



LCIE



Accreditation
N° 1-1633
Scope available on
www.cofrac.fr

RFID 13,56MHz Template: Release January 26th, 2022

TEST REPORT

N°: 13413757-775439-B (FILE#3672649)

Version: 03

Subject

Radio spectrum matters
tests according to standards:
47 CFR Part 15.225 & RSS 210 Issue 10 & RSS-Gen Issue 5

Issued to

TRIXELL
460 rue du pommarin
38430 - Moirans
FRANCE

Apparatus under test

Product Portable X-RAY DETECTOR
Trade mark TRIXELL
Manufacturer TRIXELL
Family range pixium 4343 EZ3 / pixium 3543 EZ3 / pixium 2430 EZ3
Model under test Pixium 4343 EZ3
Serial number P21151A
FCC ID VPQ-EZ3NFC
IC 7392A-EZ3NFC

Conclusion

See Test Program chapter

Test date

February 15, 2022 to February 16, 2022

Test location

Moirans

FCC Test site

FR0008 - 197516

ISED Test site

FR0008 - 6500A

Sample receipt date

February 8, 2022

Composition of document

33 pages

Document issued on

January 10, 2024

Written by :
Majid MOURZAGH
Tests operator

Approved by :
Anthony MERLIN
Technical manager



This document shall not be reproduced, except in full, without the written approval of the LCIE. This document contains results related only to the items tested. It does not imply the conformity of the whole production to the items tested. Unless otherwise specified or rule defined by the test method, the decision of conformity doesn't take into account the uncertainty of measures. This document doesn't anticipate any certification decision. The COFRAC accreditation attests the technical capability of the testing laboratory for the only tests covered by the accreditation. If some tests mentioned in this report are carried out outside the framework of COFRAC accreditation, they are indicated by the symbol

LCIE

Laboratoire Central des Industries Electriques
Une société de Bureau Veritas

ZI Centr'alp
170 rue de Chatagnon
38430 Moirans FRANCE

Tél : +33 4 76 07 36 36
contact@lcie.fr
www.lcie.fr



PUBLICATION HISTORY

Version	Date	Author	Modification
01	June 30 , 2022	Majid MOURZAGH	Creation of the document
02	January 3, 2023	Majid MOURZAGH	Correction ID number on page 1
03	January 10, 2024	Majid MOURZAGH	Add "AC Power Line Conducted Emission" test performed On tab page 4

Each new edition of this test report replaces and cancels the previous edition. The control of the old editions of report is under responsibility of client.



SUMMARY

1. TEST PROGRAM 4

2. EQUIPMENT UNDER TEST: CONFIGURATION (DECLARED BY PROVIDER) 5

3. OCCUPIED BANDWIDTH..... 9

4. 20DB EMISSION BANDWIDTH 12

5. FREQUENCY TOLERANCE 15

6. FIELD STRENGTH OUTSIDE OF THE BANDS 13.110-14.010 MHZ 18

7. FIELD STRENGTH WITHIN THE BAND 13.110-14.010MHZ..... 28

8. UNCERTAINTIES CHART 33



1. TEST PROGRAM

References

- 47 CFR Part 15.225 (2020)
- RSS 210 Issue 10
- RSS Gen Issue 5
- ANSI C63.10 (2013)

Radio requirement:

Clause (47CFR Part 15.225 & RSS-210 Issue 9 & RSS-Gen Issue 5) Test Description	Test result - Comments			
Occupied Bandwidth	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
20dB Bandwidth	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
AC Power Line Conducted Emission	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA(2)	<input type="checkbox"/> NP(1)
Frequency Tolerance	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
Field strength within the band 13.110-14.010MHz	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
Field strength outside of the bands 13.110-14.010 MHz	<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAIL	<input type="checkbox"/> NA	<input type="checkbox"/> NP(1)
Receiver Radiated Emissions	<input type="checkbox"/> PASS (3)	<input type="checkbox"/> FAIL	<input checked="" type="checkbox"/> NA	<input type="checkbox"/> NP(1)
This table is a summary of test report, see conclusion of each clause of this test report for detail.				

(1): Limited program

(2): EUT not directly or indirectly connected to the AC Power Public Network

(3) Testing covered the receive mode, and receiver spurious emissions are considered to be the same as transmitter.

PASS: EUT complies with standard's requirement

FAIL: EUT does not comply with standard's requirement

NA: Not Applicable

NP: Test Not Performed

2. EQUIPMENT UNDER TEST: CONFIGURATION (DECLARED BY PROVIDER)

2.1. INFORMATIONS

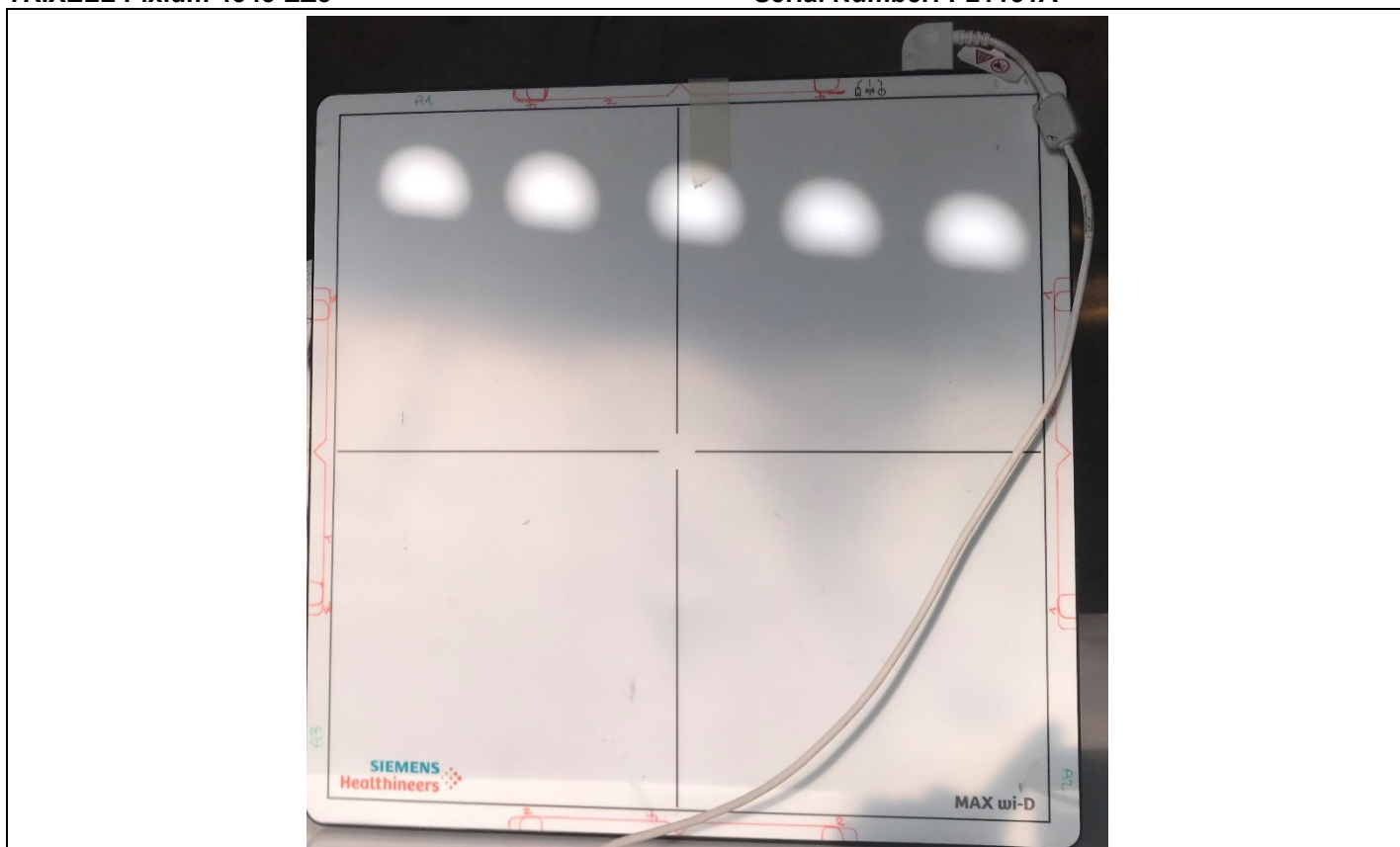
-Tests are performed on the most complete product **TRIXELL Pixium 4343 EZ3**, SN: **P21151A**.

2.2. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT):

TRIXELL Pixium 4343 EZ3

Serial Number: P21151A



Equipment Under Test

Power supply:

Name	Type	Rating	Reference / Sn	Comments
Supply1	<input type="checkbox"/> AC <input checked="" type="checkbox"/> DC <input type="checkbox"/> Battery	12VDC	-	/
Supply2	<input type="checkbox"/> AC <input type="checkbox"/> DC <input checked="" type="checkbox"/> Battery	7.7VDC	ESR	/

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
Access1	DC / Ethernet	1.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
Laptop DELL	LATITUDE E6540	/	Use to set the EUT
NFC Tag	/	/	Provided by TRIXELL



Equipment information (declaration of provider):

Type:	<input type="checkbox"/> RFID		
Frequency band:	[13.553 to 13.567] MHz		
Number of Channel:	1		
Antenna Type:	<input checked="" type="checkbox"/> Integral	<input type="checkbox"/> External	<input type="checkbox"/> Dedicated
Transmit chains:	1		
Receiver chains:	1		
Type of equipment:	<input checked="" type="checkbox"/> Stand-alone	<input type="checkbox"/> Plug-in	<input type="checkbox"/> Combined
Equipment arrangement:	<input checked="" type="checkbox"/> Tabletop	<input type="checkbox"/> Floor-standing	<input type="checkbox"/> Multiple orientations
Equipment type:	<input checked="" type="checkbox"/> Production model		<input type="checkbox"/> Pre-production model
Operating temperature range:	Tmin:	<input type="checkbox"/> -20°C	<input checked="" type="checkbox"/> 10°C*
	Tnom:	20°C	
	Tmax:	<input type="checkbox"/> 50°C	<input checked="" type="checkbox"/> 40°C*
Operating voltage:	Vmin :	<input checked="" type="checkbox"/> 10.2Vdc*	
	Vnom:	<input checked="" type="checkbox"/> 12Vdc*	
	Vmax :	<input checked="" type="checkbox"/> 13.2Vdc*	

*Ask from provider

Hardware information		
Software (if applicable):	V. :	NC

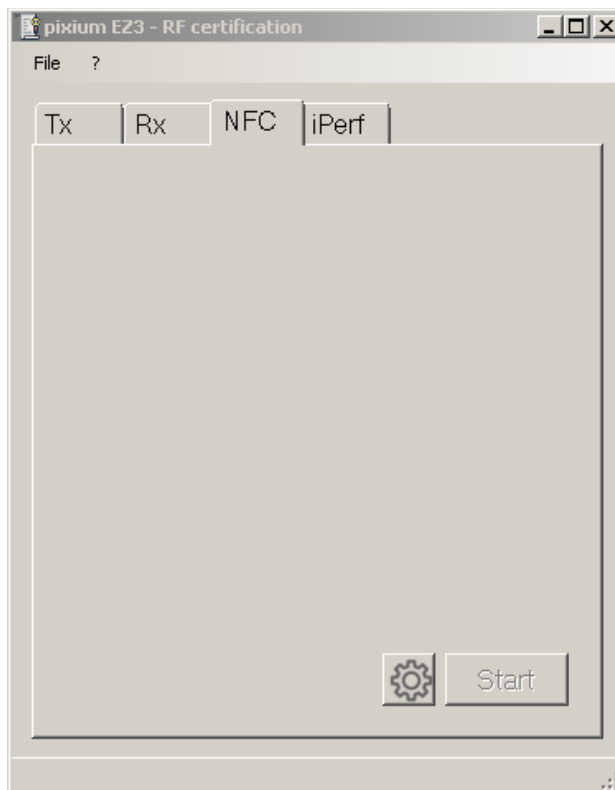
NC: Not communicated

2.3. RUNNING MODE

Test mode	Description of test mode
Test mode 1	Permanent emission with modulation on a fixed channel in the data rate that produced the highest power

Test	Running mode
Occupied Bandwidth	<input checked="" type="checkbox"/> Test mode 1 (1) <input type="checkbox"/> Alternative test mode()
Frequency Tolerance	<input checked="" type="checkbox"/> Test mode 1 (1) <input type="checkbox"/> Alternative test mode()
AC Power Line Conducted Emission	Not applicable
Field strength within the band 13.110-14.010MHz	<input checked="" type="checkbox"/> Test mode 1 (1) <input type="checkbox"/> Alternative test mode()
Field strength outside of the bands 13.110-14.010 MHz	<input checked="" type="checkbox"/> Test mode 1 (1) <input type="checkbox"/> Alternative test mode()
Receiver Radiated Emissions	Not applicable

(1) Following commands with the specific test software “**pixium EZ3 – RF certification**” are used to set the product:





2.4. EQUIPMENT LABELLING

None

2.5. EQUIPMENT MODIFICATION

None Modification:

2.6. FIELD STRENGTH 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 follow:

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

Where FS = Field Strength
 RA = Receiver Amplitude
 AF = Antenna Factor
 CF = Cable Factor
 AG = Amplifier Gain

Assume a receiver reading of 52.5dB μ V is obtained. The antenna factor of 7.4 and a cable factor of 1.1 are added. The amplifier gain of 29dB is subtracted, giving a field strength of 32 dB μ V/m.

$$FS = 52.5 + 7.4 + 1.1 - 29 = 32 \text{ dB}\mu\text{V/m}$$

The 32 dB μ V/m value can be mathematically converted to its corresponding level in μ V/m.

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(32\text{dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m.}$$

2.7. CALIBRATION DATE

The calibration intervals are extended at 12+2 months. This extended interval is based on the fact that there is sufficient calibration data to statistically establish a trend or based on experience of use of the test equipment to assure good measurement results for a longer period

3. OCCUPIED BANDWIDTH

3.1. TEST CONDITIONS

Test performed by : Majid MOURZAGH
 Date of test : February 17, 2022
 Ambient temperature : 20 °C
 Relative humidity : 38 %

3.2. TEST SETUP

- The Equipment Under Test is installed:

- On a table
- In a climatic chamber
- In an anechoic chamber

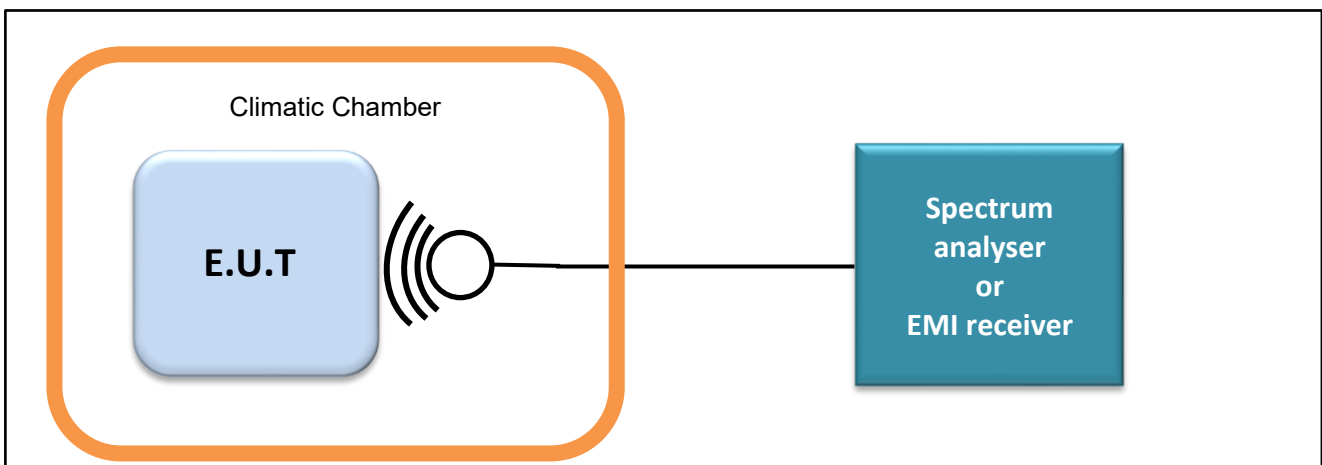
- Measurement is performed with a spectrum analyzer in:

- Conducted Method
- Radiated Method

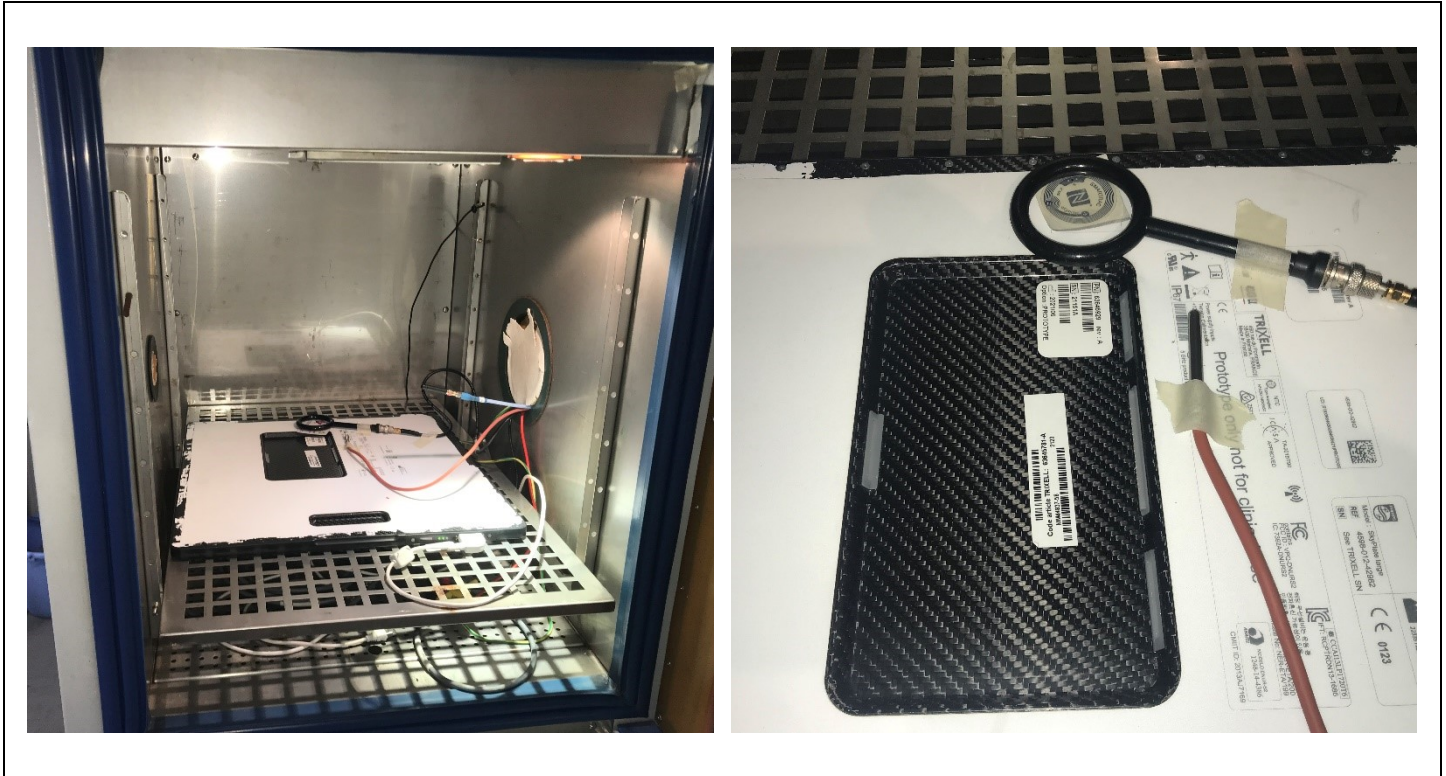
The EUT is turned ON and connected to measurement instrument; the center frequency of the spectrum analyzer is set to the fundamental frequency. The captured power is measured and recorded; the measurement is repeated until all frequencies required were complete.

- Test Procedure:

- RSS-Gen Issue 5 § 6.7
 - RBW used in the range of 1% to 5% of the anticipated emission bandwidth
 - Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
 - Detector = Peak.
 - Trace mode = Max Hold.
 - Sweep = Auto couple.
 - Allow the trace to stabilize.
 - OBW 99% function of spectrum analyzer used



Test set up of Occupied Bandwidth



Photograph for Occupied bandwidth

3.3. LIMIT

None

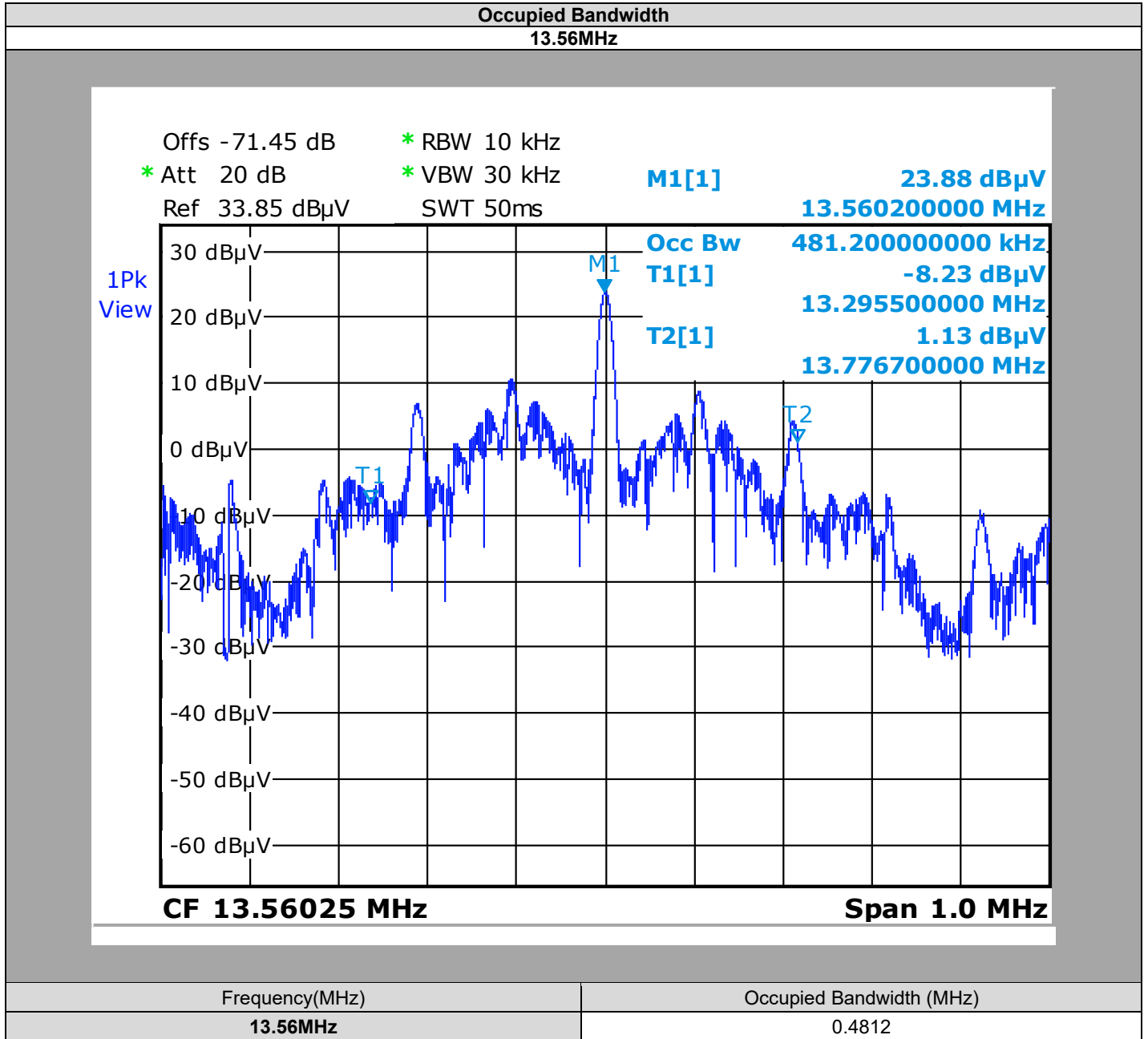
3.4. TEST EQUIPMENT LIST

TEST EQUIPMENT USED					
Description	Manufacturer	Model	Identifier	Cal_Date	Cal_Due
AC source 1kW	KEYSIGHT	AC6802A	A7042305		
Antenna Loop (near field)	ELECTRO-METRICS	EM-6993	C2040215	06/19	06/22
Attenuator 10dB	AEROFLEX	_	A7122267	08/21	08/23
Cable SMA 2m	_	6GHz	A5329637	06/20	06/22
Climatic chamber	BIA CLIMATIC	CL 6-25	D1022117	12/20	12/22
Data Logger (CEM1)	AGILENT	34970A	A6440083	11/20	11/22
Multimeter - CEM	FLUKE	87	A1240251	03/21	03/23
Spectrum Analyzer 9kHz - 6GHz	ROHDE & SCHWARZ	FSL6	A2642020	08/20	08/22
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	01/23



L C I E

3.5. RESULTS



3.6. CONCLUSION

Occupied Channel Bandwidth measurement performed on the sample of the product **TRIXELL Pixium 4343 EZ3**, SN: **P21151A**, in configuration and description presented in this test report, show levels **compliant** to the **RSS-GEN** limits.

4. 20dB EMISSION BANDWIDTH

4.1. TEST CONDITIONS

Test performed by : Majid MOURZAGH
Date of test : February 17, 2022
Ambient temperature : 20 °C
Relative humidity : 38 %

4.2. TEST SETUP

- The Equipment Under Test is installed:

- On a table
- In a climatic chamber
- In an anechoic chamber

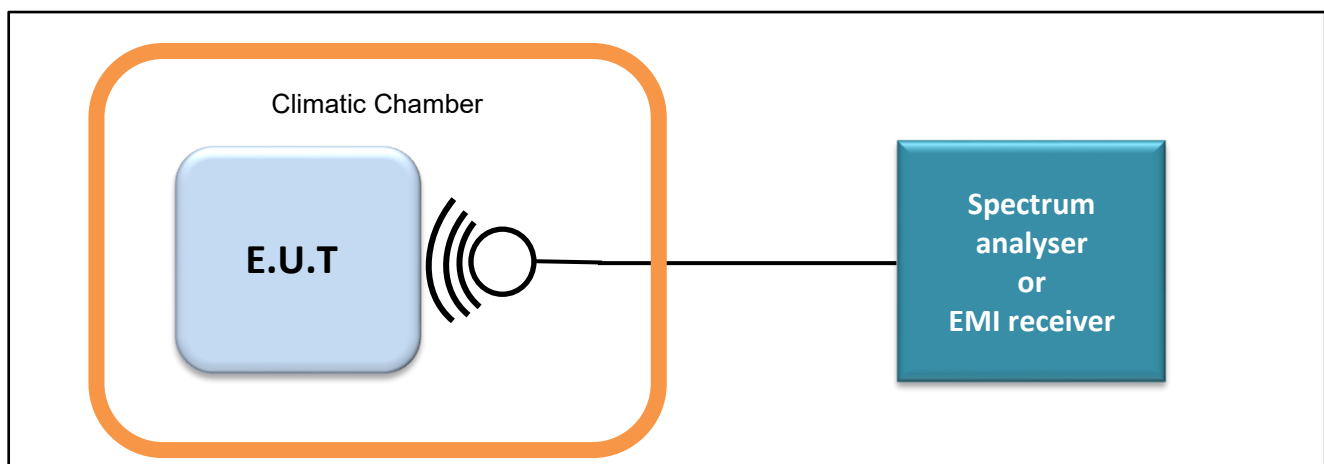
- Measurement is performed with a spectrum analyzer in:

- Conducted Method
- Radiated Method

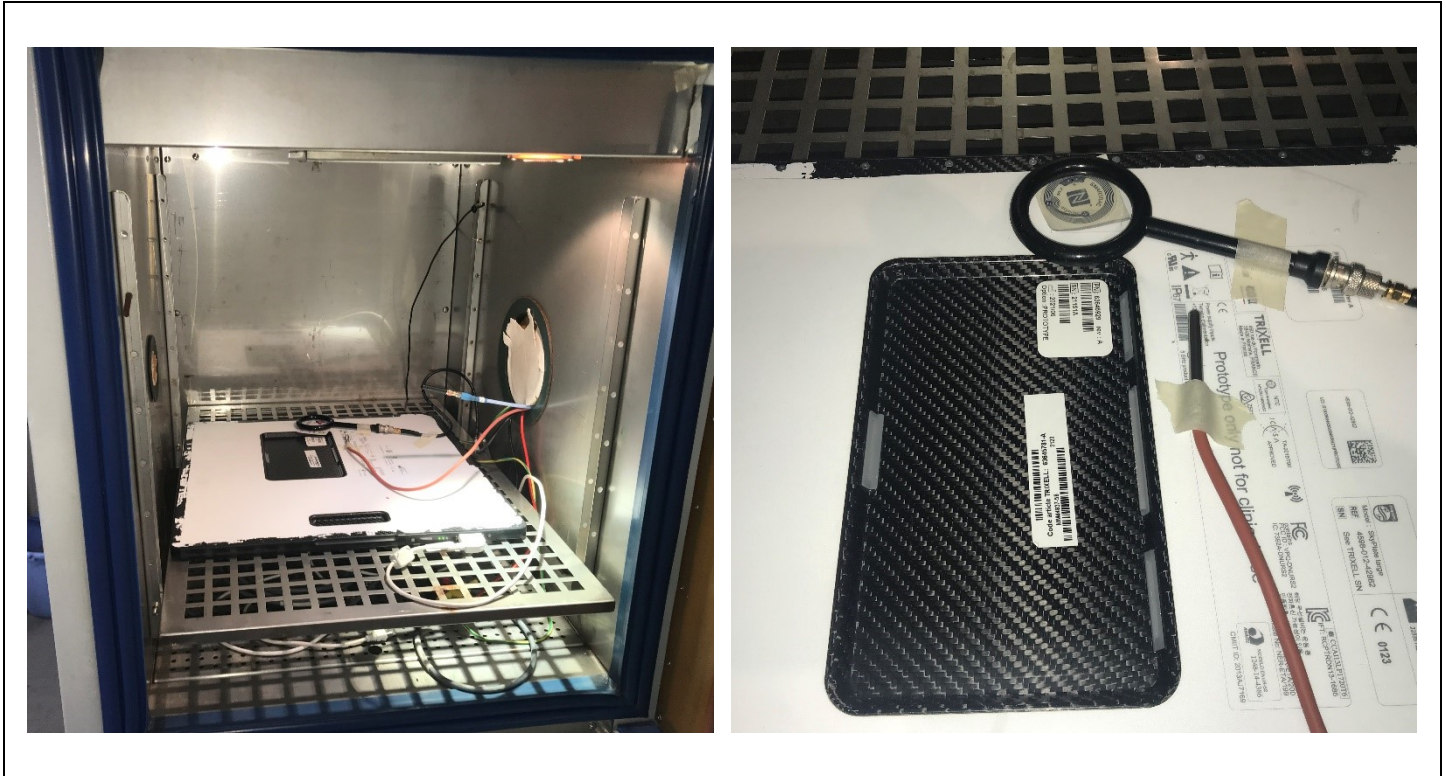
- Test Procedure:

- ANSI C63.10 § 6.9.2:

The EUT is placed in an anechoic chamber; levels have been corrected to be in compliant with the Peak Output Power measured. The EUT is turn ON and using the MaxHold function, the frequency separation of two frequencies that were attenuated 20dB from the Peak Output Power level. A delta marker is used to measure the frequency difference as the emission bandwidth.



Test set up of 20dB Emission Bandwidth



Photograph for 20dB emission bandwidth

4.3. LIMIT

No Limit

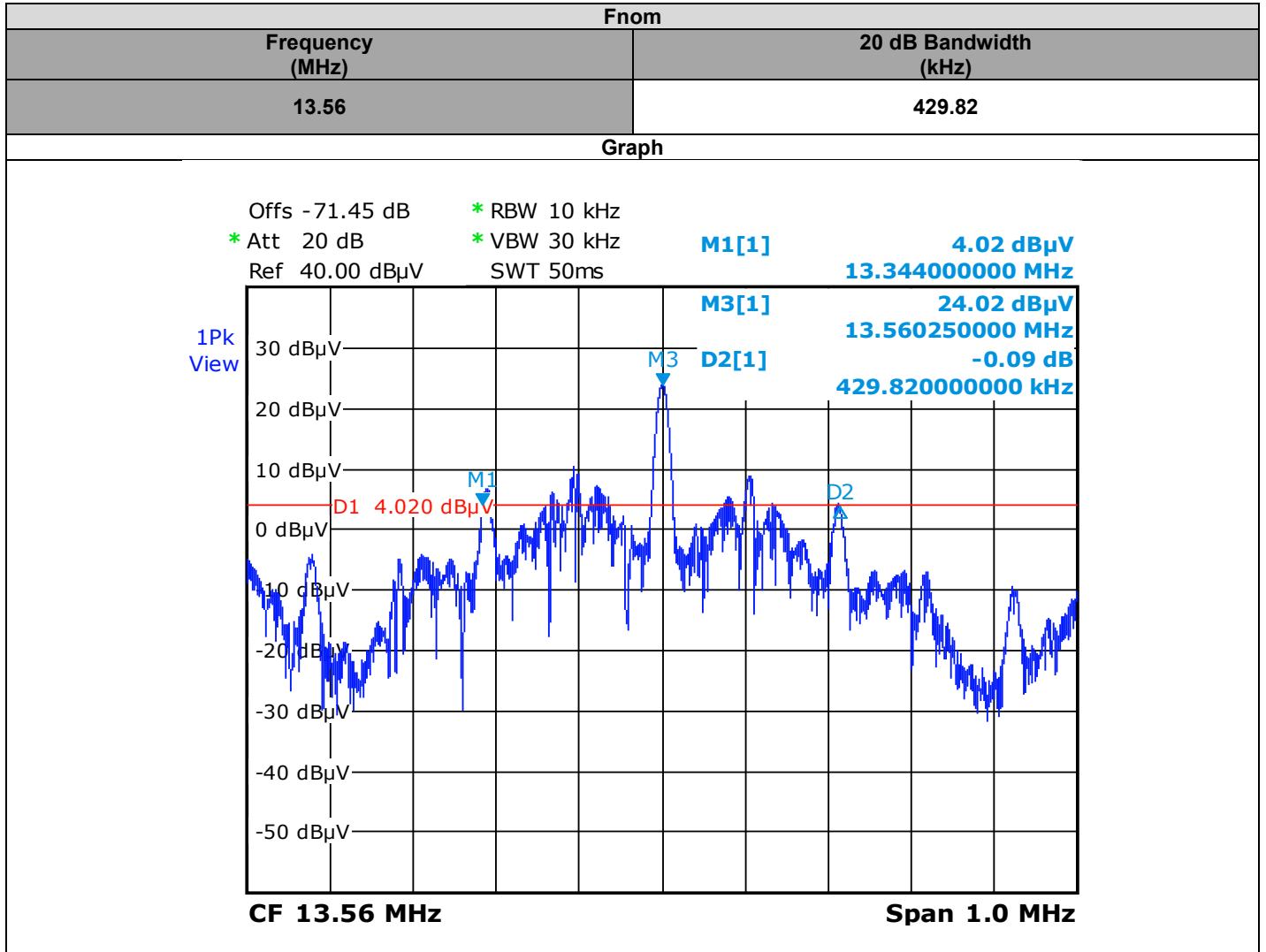
4.4. TEST EQUIPMENT LIST

TEST EQUIPMENT USED					
Description	Manufacturer	Model	Identifier	Cal_Date	Cal_Due
AC source 1kW	KEYSIGHT	AC6802A	A7042305		
Antenna Loop (near field)	ELECTRO-METRICS	EM-6993	C2040215	06/19	06/22
Attenuator 10dB	AEROFLEX	_	A7122267	08/21	08/23
Cable SMA 2m	_	6GHz	A5329637	06/20	06/22
Climatic chamber	BIA CLIMATIC	CL 6-25	D1022117	12/20	12/22
Data Logger (CEM1)	AGILENT	34970A	A6440083	11/20	11/22
Multimeter - CEM	FLUKE	87	A1240251	03/21	03/23
Spectrum Analyzer 9kHz - 6GHz	ROHDE & SCHWARZ	FSL6	A2642020	08/20	08/22
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	01/23



L C I E

4.5. RESULTS



4.6. CONCLUSION

20dB Emission Bandwidth measurement performed on the sample of the product **TRIXELL Pixium 4343 EZ3**, SN: **P21151A**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 & RSS 210 limits.

5. FREQUENCY TOLERANCE

5.1. TEST CONDITIONS

Test performed by : Majid MOURZAGH
Date of test : February 17, 2022
Ambient temperature : 20 °C
Relative humidity : 38 %

5.2. TEST SETUP

- The Equipment Under Test is installed:

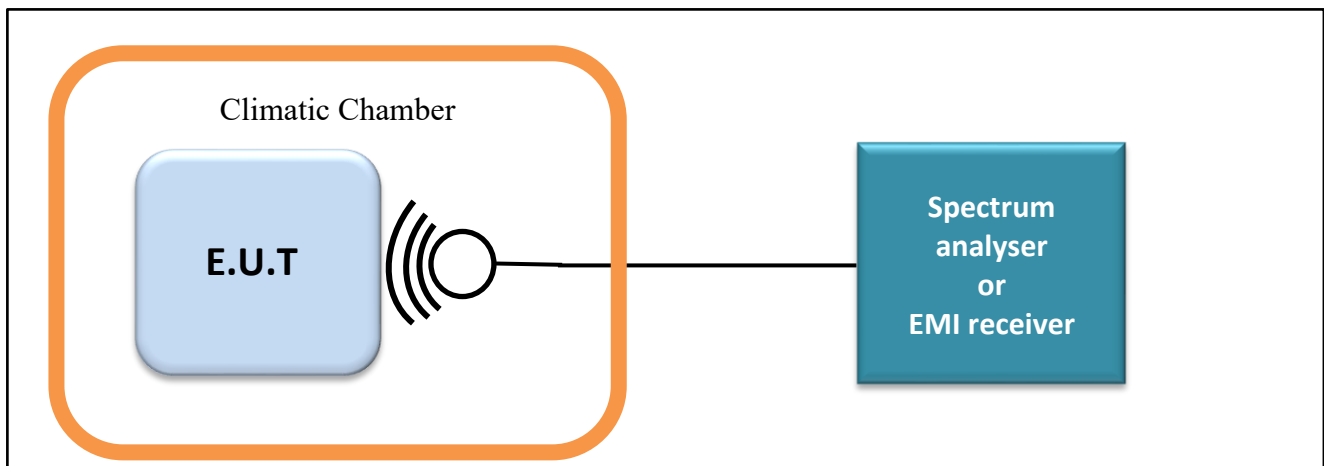
- On a table
- In a climatic chamber
- In an anechoic chamber

- Measurement is performed with a spectrum analyzer in:

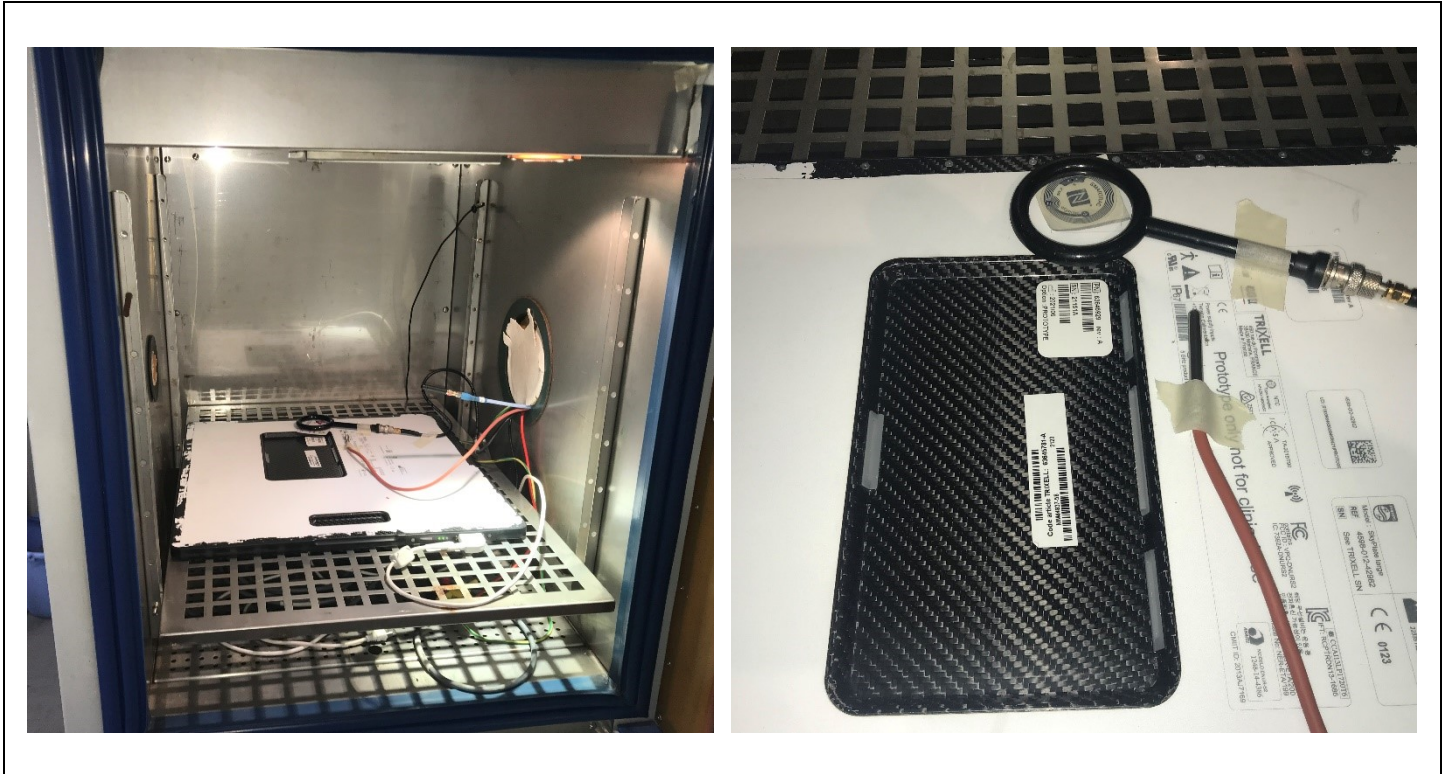
- Conducted Method
- Radiated Method

- Test Procedure:

- ANSI C63.10 § 6.8



Test set up of Occupied Bandwidth



Photograph for Frequency Tolerance

5.3. LIMIT

±0.01% (± 100ppm)

5.4. TEST EQUIPMENT LIST

TEST EQUIPMENT USED					
Description	Manufacturer	Model	Identifier	Cal_Date	Cal_Due
AC source 1kW	KEYSIGHT	AC6802A	A7042305		
Antenna Loop (near field)	ELECTRO-METRICS	EM-6993	C2040215	06/19	06/22
Attenuator 10dB	AEROFLEX	_	A7122267	08/21	08/23
Cable SMA 2m	_	6GHz	A5329637	06/20	06/22
Climatic chamber	BIA CLIMATIC	CL 6-25	D1022117	12/20	12/22
Data Logger (CEM1)	AGILENT	34970A	A6440083	11/20	11/22
Multimeter - CEM	FLUKE	87	A1240251	03/21	03/23
Spectrum Analyzer 9kHz - 6GHz	ROHDE & SCHWARZ	FSL6	A2642020	08/20	08/22
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	01/23



5.5. RESULTS

EUT activation:		Startup			
Voltage:		Vnom			
Temperature:		-10°C	20°C	30°C	40°C
Frequency (MHz)		13.56023114	13.56021322	13.56018429	13.5602402
Frequency Drift (%)		0.0017%	0.0016%	0.0014%	0.0018%
EUT activation:		2min			
Voltage:		Vnom			
Temperature:		-10°C	20°C	30°C	40°C
Frequency (MHz)		13.5602383	13.56021681	13.56018429	13.5601807
Frequency Drift (%)		0.0018%	0.0016%	0.0014%	0.0013%
EUT activation:		5min			
Voltage:		Vnom			
Temperature:		-10°C	20°C	30°C	40°C
Frequency (MHz)		13.56024216	13.56022039	13.56018787	13.5601807
Frequency Drift (%)		0.0018%	0.0016%	0.0014%	0.0013%
EUT activation:		10min			
Voltage:		Vnom			
Temperature:		-10°C	20°C	30°C	40°C
Frequency (MHz)		13.5602474	13.56022397	13.5601898	13.5601719
Frequency Drift (%)		0.0018%	0.0017%	0.0014%	0.0013%

Temperature	Tnom		
Voltage:	Vmin	Vnom	Vmax
Frequency (MHz)	13.56022306	13.56022397	13.5602484
Frequency Drift (%)	0.0016%	0.0017%	0.0018%

5.6. CONCLUSION

Frequency tolerance measurement performed on the sample of the product **TRIXELL Pixium 4343 EZ3**, SN: **P21151A**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 & RSS 210 limits.

6. FIELD STRENGTH OUTSIDE OF THE BANDS 13.110-14.010 MHz

6.1. TEST CONDITIONS

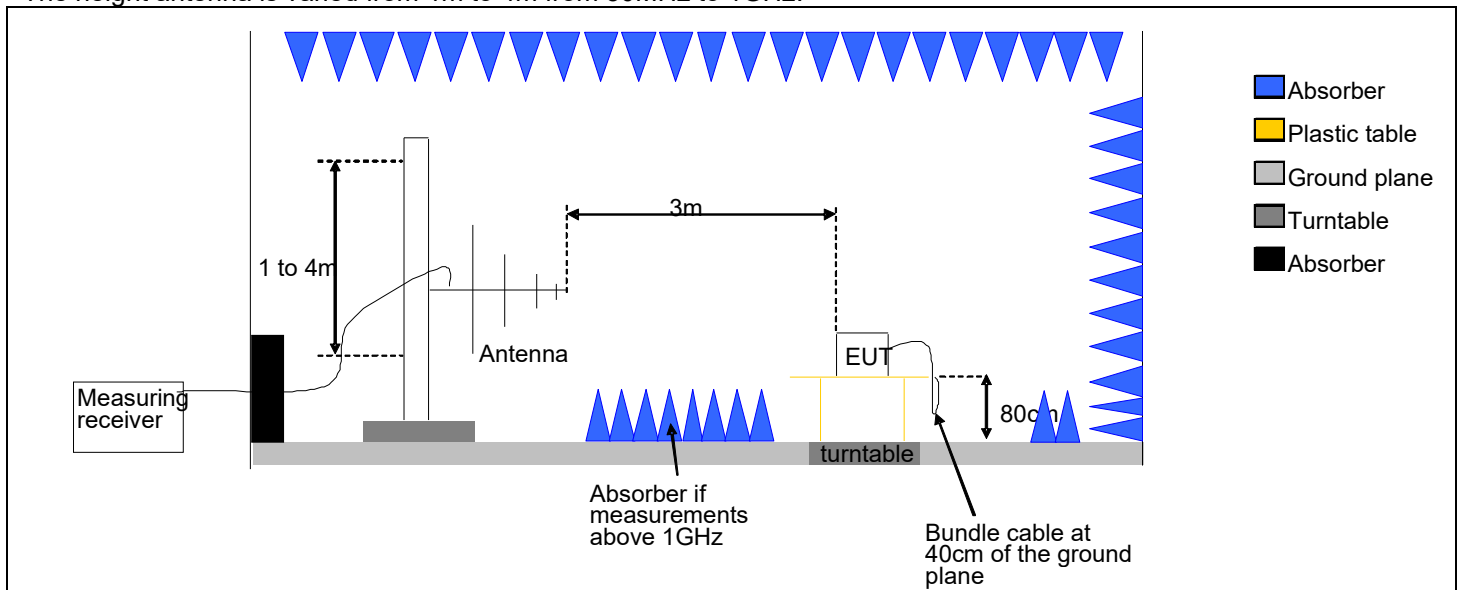
Test performed by : Majid MOURZAGH
 Date of test : February 10, 2022
 Ambient temperature : 22 °C
 Relative humidity : 36 %

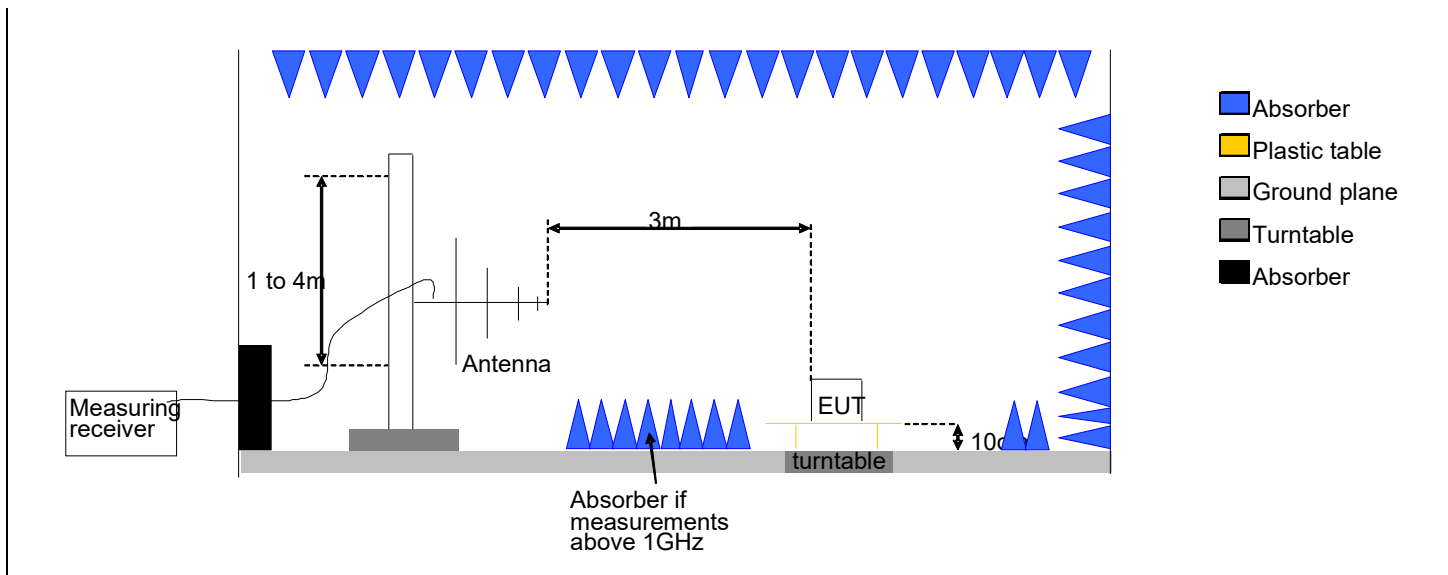
6.2. TEST SETUP

The product has been tested according to ANSI C63.10 and FCC part 15 subpart C.

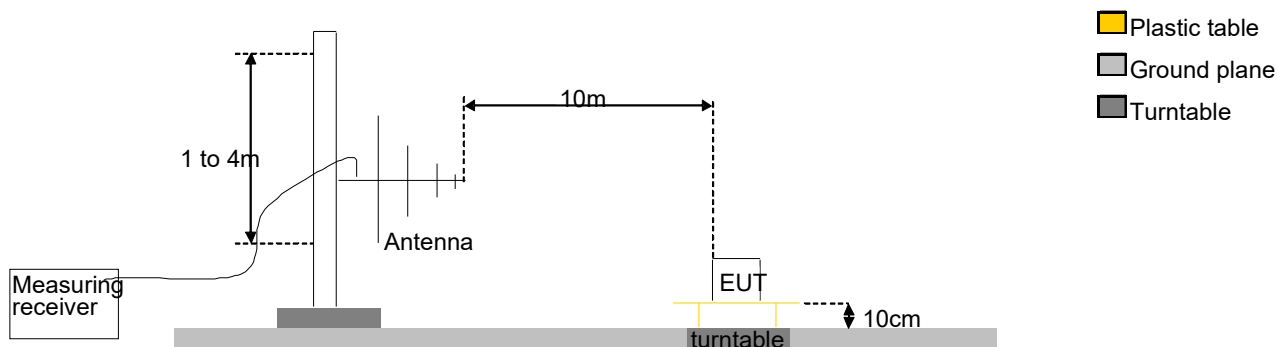
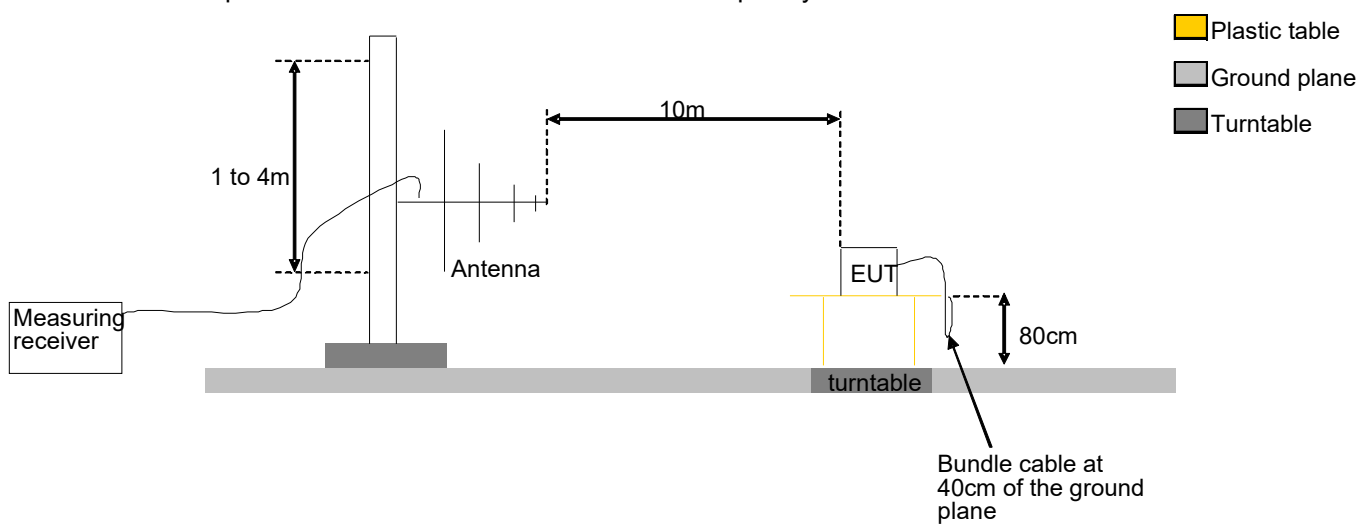
Test is performed in parallel, perpendicular and ground parallel axis with a loop antenna below 30MHz. Measurement bandwidth was 200Hz below 150kHz and 9kHz between 150kHz & 30MHz. The level has been maximised by the turntable rotation of 360 degrees range on all axis of EUT used in normal configuration. Antenna height was 1m. The EUT is placed **on an open area test site**. Distance between measuring antenna and the EUT is **10m**.

Test is performed in horizontal (H) and vertical (V) polarization with **bilog** between 30MHz & 1GHz. Measurement bandwidth was 120kHz below 1GHz. The level has been maximised by the turntable rotation of 360 degrees range on all axis of EUT used in normal configuration. The EUT is placed at 0.8m high under 1GHz. The EUT is placed **on an open area test site** from 30MHz to 1GHz. Distance between measuring antenna and the EUT is **10m**. The height antenna is varied from 1m to 4m from 30MHz to 1GHz.

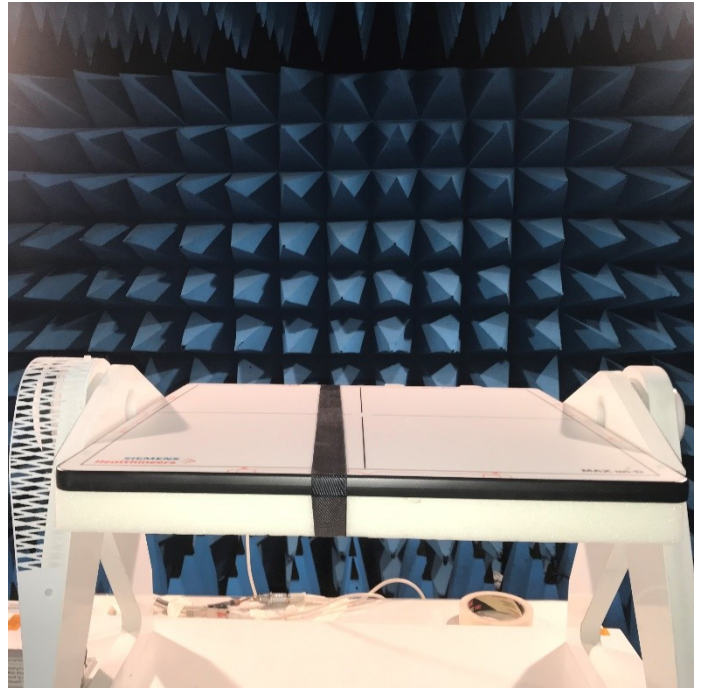




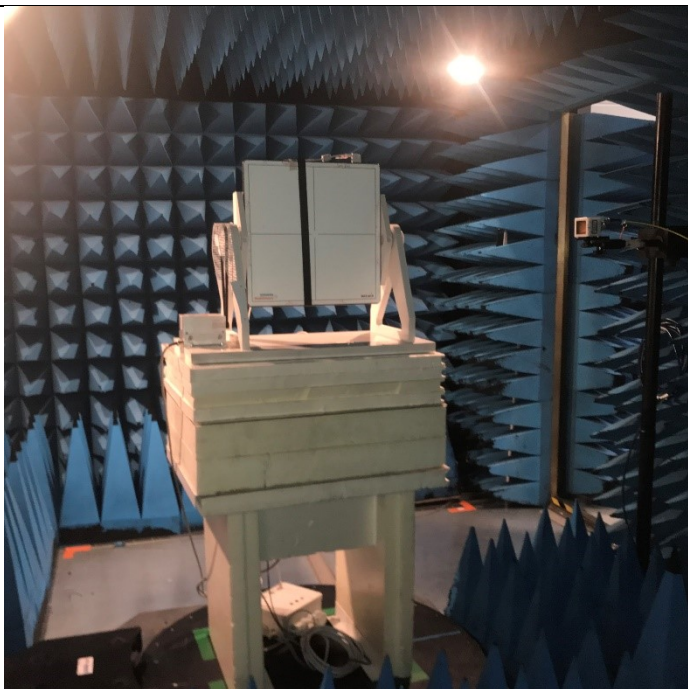
Test set up of Unwanted Emissions in Restricted Frequency Bands in semi anechoic chamber



Test Set up for radiated measurement in open area test site

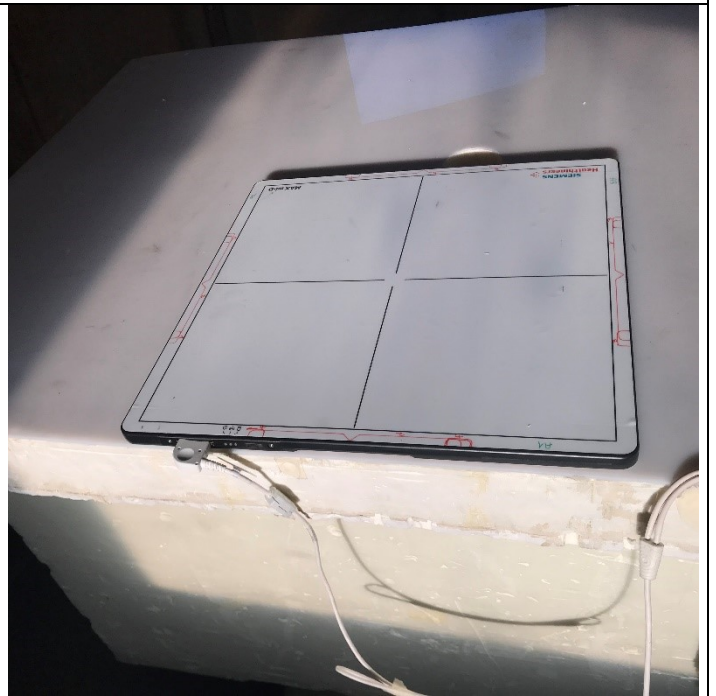


Axis XY on FAR



Axis Z on FAR

Photograph for Field strength outside of the bands 13.110-14.010 MHz



AXIS XY on OATS



L C I E



AXIS Z on OATS

6.3. LIMIT

Measure at 300m		
Frequency range	Level	Detector
9kHz-490kHz	67.6dB μ V/m /F(kHz)	QPeak
Measure at 30m		
Frequency range	Level	Detector
490kHz-1.705MHz	87.6dB μ V/m /F(kHz)	QPeak
1.705MHz-30MHz	29.5dB μ V/m	QPeak
Measure at 10m		
Frequency range	Level	Detector
30MHz to 88MHz	29.5dB μ V/m	QPeak
88MHz to 216MHz	33dB μ V/m	QPeak
216MHz to 960MHz	35.5B μ V/m	QPeak
960MHz to 1000MHz	43.5dB μ V/m	QPeak
Above 1000MHz	63.5dB μ V/m	Peak
	43.5dB μ V/m	Average
Measure at 3m		
Frequency range	Level	Detector
30MHz to 88MHz	40dB μ V/m	QPeak
88MHz to 216MHz	43.5dB μ V/m	QPeak
216MHz to 960MHz	46B μ V/m	QPeak
960MHz to 1000MHz	54dB μ V/m	QPeak
Above 1000MHz	74dB μ V/m	Peak
	54dB μ V/m	Average

6.4. TEST EQUIPMENT LIST

TEST EQUIPMENT USED					
Description	Manufacturer	Model	Identifier	Cal_Date	Cal_Due
Amplifier 9kHz - 40GHz	LCIE SUD EST	-	A7102082	06/20	06/22
Antenna Bi-log	AH System	SAS-521-7	C2040180	02/21	02/23
Antenna Loop	ELECTRO-METRICS	EM-6879	C2040052	06/19	06/22
BAT EMC	NEXIO	v3.21.0.27	L1000115		
Cable SMA 40GHz 40cm	WITHWAVE	W101-SM1-0.4M	A5329979	04/21	04/22
Comb EMR HF	YORK	CGE01	A3169114		
CONTROLLER	INNCO	CO3000	D3044034		
Emission Cable <1GHz (Ampl <-> Cage)	-	18GHz	A5329907	08/21	08/22
Filter Matrice	LCIE SUD EST	Combined filters	A7484078	09/20	09/22
Multimeter - CEM	FLUKE	87	A1240251	03/21	03/23
Power supply DC	METRIX	AX503	A7042308		
Rehausse Table C3	LCIE	-	F2000511		
Semi-Anechoic chamber #3 (BF)	SIEPEL	-	D3044017_BF	12/19	12/22
Semi-Anechoic chamber #3 (VSWR)	SIEPEL	-	D3044017_VSWR	12/19	12/22
Spare C3 Cable Measure	TELEDYNE	26GHz	A5329681	09/20	09/22
Spare C3 Cable Measure	TELEDYNE	26GHz	A5329680	09/20	09/22
Spectrum analyzer	ROHDE & SCHWARZ	FSU 26	A4060058	09/21	09/23
Table C3	LCIE	-	F2000461		
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	01/23
TILT	INNCO	TILT	D3044033		
Turntable chamber (Cage#3)	ETS Lingren	Model 2165	F2000371		
Turntable controller (Cage#3)	ETS Lingren	Model 2090	F2000444		
Rehausse Table C3	LCIE	-	F2000507		
Thermo-hygrometer (C3)	OREGON	BAR206	B4204078	02/21	02/23
Antenna Bi-log	CHASE	CBL6111A	C2040051	07/20	07/22
Antenna Mat (OATS)	ETS Lingren	2071-2	F2000392		
Cable (OATS)	-	1GHz	A5329623	08/21	08/22
Emission Cable	-	6GHz	A5329069	04/21	04/22
Emission Cable	SUCOFLEX	6GHz	A5329061	08/21	08/22
OATS	-	-	F2000409	04/21	04/22
Rehausse Table C1/OATS	LCIE	-	F2000512		
Table C1/OATS	LCIE	-	F2000445		
Turntable (OATS)	ETS Lingren	Model 2187	F2000403		
Turntable / Mast controller (OATS)	ETS Lingren	Model 2066	F2000372		

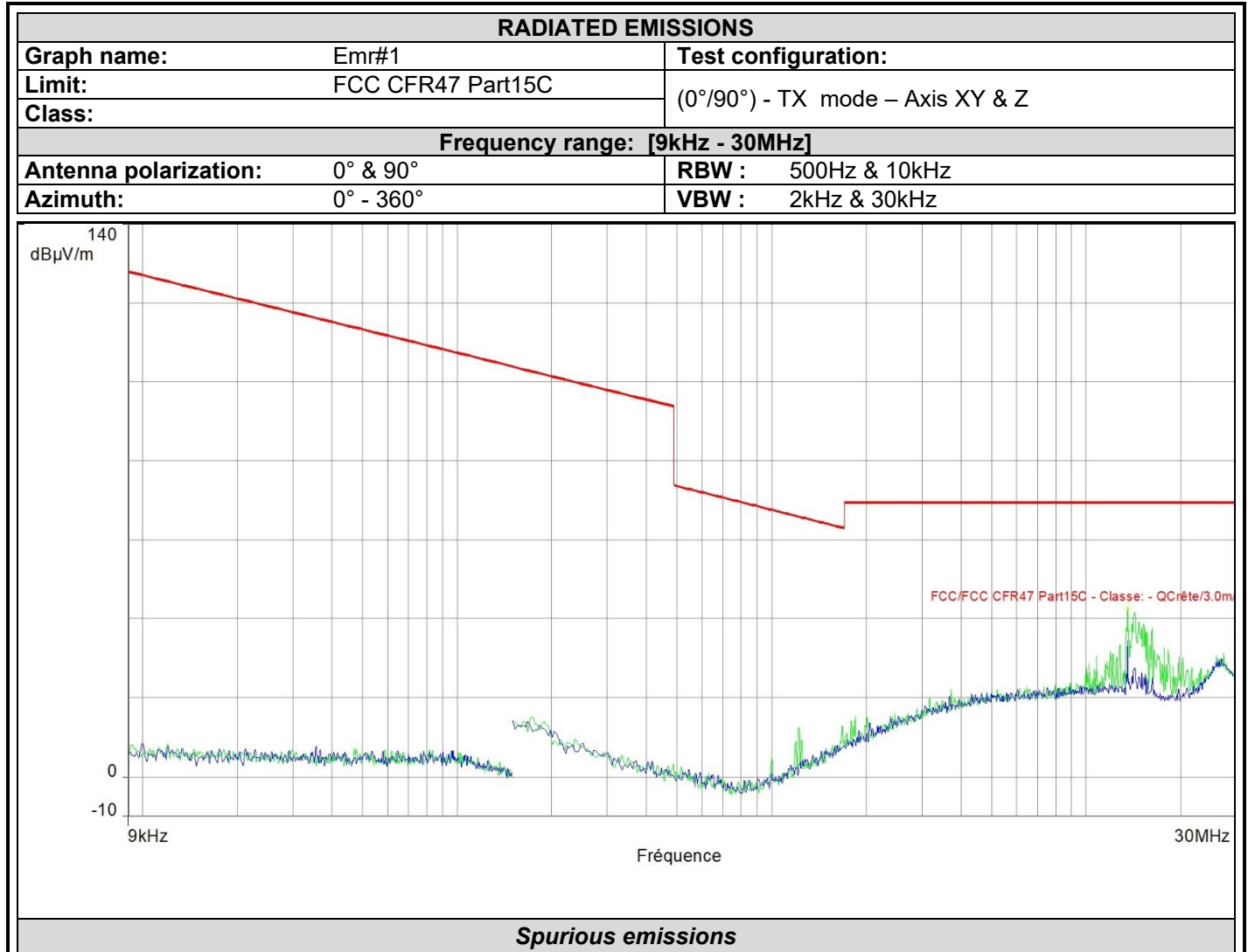


L C I E

6.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None Divergence:

6.6. RESULTS

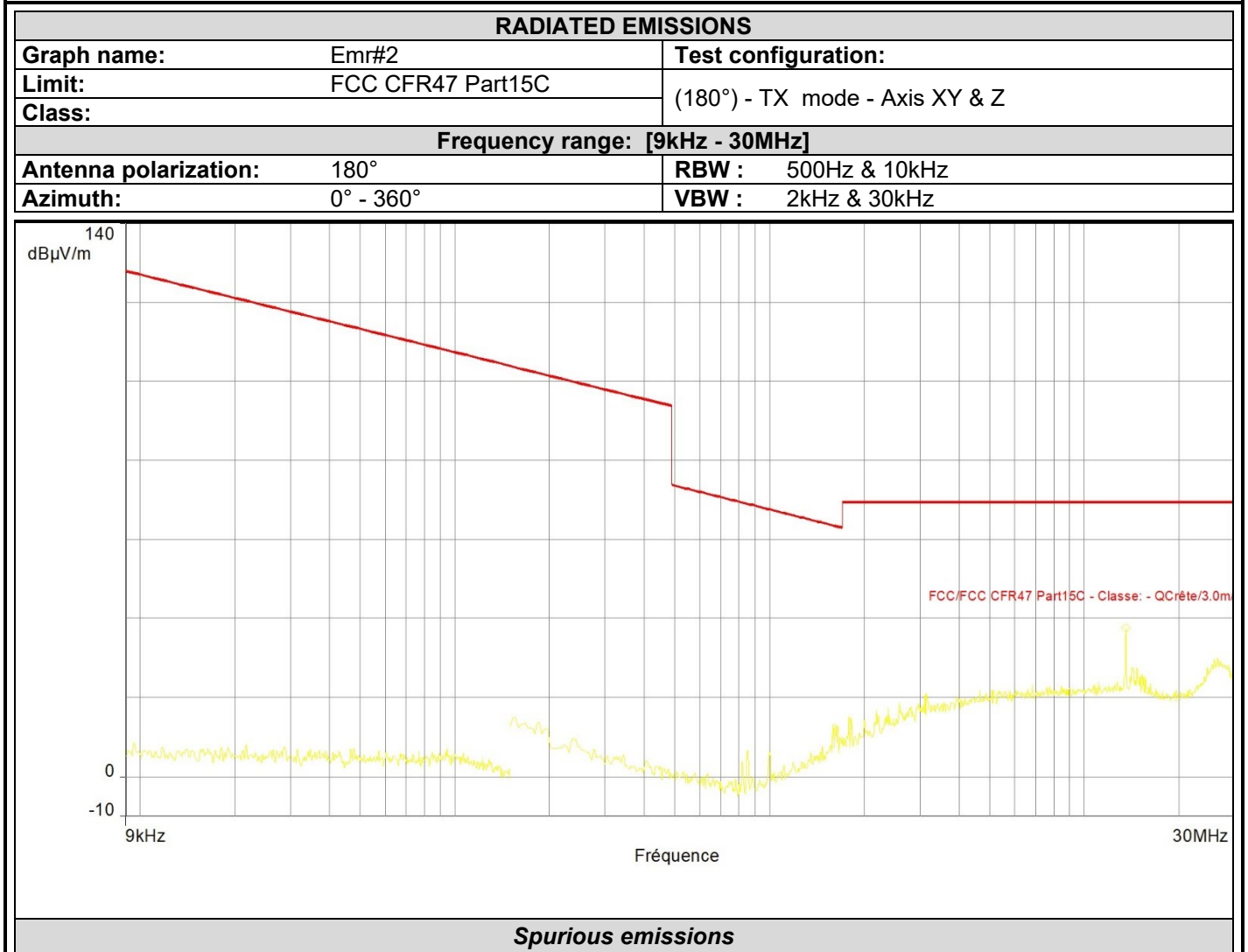


Frequency (MHz)	Peak (dBµV/m)	Polarization	Correction (dB)
13.562	43.2	90°	0.3

*Carrier frequency



L C I E



Frequency (MHz)	Peak (dBµV/m)	Polarization	Correction (dB)
13.559*	37.6	180°	0.3

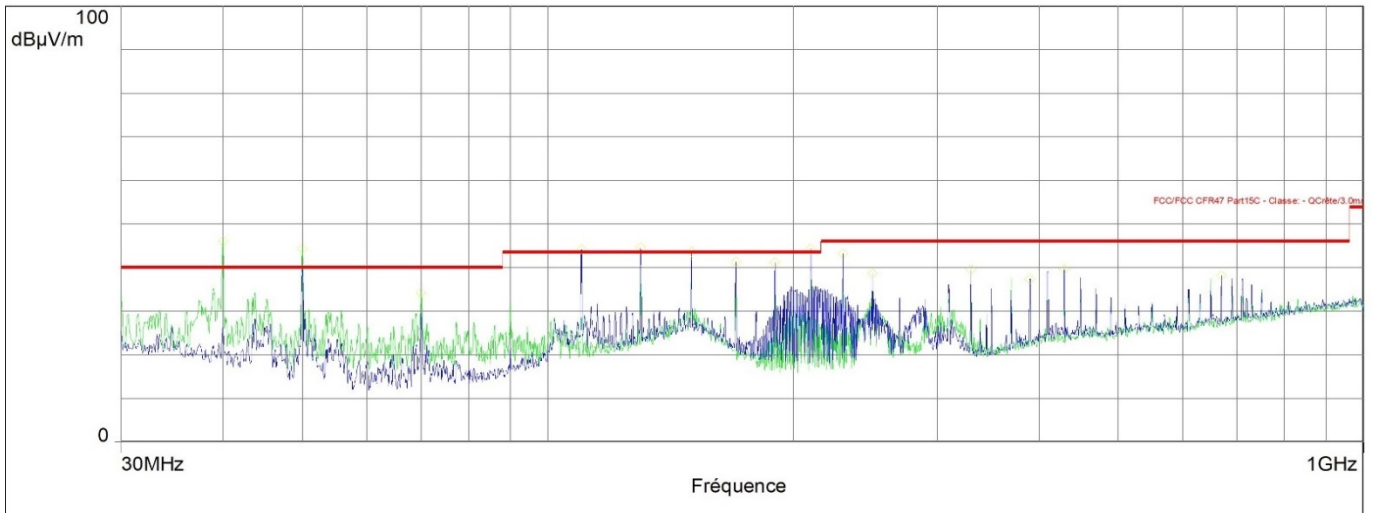
*Carrier frequency



L C I E

RADIATED EMISSIONS		
Graph name:	Emr#3	Test configuration:
Limit:	FCC CFR47 Part15C	(H+V) - TX mode - Axis XY & Z
Class:		
Frequency range: [30MHz - 1GHz]		
Antenna polarization:	Horizontal & Vertical	RBW : 100kHz
Azimuth:	0° - 360°	VBW : 300kHz

- FCC/FCC CFR47 Part15C - Classe: - QCrête/3.0m/
- FCC/FCC CFR47 Part15C - Classe: - Crête/3.0m/
- Peak (Suspect Manuel) (Horizontale)
- Peak (Suspect Manuel) (Verticale)
- Peak (Horizontale)
- Peak (Verticale)



Spurious emissions

Frequency (MHz)	Peak (dBµV/m)	Lim.Q-Peak (dBµV/m)	Peak - Lim.Q-Peak (dB)	Polarization	Correction (dB)
39.991	46.1	40	6.1	Vertical	16.7
49.982	44.3	40	4.3	Vertical	12.1
69.964	34.2	40	-5.8	Vertical	10.8
110.025	44.1	43.5	0.6	Horizontal	18.5
130.007	44.7	43.5	1.2	Horizontal	21.9
149.989	43.8	43.5	0.3	Horizontal	23.8
169.971	41.3	43.5	-2.2	Horizontal	19.5
189.953	41.2	43.5	-2.3	Horizontal	15.6
209.935	44.4	43.5	0.9	Horizontal	14.6
230.014	43.2	46	-2.8	Horizontal	15.2
249.996	38.6	46	-7.4	Horizontal	21.2
330.021	39.6	46	-6.4	Horizontal	18.4
389.967	37.3	46	-8.7	Horizontal	20.4
430.028	39.6	46	-6.4	Horizontal	21.2
670.006	38.1	46	-7.9	Horizontal	24.9



Final measurement:

9kHz to 30MHz					
Polarization	Frequency (MHz)	Peak Level (dBµV/m)	QPeak Level (dBµV/m)	Limit (dBµV/m)	Margin QPeak (dBµV/m)
all emissions were greater than 20 dB below the limit					

Final measurement:

30MHz to 1GHz									
Test Frequency (MHz)	Meter Reading dB(µV)	Detector (Pk/QP/Av)	Polarity (V/H)	Azimuth (Degrees)	Antenna Height (cm)	Transducer Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
40	19.3	QP	V	0	110	14.5	33.8	40.0	-6.2
50	20.7	QP	V	180	100	12.6	33.3	40.0	-6.7
70	20.1	QP	V	60	100	7.6	27.7	40.0	-12.3
110	20.8	QP	V	90	110	13.1	33.9	43.5	-9.6
130	16.6	QP	V	100	110	15.3	31.9	43.5	-11.6
150	15.6	QP	V	90	120	19.4	35.0	43.5	-8.5
170	15.0	QP	V	150	110	19.3	34.3	43.5	-9.2
190	16.4	QP	V	90	110	16.7	33.1	43.5	-10.4
210	22.1	QP	V	0	100	12.4	34.5	43.5	-9.0
230	21.2	QP	V	0	100	13.7	34.9	46.0	-11.1
250	19.6	QP	V	180	110	16.2	35.8	46.0	-10.2
330	19.0	QP	H	0	230	18.5	37.5	46.0	-8.5
390	14.4	QP	V	90	120	20.6	35.0	46.0	-11.0
430	14.8	QP	V	330	130	21.8	36.6	46.0	-9.4
670	12.9	QP	H	150	245	27.4	40.3	46.0	-5.7

Note: Measure have been done at 10m distance and corrected according to requirements of 15.209.e)
 ($M@3m = M@10m+10.5dB$)

6.7. CONCLUSION

Field strength outside of the bands 13.110-14.010 MHz measurement performed on the sample of the product **TRIXELL Pixium 4343 EZ3**, SN: **P21151A**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 & RSS-Gen limits.

7. FIELD STRENGTH WITHIN THE BAND 13.110-14.010MHZ

7.1. TEST CONDITIONS

Test performed by : Majid MOURZAGH
 Date of test : February 15, 2022
 Ambient temperature : 22 °C
 Relative humidity : 36 %

7.2. TEST SETUP

Measurement procedure:

- Open Area Test Site
- Open Area Test Site + Test fixture in climatic chamber (for normal condition measurement)

Ambient temperature: 22 °C
 Relative humidity: 36 %

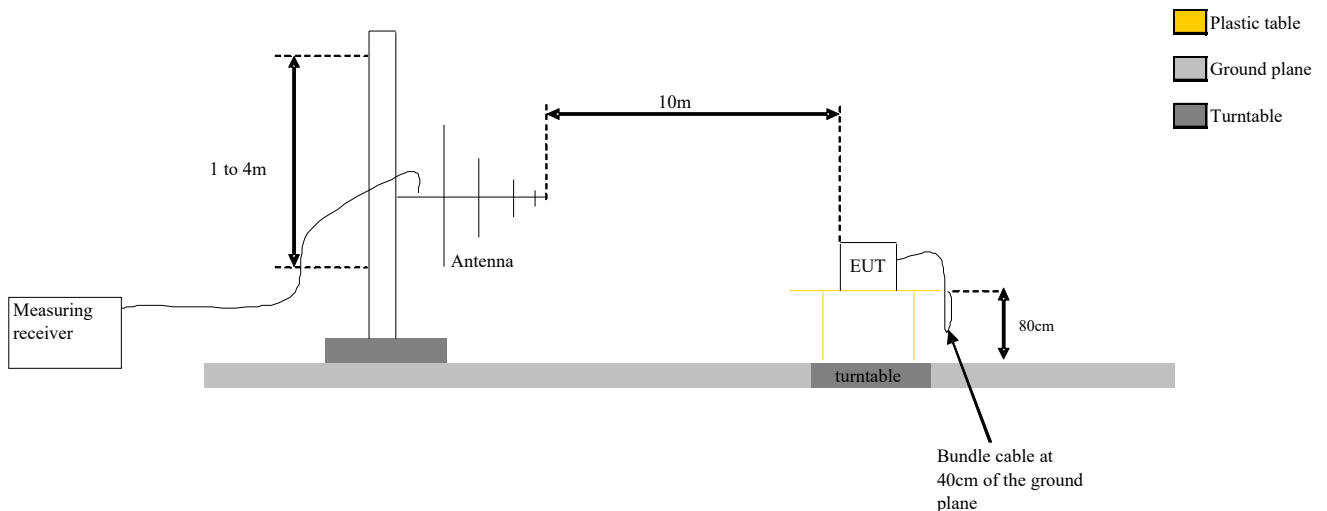
Note: It is impracticable to carry out tests under normal condition as specified in standard.

The product has been tested according to ANSI C63.10.

The EUT is placed **on an open area test site**. Distance between measuring antenna and the EUT is **Distance**.

Test is performed in parallel, perpendicular and ground parallel axis with a loop antenna below 30MHz.

Measurement bandwidth was 9kHz between 150kHz & 30MHz. The level has been maximised by the turntable rotation of 360 degrees range on all axis of EUT used in normal configuration. Antenna height search was performed from 1 to 4m. The EUT is placed at 0.8m.

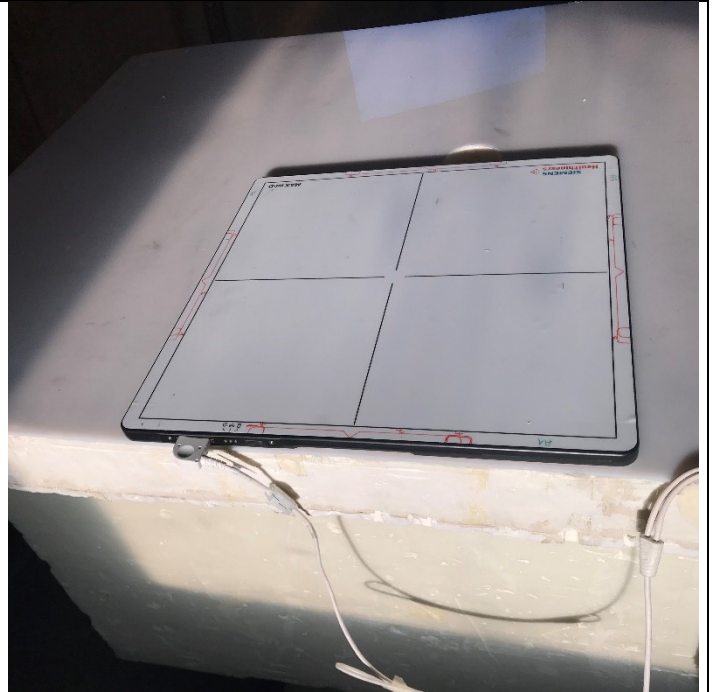


Test Set up for radiated measurement in open area test site

For measurement with test fixture is used, the power level calibration of the spectrum analyzer shall then be related to the power level or field strength measured with temperature during OATS measure taking in consideration in climatic chamber. The calculation will be used to calculate the absolute level of the sideband power.

Frequency band 13.110-14.010MHz

Following plots show radiated emission level in the frequency band 13.110-14.010MHz with a RBW of 9kHz and a quasi-peak detector. The graphs are obtained with a measuring receiver.

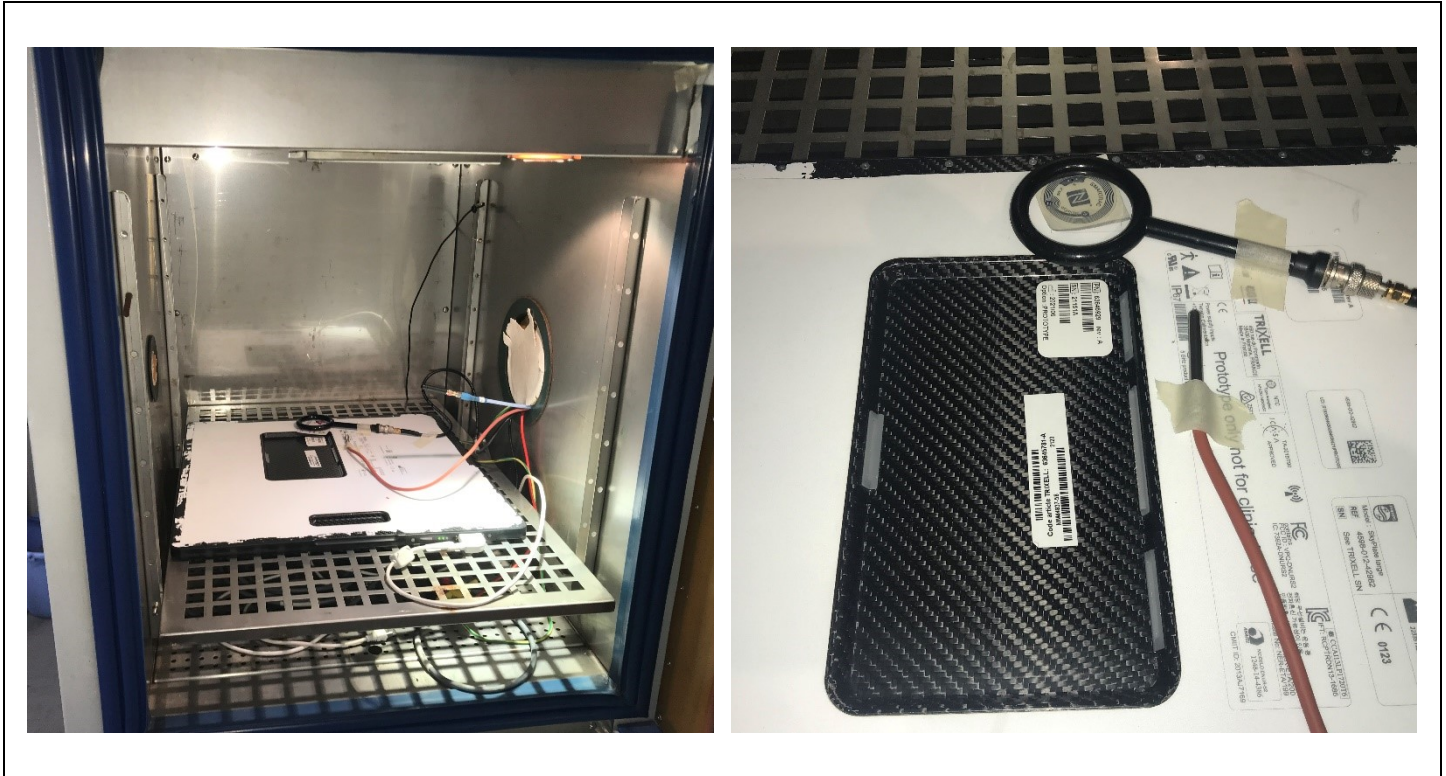


AXIS XY on OATS



AXIS Z on OATS

Photograph for Field strength within the band 13.110-14.010MHz in OATS



Photograph for Field strength within the band 13.110-14.010MHz in Climatic Chamber (normal condition)

7.3. LIMIT

Frequency (MHz)	Field strength ($\mu\text{V/m}$) @30m	Field strength ($\text{dB}\mu\text{V/m}$) @30m	Field strength ($\text{dB}\mu\text{V/m}$) @3m
13.553-13.567	15 848	84.0	124.0
13.410-13.553 13.567-13.710	334.0	50.5	90.5
13.110-13.410 13.710-14.010	106.0	40.5	80.5
Below 13.110MHz Above 14.010MHz	30.0	29.5	69.5



LCIE

7.4. TEST EQUIPMENT LIST

TEST EQUIPMENT USED on OATS					
Description	Manufacturer	Model	Identifier	Cal_Date	Cal_Due
Antenna Loop	ELECTRO-METRICS	EM-6879	C2040052	06/19	06/22
Multimeter - CEM	FLUKE	87	A1240251	03/21	03/23
Power supply DC	METRIX	AX503	A7042308		
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	01/23
Antenna Mat (OATS)	ETS Lingren	2071-2	F2000392		
Cable (OATS)	—	1GHz	A5329623	08/21	08/22
Emission Cable	—	6GHz	A5329069	04/21	04/22
Emission Cable	SUCOFLEX	6GHz	A5329061	08/21	08/22
OATS	—	—	F2000409	04/21	04/22
Rehausse Table C1/OATS	LCIE	—	F2000512		
Table C1/OATS	LCIE	—	F2000445		
Turntable (OATS)	ETS Lingren	Model 2187	F2000403		
Turntable / Mast controller (OATS)	ETS Lingren	Model 2066	F2000372		

TEST EQUIPMENT USED in climatic chamber					
Description	Manufacturer	Model	Identifier	Cal_Date	Cal_Due
AC source 1kW	KEYSIGHT	AC6802A	A7042305		
Antenna Loop (near field)	ELECTRO-METRICS	EM-6993	C2040215	06/19	06/22
Attenuator 10dB	AEROFLEX	—	A7122267	08/21	08/23
Cable SMA 2m	—	6GHz	A5329637	06/20	06/22
Climatic chamber	BIA CLIMATIC	CL 6-25	D1022117	12/20	12/22
Data Logger (CEM1)	AGILENT	34970A	A6440083	11/20	11/22
Multimeter - CEM	FLUKE	87	A1240251	03/21	03/23
Spectrum Analyzer 9kHz - 6GHz	ROHDE & SCHWARZ	FSL6	A2642020	08/20	08/22
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	01/21	01/23

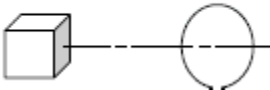
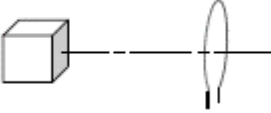
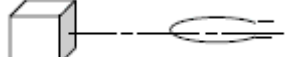
7.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None Divergence:

7.6. RESULTS

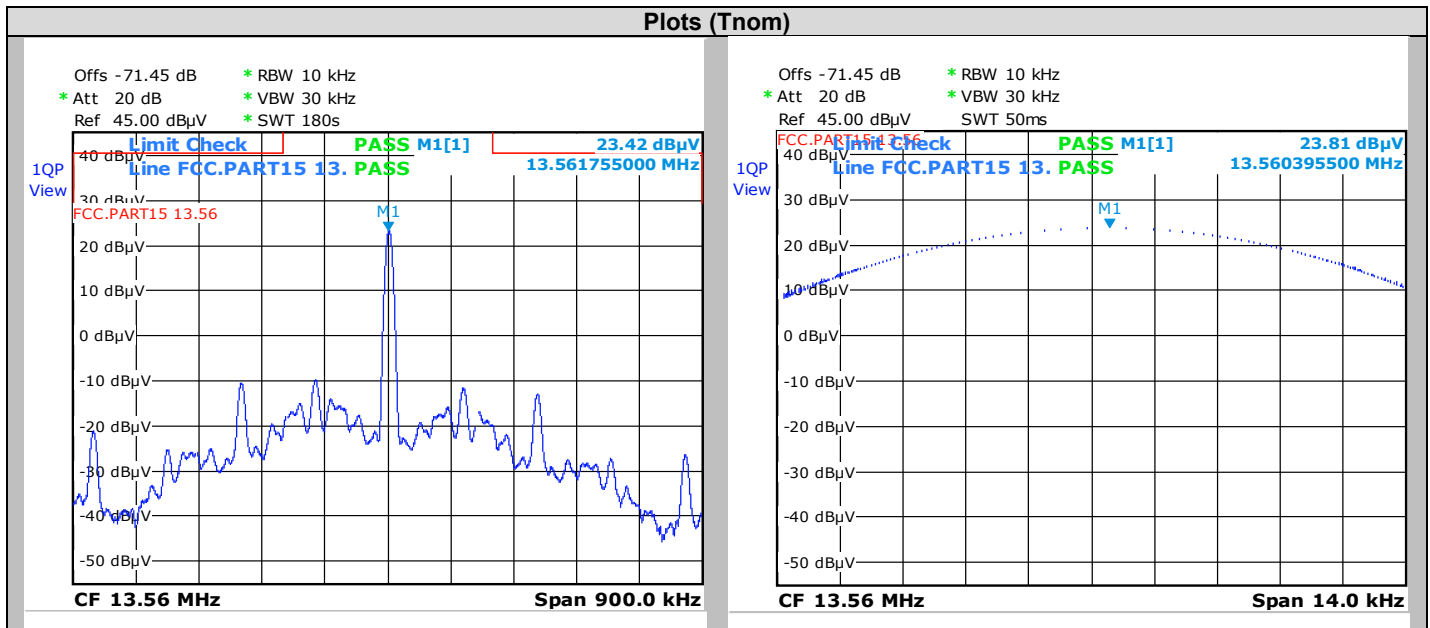
Results on OATS test conditions:

Frequency (MHz)	QPeak Limit (dBµV/m) @ 30m	Qpeak (dBµV/m) @ 30m	Margin (Mes-Lim) (dB)	Angle Table (deg)	Pol Ant.	Ht Ant. (cm)	Correc. Factor (dB)	Comments
13.56	84	24.5	-59.5	0°	180°	150	35.6	Worst case

Diagram	Axis
	Parallel Axis (0°)
	Perpendicular Axis (90°)
	Ground Parallel Axis (180°)

Note: Measure have been done at 10m distance and corrected according to requirements of 15.209.e) ($M@30m = M@10m - 19.1dB$)

Results under Normal condition



7.7. CONCLUSION

Field strength within the band 13.110-14.010MHz measurement performed on the sample of the product **TRIXELL Pixium 4343 EZ3**, SN: **P21151A**, in configuration and description presented in this test report, show levels **compliant** to the 47 CFR PART 15.225 & RSS 210 limits.

8. UNCERTAINTIES CHART

47 CFR Part 15.209 & 15.207 Kind of test	Wide uncertainty laboratory (k=2) ±x(dB) / (Hz)/ ms	Uncertainty limit
Measurement of conducted disturbances in voltage on the AC power port (9 kHz – 150 kHz)	2,67	3.8
Measurement of conducted disturbances in voltage on the AC power port (150 kHz – 30 MHz)	2,67	3.4
Measurement of conducted disturbances in voltage on the telecommunication port. (AAN)	3,67	5.0
Measurement of conducted disturbances in current (current clamp)	2,73	2.9
Measurement of disturbance power	2,67	4.5
Measurement of radiated magnetic field from 10kHz to 30MHz in SAC V01	4,48	/
Measurement of radiated magnetic field from 10kHz to 30MHz in SAC C01	4,48	/
Measurement of radiated electric field from 30 to 1000MHz in horizontal position on the OATS (Ecuellas)	4,88	6.3
Measurement of radiated electric field from 1 to 18GHz on the Ecuellas site	5.16	/
Measurement of radiated electric field from 30 to 1000MHz in vertical position on the OATS (Ecuellas)	4,99	6.3
Measurement of radiated electric field from 30 to 1000MHz in horizontal position in SAC C01	5,08	6.3
Measurement of radiated electric field from 30 to 1000MHz in vertical position in SAC C01	5,16	6.3
Measurement of radiated electric field from 30 to 1000MHz in horizontal position in SAC V01	5,08	6.3
Measurement of radiated electric field from 30 to 1000MHz in vertical position in SAC V01	5,15	6.3
Measurement of radiated electric field from 1 to 6 GHz C01	5,1	5.2
Measurement of radiated electric field from 1 to 6 GHz V01	4,85	5.2
Measurement of radiated magnetic field from 10kHz to 30MHz on the OATS (Ecuellas)	4,48	/

The uncertainty values calculated by the laboratory are lower than limit uncertainty values defined by the CISPR. The conformity of the sample is directly established by the applicable limits values. This table includes all uncertainties maximum feasible for testing in the laboratory, whether or not made in this report