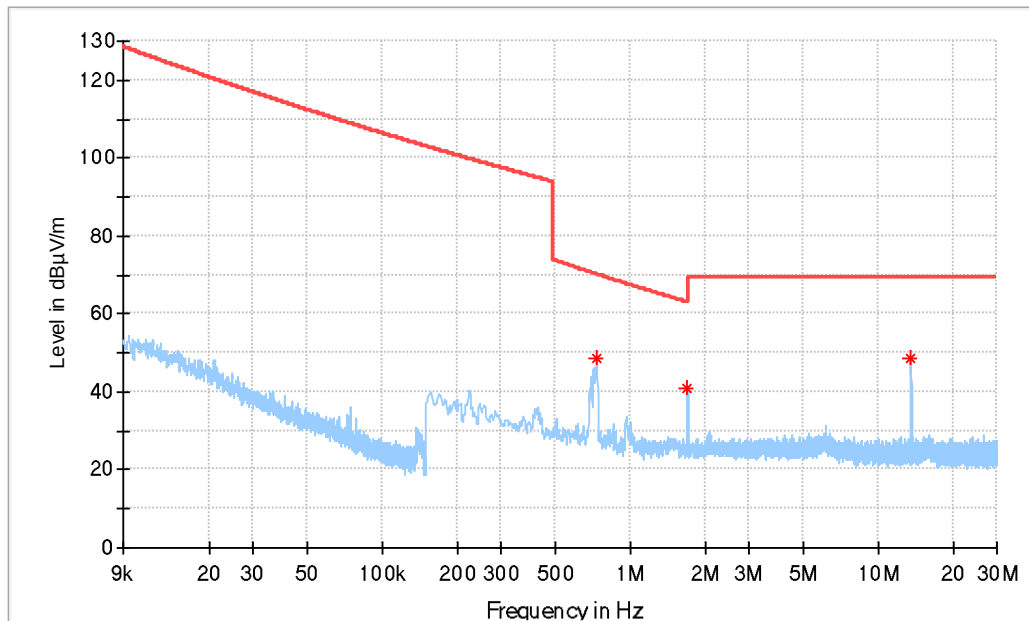
Measurement data**AXIS Z**

Operating mode / Info

Mode 1 / TX 13.56MHz.

Common Information

EUT/Sample # / OM# : EQ00.R02 / 01 / 01
Voltage/Frequency : 120 Vac / 60 Hz
Port/Terminal under test : Enclosure
Remark/Comment : EUT ON. RFID reading @13.56MHz.Axis X.



— Preview Result 1-PK+
— 08-1_FCC Part 15.225 E-Field_dBuv
◆ Final_Result QPK
* Critical_Freqs PK+
◆ Final_Result PK+

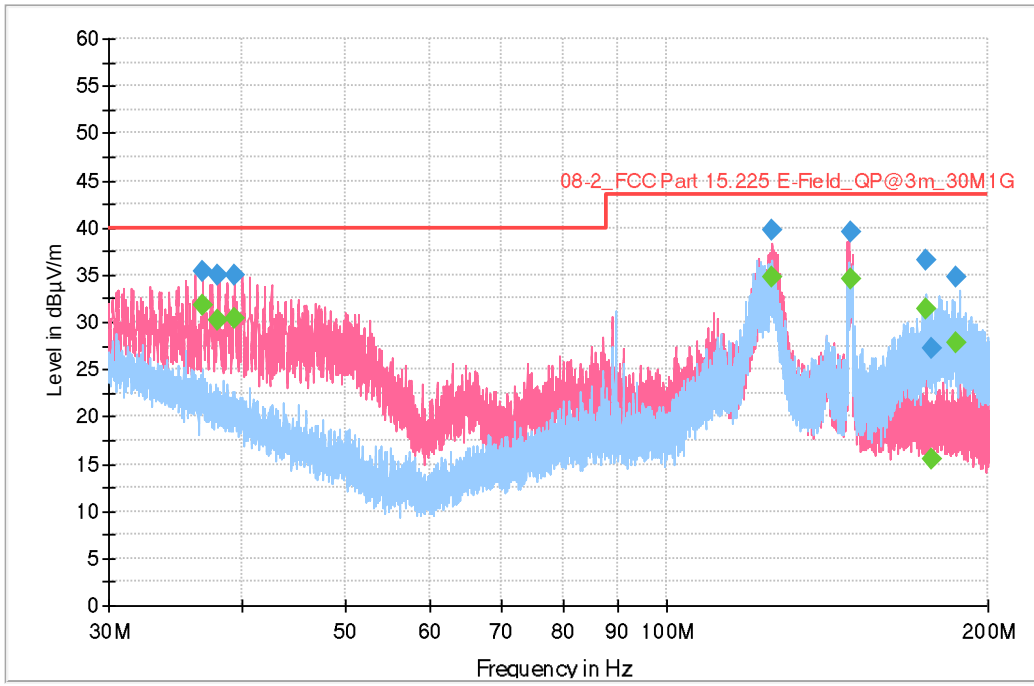
Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
0.733060	49.25	70.11	20.86	9.000	100.0	V	0.0
1.699967	45.01	62.99	17.98	9.000	100.0	V	163.0
13.560432	52.90	69.54	16.64	9.000	100.0	V	2.0

Remark

The quasipeak value is lower than peak value.

FREQUENCY RANGE 30MHz - 200 MHz:

Measurement data		☒	Horizontal	☒	Vertical																																																																								
Operating mode / Info			Mode 1 / TX 13.56MHz.																																																																										
Common Information EUT/Sample # / OM# : EQ00.R02 / 01 / 01 Voltage/Frequency : 120 Vac / 60 Hz Port/Terminal under test : Enclosure Remark/Comment : EUT ON. RFID reading @13.56MHz.																																																																													
 Preview Result 2V-AVG Preview Result 2H-AVG 08-2_FCC Part 15.225 E-Field_QP@3m_30M1G Final_Result QPK Preview Result 1V-PK+ Preview Result 1H-PK+ Final_Result PK+																																																																													
Final_Result_QPK<table><tr><th>Frequency (MHz)</th><th>QuasiPeak (dBµV/m)</th><th>Limit (dBµV/m)</th><th>Margin (dB)</th><th>Bandwidth (kHz)</th><th>Height (cm)</th><th>Pol</th><th>Azimuth (deg)</th></tr><tr><td>36.738000</td><td>31.76</td><td>40</td><td>8.24</td><td>120.000</td><td>100.0</td><td>V</td><td>352.0</td></tr><tr><td>38.009666</td><td>30.21</td><td>40</td><td>9.79</td><td>120.000</td><td>100.0</td><td>V</td><td>38.0</td></tr><tr><td>39.421166</td><td>30.39</td><td>40</td><td>9.61</td><td>120.000</td><td>100.0</td><td>V</td><td>1.0</td></tr><tr><td>125.448667</td><td>34.79</td><td>43.52</td><td>8.73</td><td>120.000</td><td>100.0</td><td>V</td><td>130.0</td></tr><tr><td>148.675500</td><td>34.53</td><td>43.52</td><td>8.99</td><td>120.000</td><td>290.0</td><td>V</td><td>185.0</td></tr><tr><td>174.992000</td><td>31.47</td><td>43.52</td><td>12.05</td><td>120.000</td><td>113.0</td><td>H</td><td>102.0</td></tr><tr><td>176.961500</td><td>15.57</td><td>43.52</td><td>27.95</td><td>120.000</td><td>100.0</td><td>V</td><td>177.0</td></tr><tr><td>186.997167</td><td>27.89</td><td>43.52</td><td>15.63</td><td>120.000</td><td>143.0</td><td>H</td><td>94.0</td></tr></table>						Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	36.738000	31.76	40	8.24	120.000	100.0	V	352.0	38.009666	30.21	40	9.79	120.000	100.0	V	38.0	39.421166	30.39	40	9.61	120.000	100.0	V	1.0	125.448667	34.79	43.52	8.73	120.000	100.0	V	130.0	148.675500	34.53	43.52	8.99	120.000	290.0	V	185.0	174.992000	31.47	43.52	12.05	120.000	113.0	H	102.0	176.961500	15.57	43.52	27.95	120.000	100.0	V	177.0	186.997167	27.89	43.52	15.63	120.000	143.0	H	94.0
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)																																																																						
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39.421166	30.39	40	9.61	120.000	100.0	V	1.0																																																																						
125.448667	34.79	43.52	8.73	120.000	100.0	V	130.0																																																																						
148.675500	34.53	43.52	8.99	120.000	290.0	V	185.0																																																																						
174.992000	31.47	43.52	12.05	120.000	113.0	H	102.0																																																																						
176.961500	15.57	43.52	27.95	120.000	100.0	V	177.0																																																																						
186.997167	27.89	43.52	15.63	120.000	143.0	H	94.0																																																																						
Remark		--																																																																											

4.6 Frequency tolerance of the carrier signal.

SPECIFICATION:

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.

RESULTS:

Nominal Operating Frequency: 13.56 MHz. Worst case.

•RFID 13.56 MHz.

- Frequency stability over temperature variations:

Temperature (°C)	Frequency Error (Hz)	Frequency Error (%)
+50	173.7	0.001281305
+40	188.3	0.001388938
+30	208.3	0.001536431
+20	232.3	0.00171309
+10	241.9	0.001783739
0	241.5	0.001780678
-10	219.4	0.00161781
-20	174.0	0.001282891

- Frequency stability over voltage variations:

DC Supply	Voltage (V)	Frequency Error (Hz)	Frequency Error (%)
Vmax	138	239.38	0.001765339
Vmin	102	236.045	0.001740745

Verdict: PASS

5 ANNEX 1 - MEASUREMENT UNCERTAINTIES

The table(s) below show(s) measurement uncertainties of the EMC test set-ups. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Radiated Emission tests	Uncertainty
Radiated emissions; 9 KHz – 30 MHz (X/Y/Zt)	3.82 dB
Radiated emissions; 30 MHz – 180 MHz (Horz./Vert)	3.82 dB
Radiated emissions; 180 MHz – 1000 MHz (Horz./Vert)	2.61 dB
Conducted Emission tests	Uncertainty
Occupied Bandwidth	1.40 %
Frequency Stability	2.84 %

6 ANNEX 2 - USED EQUIPMENT

Equipment	Manufacturer	Model	DEKRA ID	Cal. Due
EMI Test Receiver	Rohde & Schwarz	ESU26	126351	2025-09-24
EMI Test Receiver	Rohde & Schwarz	FSV40	132392	2025-10-29
Climate Chamber	Weisstechnik	C-600-40-5	134010	2025-07-12
Anechoic Chamber	Comtest	SAC-5M	129683	2026-09-05
Coaxial cable (10m)	Huber&Suhner	SUCOFLEX 126EA	134187	2025-12-18
Antenna	Rohde-Schwarz	HL562E	132293	2024-08-17
Loop antenna EMC	Rohde & Schwarz	HFH2-Z2E	134139	2026-12-07
Probe	RIGOL	NFP-3 Series	134496	---
Coaxial cable (1m)	Huber&Suhner	SUCOFLEX SF102EA	132527	2025-12-18
Regeltrafo	Drie transformatoren (B.V.)	---	128991	---
Multimeter	Fluke	287	132514	2025-03-07
Test Software	Rohde & Schwarz	EMC32 V.10.60.20	500000	---

7 ANNEX 3 - SIMILARITY DECLARATION

Title:

Declaration of Similarity

Product:

0412 - Iris system



Declaration of Similarity

Name legal manufacturer: Vitreq B.V.

Address: Seggelant-Noord 2

Postal code & City: 3237 MG Vierpolders

Country: Netherlands

9 December 2024

We, DEMCON Life Sciences & Health Enschede B.V., declare,

That the VIRTUOSO® system of model EQ00.R02 and EQ00.R01 and EQ00.R03 use similar hardware (HW) and similar software (SW)

1. HARDWARE SIMILARITY BETWEEN EQ00.R02, EQ00.R01 AND EQ00.R03

This is manifested in using:

- Equivalent schematic/circuit diagrams
- Equivalent functional block diagrams
- Same Printed Circuit Boards (PCB) of the main board and the antennas

Doc. ID: / Version: / Document status:

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Confidential

Declaration of Similarity

Page 1 of 6

Title:

Declaration of Similarity

Product:

0412 - Iris system



- Same PCB Layouts of the mainboard and the antennas
- Same chip sets
- Same Radio frequency antennas with same RF assemblies, like matching circuits
- Same Bluetooth and RFID chipset and related PCB assemblies and part values
- The electrical rating are equal: supply voltage range, current consumption, operating temperature ranges and others

1.1 Hardware impact on EQ00.R03:

The part numbers difference are caused by the laser module (ARC purchase part) and the laser off button not being present:

- The laser module, laser off button and related cabling are not placed.
- The enclosure front have a configuration that does not contain a laser port, laser off button and related labelling.
- Laser door interlock and microscope laser filter connections on the back are present. Labelling on the back of the system is different.
- Laser door interlock, laser active lamp signal and microscope laser filter connections on the back are present.
- On the front panel PCA the RFID components and laser icon are present.

These modifications do not influence the radio frequency characteristics of the VIRTUOSO® system model EQ00.R03.

1.2 Hardware impact on EQ00.R01:

A VIRTUOSO® system model EQ00.R01 does NOT contain the functionality related to VFIE, Illumination and Laser.

- The Laser module, laser off button, Illumination subsystem and related cabling are not placed
- Parts of the VFIE subsystem that are needed for venting of the High Pressure Supply and Vacuum Supply are placed.

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Declaration of Similarity

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Title:

Declaration of Similarity

Product:

0412 - Iris system



- The enclosure front has a configuration that does not contain a laser port, laser off button, VFIE connector, illumination ports and related labelling.
- Laser door interlock and microscope laser filter connections on the back are present. Labelling on the back of the Iris system is different.
- Mainboard & Peripherals are able to function in the absence of a laser module, the laser off button, the illumination subsystem and parts of the VFIE subsystem.

These modifications do not influence the radio frequency characteristics of the VIRTUOSO® system model EQ00.R01.

2. SOFTWARE AND FIRMWARE SIMILARITY BETWEEN EQ00.R02, EQ00.R01 AND EQ00.R03

This is manifested using:

The software bundle for all three configurations is the same.

The difference between the three variants lies on a configuration text file which contains information about the variant of the VIRTUOSO® system being used. Depending on this, the following happens:

2.1 Software and Firmware impact on EQ00.R03:

- The software and firmware are able to function in the absence of a laser module and the laser off button. Microscope laser filter / dongle, door interlock and RFID laser fiber detection may or may not be active and are not influencing the functionality. The laser active lamp and the laser icon are never switched on.
- The GUI is adapted to hide all laser functionality. It is not possible to add a laser step.

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Declaration of Similarity

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Title:

Declaration of Similarity

Product:

0412 - Iris system



The above mentioned text configuration file does not have differences in the Radio Frequency behavior.

2.2 Software and Firmware impact on EQ00.R01:

- The software and firmware are able to function in the absence of a laser module, the laser off button, the illumination subsystem and parts of the VFIE subsystem.
- Microscope laser filter / dongle, door interlock and RFID laser fiber detection may or may not be active and are not influencing the functionality.
- The laser active lamp, the laser icon, the VFIE icon and the illumination icons are never switched on.
- VFIE functionality with respect to venting of the High Pressure Supply and Vacuum Pressure Supply subsystems are still available.
- The GUI is adapted to hide all laser, VFI, VFE and Illumination functionality. It is not possible to add a laser, VFI or VFE step. Next to that, it will only be possible to select anterior procedures and anterior steps.

The above mentioned txt configuration file does not have differences in the Radio Frequency behavior.

Title:

Declaration of Similarity

Product:

0412 - Iris system



3. POTENTIAL LEVERAGING OF TESTS RESULTS

This declaration is intended to allow the leveraging of the tests results from the VIRTUOSO® system model EQ00.R02 to the VIRTUOSO® system models EQ00.R01 and EQ00.R03

Following, a list of test reports which could be leveraged according to our understanding.

- 1) Test report No: 2285019.0504-RSM
- 2) Test report No: 2285019.0505-RSM
- 3) Test report No: 2285019.0506-RSM
- 4) Test report No: 2285019.0507-RSM

3.1 Argumentation for the leveraging

As can be seen in the above list of differences and equalities, the hardware of all three models is equal in many points. The differences lie on subsystems and functionalities not related to the Radio Frequency part of the system.

Especially concerning the Bluetooth and RFID, the chip sets are equal, the main PCB, PCB layout and the antenna are equal between models EQ00.R01, EQ00.R02, and EQ00.R03. The antenna matchings and antenna gain of the Bluetooth and RFID antennas are equal with the same part values.

On behalf of *Vitrex B.V.*

Doc. ID: / Version: / Document status:

TMPL-2-145 / 8.0 / Released

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Declaration of Similarity

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Title: Declaration of Similarity Product: 0412 - Iris system



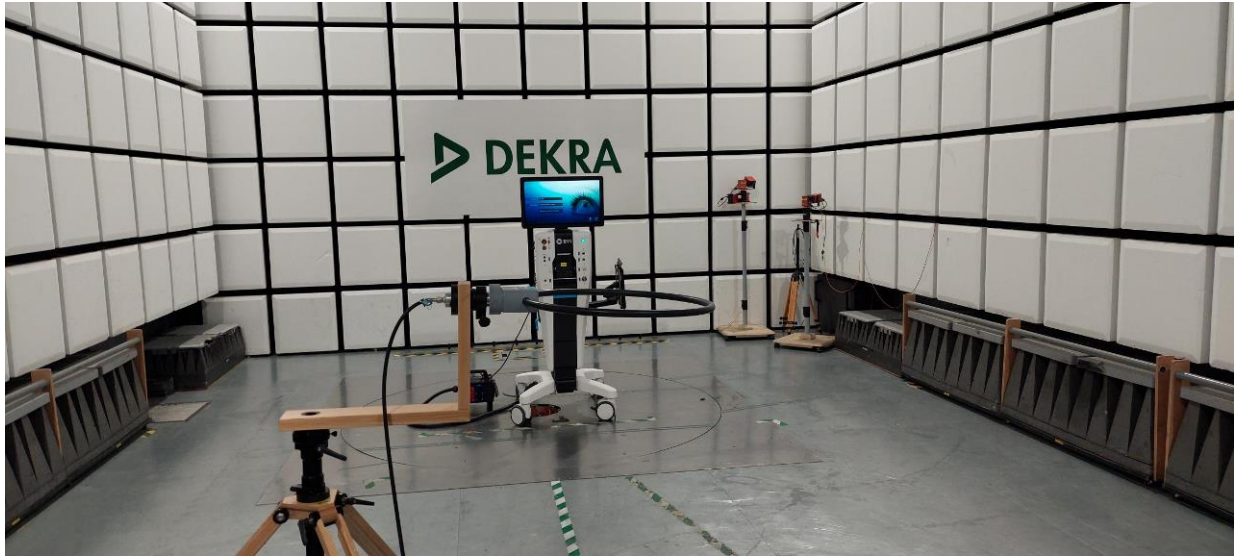
.....
Sheila Chin
Senior Director, R&D
Date: 2024-12-09

8 ANNEX 4 - TEST PHOTOS

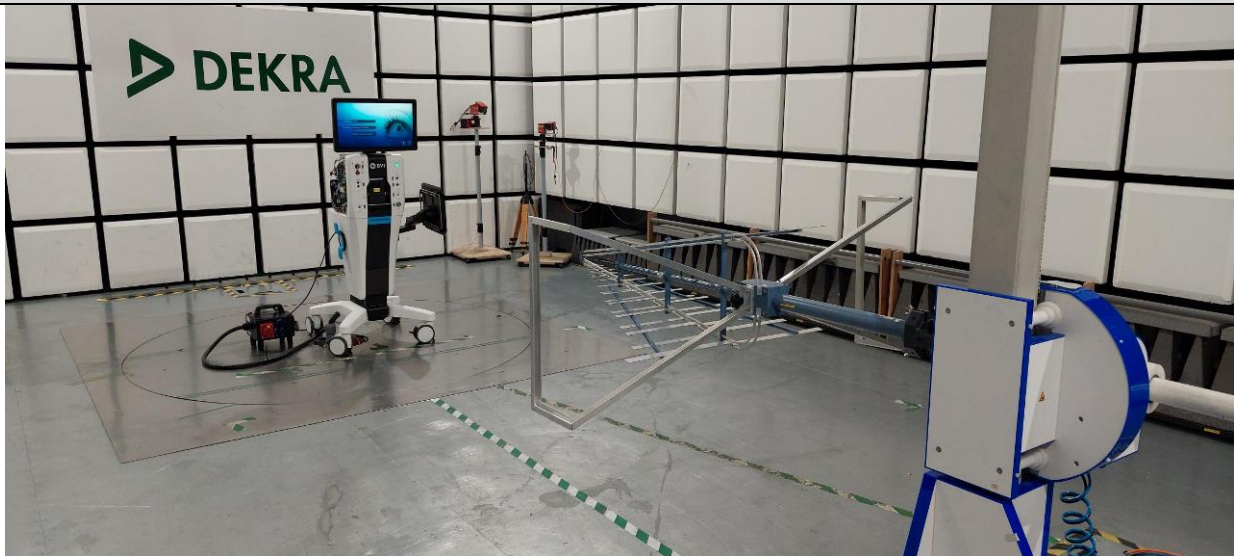
The photographs show the tested device.



Radiated emissions (9 KHz to 30 MHz)



Radiated emissions (30MHz to 200MHz)



Conducted tests



End of the report