



LCIE

TEST REPORT

N°: 148983-704526

Version : 01

Subject

Electromagnetic compatibility (EMC) :
Publication CFR 47 PART 15 of 2013 & ICES-003 of 2012

Issued to

TECHNICOLOR CONNECTED HOME
975, Avenue des Champs Blancs
35576 CESSON SEVIGNE CEDEX
FRANCE

FCC/IC grantee contact

5030 Sugarloaf Parkway, Building 6
Lawrenceville, GA 30044
United States

Apparatus under test

↔ Product Set Top Box OTT (Over The Top)
↔ Trade mark Technicolor Player
↔ Manufacturer Technicolor
↔ Model under test UIW4010TCH
↔ Serial number AREYDD01596C
↔ FCC ID G95-UIW4010TCH
↔ IC 431C-UIW4010TCH

Test date

May 19, 2017

Test location

LCIE, Fontenay Aux Roses

Test performed by

Stephane Camboue

Composition of document

18 pages

Document issued on

June 21, 2017

Written by :
Stephane Camboue
Tests operator



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LCIE

Laboratoire Central des Industries Electriques
Une société de Bureau Veritas

33, Av du Général Leclerc
92266 Fontenay Aux Roses
FRANCE

Tél : +33 1 40 95 60 60
contact@lcie.fr
www.lcie.fr



PUBLICATION HISTORY

Version	Date	Author	Modification
01	June 21, 2017	Stephane Camboue	Creation of the document



SUMMARY

1.	TEST PROGRAM.....	4
2.	EQUIPMENT DESCRIPTION (DECLARED BY PROVIDER).....	5
3.	MEASUREMENT OF RADIATED EMISSIONS	8
4.	MEASUREMENT OF CONDUCTED DISTURBANCE.....	13
5.	UNCERTAINTIES CHART.....	18



1. Test Program

References

- ✓ CFR 47 Part 15 Subpart B - Radio frequency devices - Unintentional radiators October 2013
- ✓ ICES -003 of 2012
- ✓ ANSI 63.4 of 2014

Emission tests:

Test Description	Main characteristics	Test result - Comments
Measurement of radiated electric field in shielded room 15.109 (a) & (c)	<input type="checkbox"/> Class A <input checked="" type="checkbox"/> Class B	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL <input type="checkbox"/> NA <input type="checkbox"/> NP (Limited Program)
Measurement of radiated electric field in open space	<input type="checkbox"/> Class A <input type="checkbox"/> Class B	<input type="checkbox"/> PASS <input type="checkbox"/> FAIL <input checked="" type="checkbox"/> NA <input type="checkbox"/> NP (Limited Program)
Measurement of conducted disturbance on the AC main power port 15.107 (a) (c) (d)	<input type="checkbox"/> Class A <input checked="" type="checkbox"/> Class B	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL <input type="checkbox"/> NA <input type="checkbox"/> NP (Limited Program)

The product is compliant according to CFR 47 Part 15 Subpart B - Radio frequency devices - Unintentional radiators October 2013 & ICES -003 of 2012 standards.

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 Description (declared by provider)

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT): UIW4010TCH

Serial Number: AREYDD01596C

Equipment Under Test



Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Under test	Comments
Power supply AC	HONOR ADS-28UC-12 12018EPCU-L (US type)	1.50	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L1-N
Audio / Video Output	HDMI	-	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-
Communication port	RJ45	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
Screen	-	-	4K HD
Remote control	TECHNICOLOR	-	-
Programmable AC power supply	A7360017	FC210	Provided by LCIE

Equipment information: (Declared by provider)

Apparatus Description	The apparatus under test is an OTT (over the top) set top box		
Type of power source:	<input checked="" type="checkbox"/> AC power supply	<input type="checkbox"/> DC power supply	<input type="checkbox"/> Battery (Select Type)
Test source voltage:	Vmin-Vmax:	<input checked="" type="checkbox"/> 120V -60Hz	<input type="checkbox"/> Vdc
Operating Modes	Mode 1	IPTV over Ethernet Target characteristics: <ul style="list-style-type: none"> • Color Bar with small moving element • Container : MP4 • Audio codec: LC-AAC. Sample Rate: 48kHz • Video Codec : H264 • Video Bitrate : 12Mbps 1080p/25 • Audio Bitrate : Stereo 384kbps • HDMI output format: UHD 3840pixels/2160pixels 	
	Mode 2	-	
	Mode 3	-	
Performance level defined by the manufacturer (only for immunity tests)	Criterion A: no Audio/Video degradation allowed Criterion B: Audio/Video degradation allowed but must recover itself after the end of the perturbation Criterion C: Temporary loss of function is allowed provided it can be restored by cycling of the power to the EUT by the user		



2.2. EQUIPMENT LABELLING

UIW4010TCH


Technicolor Player
UIW4010TCH



SN: AREYDD01596C

FCC ID: G95-UIW4010TCH
IC: 431C-UIW4010TCH

Manufactured under license from Dolby Laboratories. Dolby, Dolby Audio
and the double-D symbol are trademarks of Dolby Laboratories.

Made in Vietnam
12 V DC 18W  1.5A

2.3. EQUIPMENT MODIFICATIONS

None Modification:



3. Measurement of radiated emissions

3.1. ENVIRONMENTAL CONDITIONS

Test performed by : **Stephane Camboue**
Date of test : May 19, 2017
Ambient temperature : 20°C
Relative humidity : 40%

3.2. TEST SETUP

Specifications:

Frequency	30 – 1000 MHz	RBW 120 kHz
	1-6GHz	RBW 1MHz
Detector	Peak and Quasi-Peak	

Pre characterization in semi anechoic room is performed to define the critical frequencies

Operating conditions:

- The Equipment under Test is installed:

- Measure in semi anechoic room
 Measure in open area site

- Measuring distance:

- 3m
 10m

- Deviation method:

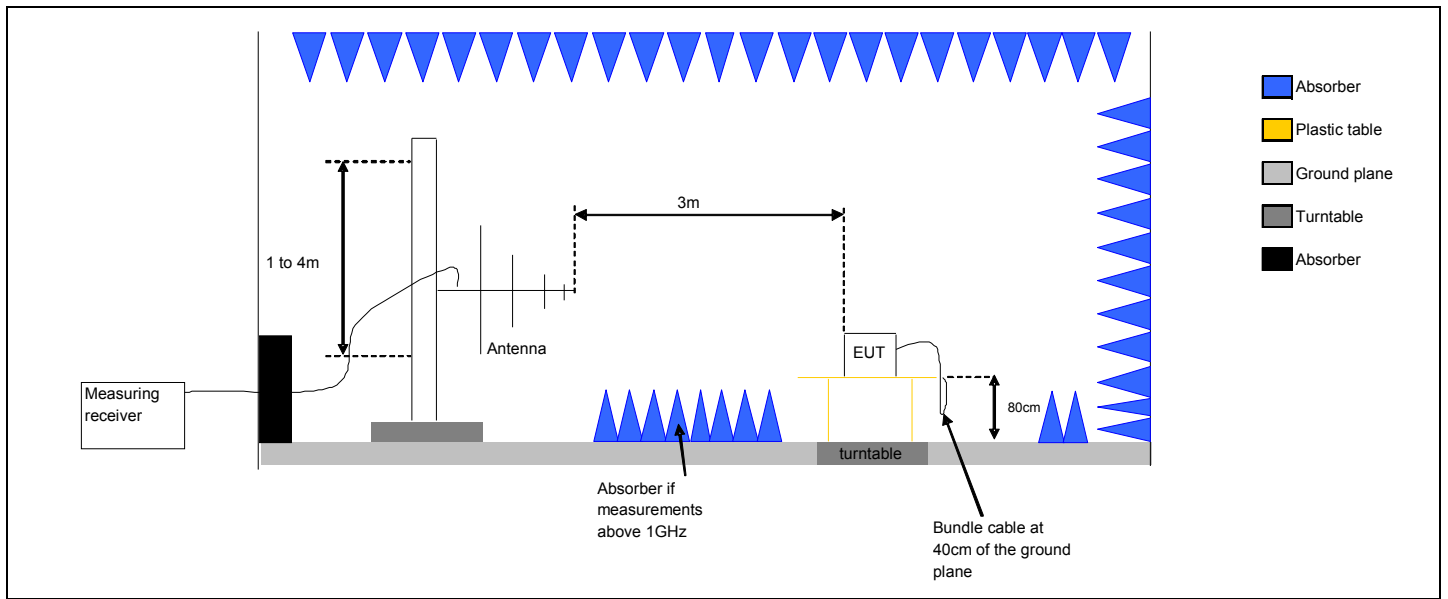
- Yes
 No

-Product installation:

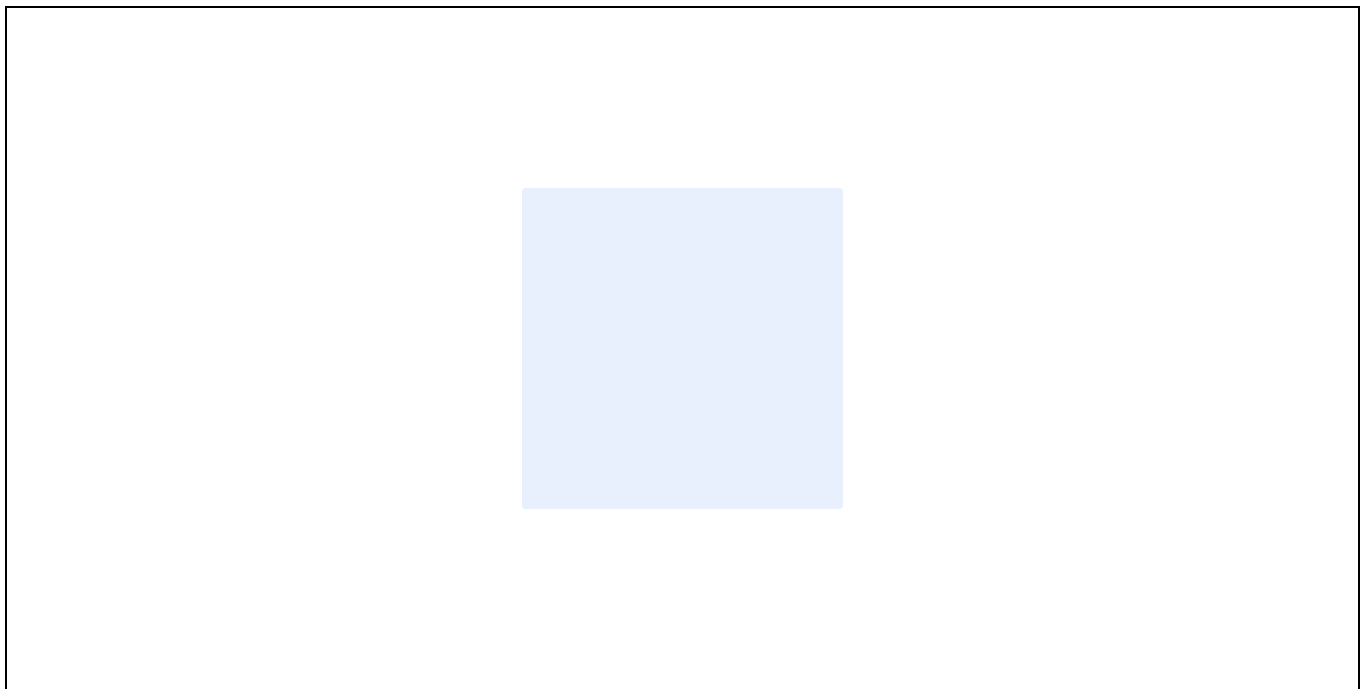
- The EUT was tested as a tabletop equipment and was placed on a non-conducting platform the top of which is 0.8m above the metal ground plane.
 The EUT is at 10cm height from reference plane

Operating mode:

- Mode 1 Mode 2 Mode 3 ...



Test Set up for radiated measurement in semi anechoic chamber



Measurement of radiated disturbances.



3.3. LIMIT

at 3m Class A

Frequency Bands/frequencies	dB (µV/m) quasi-peak	dB (µV/m) peak	dB (µV/m) average
30-88MHz	49.5	-	-
88 – 216MHz	53.9	-	-
216 – 960 MHz	56.9	-	-
960 – 1000 MHz	60	-	-
1000-6000MHz	-	80	60

at 3m Class B

Frequency Bands/frequencies	dB (µV/m) quasi-peak	dB (µV/m) peak	dB (µV/m) average
30-88MHz	40	-	-
88 – 216MHz	43.5	-	-
216 – 960 MHz	46	-	-
960 – 1000 MHz	53.9	-	-
1000-6000MHz	-	73.9	53.9

at 10m Class A

Frequency Bands/frequencies	dB (µV/m) quasi-peak	dB (µV/m) peak	dB (µV/m) average
30-88MHz	39.5	-	-
88 – 216MHz	43.9	-	-
216 – 960 MHz	46.9	-	-
960 – 1000 MHz	50	-	-
1000-6000MHz	-	70	50

at 10m Class B

Frequency Bands/frequencies	dB (µV/m) quasi-peak	dB (µV/m) peak	dB (µV/m) average
30-88MHz	30	-	-
88 – 216MHz	33.5	-	-
216 – 960 MHz	36	-	-
960 – 1000 MHz	43.9	-	-
1000-6000MHz	-	63.9	43.9

3.4. TEST EQUIPMENT LIST

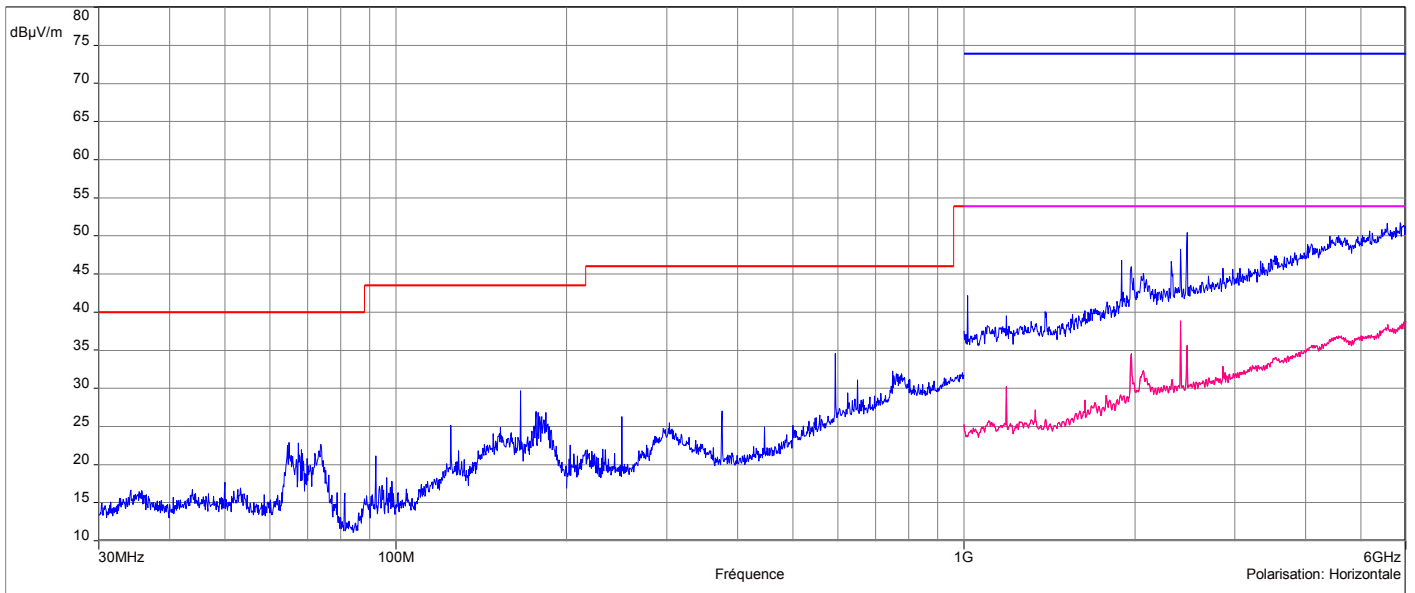
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESU26	A2642018	2016/10	2017/10
Cable	CABLES & CONNECTIQUES	2.9MD/CSU440AA/2.9MD/1000	A5329428	2016/06	2017/06
Cable	CABLES & CONNECTIQUES	3.5MD/CSU528AA/3.5MC/4000	A5329431	2016/05	2017/05
RF cable	RADIALL; CDI	30990-7M	A5329711	2016/05	2017/05
Preamplifier	LCIE		A7086012	2017/02	2018/02
Bilog antenna	SCHWARZBECK	VULB 9160	C2040150	2016/05	2017/05
Horn antenna	-; A-INFOMW	LB-10180-NF	C2042050	2016/08	2017/08
Semi anechoic chamber	SIEPEL	-	D3044008	2016/06	2017/06



3.5. RESULTS

Diagram N°1

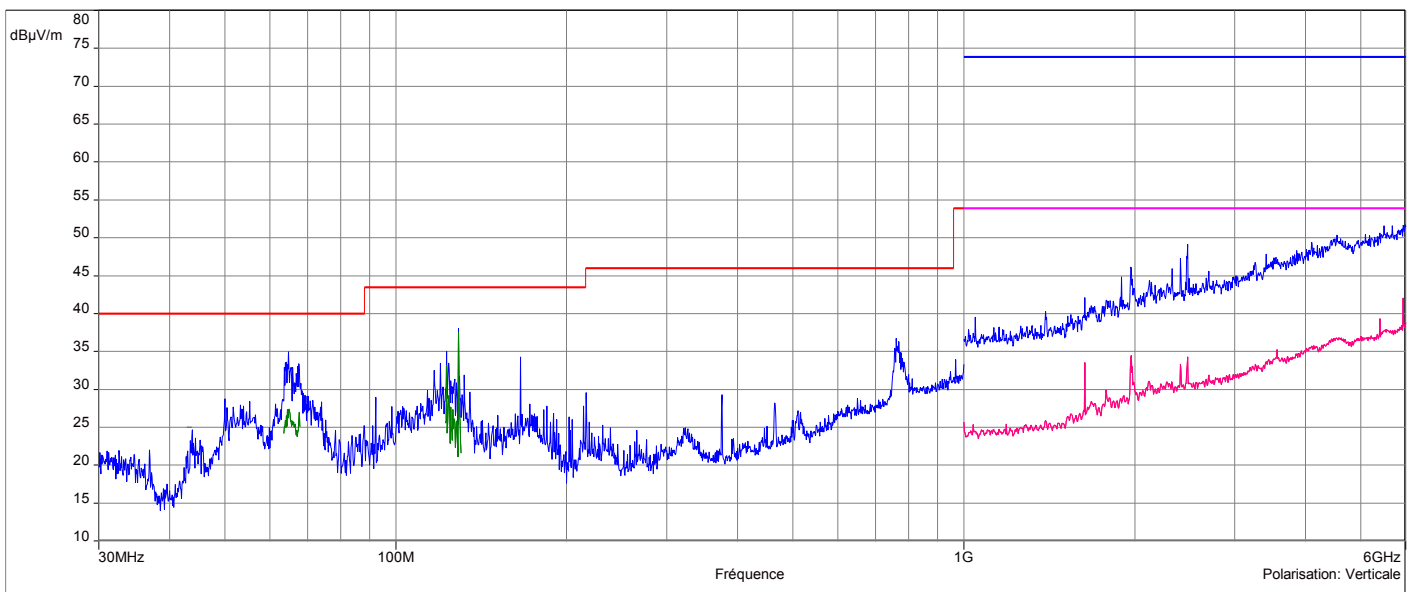
- FCC/FCC 15.109 - Classe: - Moyenne/3.0m/
- FCC/FCC 15.109 - Classe: - QCrête/3.0m/
- FCC/FCC 15.109 - Classe: - Crête/3.0m/
- Mes.Peak (Horizontale)
- Mes.Avg (Horizontale)



Horizontal Polarization (30MHz-6GHz)

Diagram N°2

- FCC/FCC 15.109 - Classe: - Moyenne/3.0m/
- FCC/FCC 15.109 - Classe: - QCrête/3.0m/
- FCC/FCC 15.109 - Classe: - Crête/3.0m/
- Mes.Peak (Verticale)
- Mes.QPeak (Verticale)
- Mes.Avg (Verticale)



Vertical Polarization (30MHz-6GHz)



3.6. CONCLUSION

Measures of Radiated Emission, performed on the sample of the product UIW4010TCH, SN: AREYDD01596C, in configuration and description presented in this test report, show levels conform to the FCC part 15 & ICES -003 limits.



4. Measurement of conducted disturbance

4.1. ENVIRONMENTAL CONDITIONS

Test performed by : **Stephane Camboue**
Date of test : May 19, 2017
Ambient temperature : 20°C
Relative humidity : 40%

4.2. TEST SETUP

Specifications:

Frequency 0.15 – 30 MHz RBW 9 kHz
Detector Peak , Quasi Peak and average

The measurement is performed on power supply with a LISN and telecommunication lines with RSI or current clamp for shielded cables.

Operating conditions:

- Deviation method:

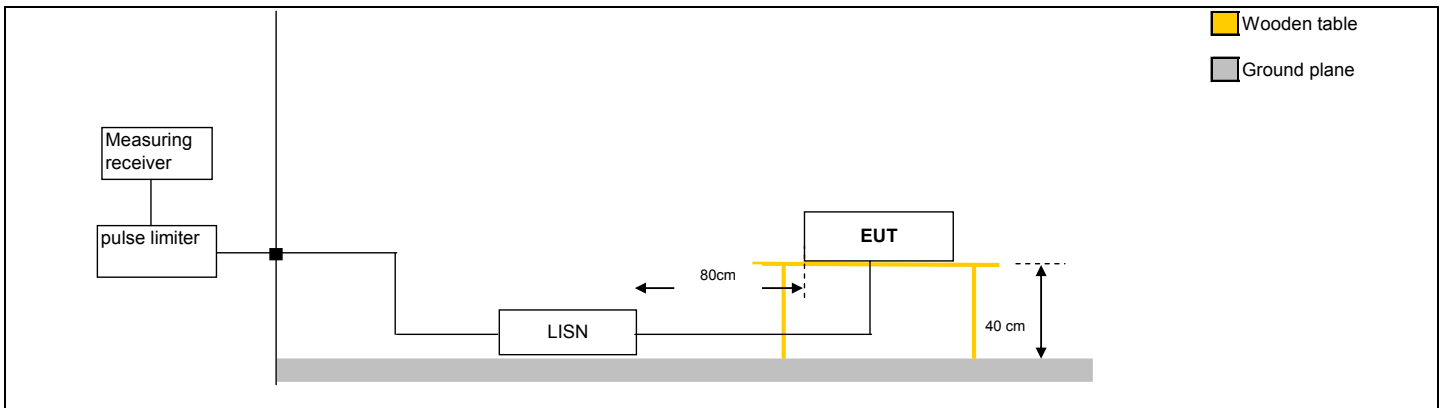
- Yes
 No

-Product installation:

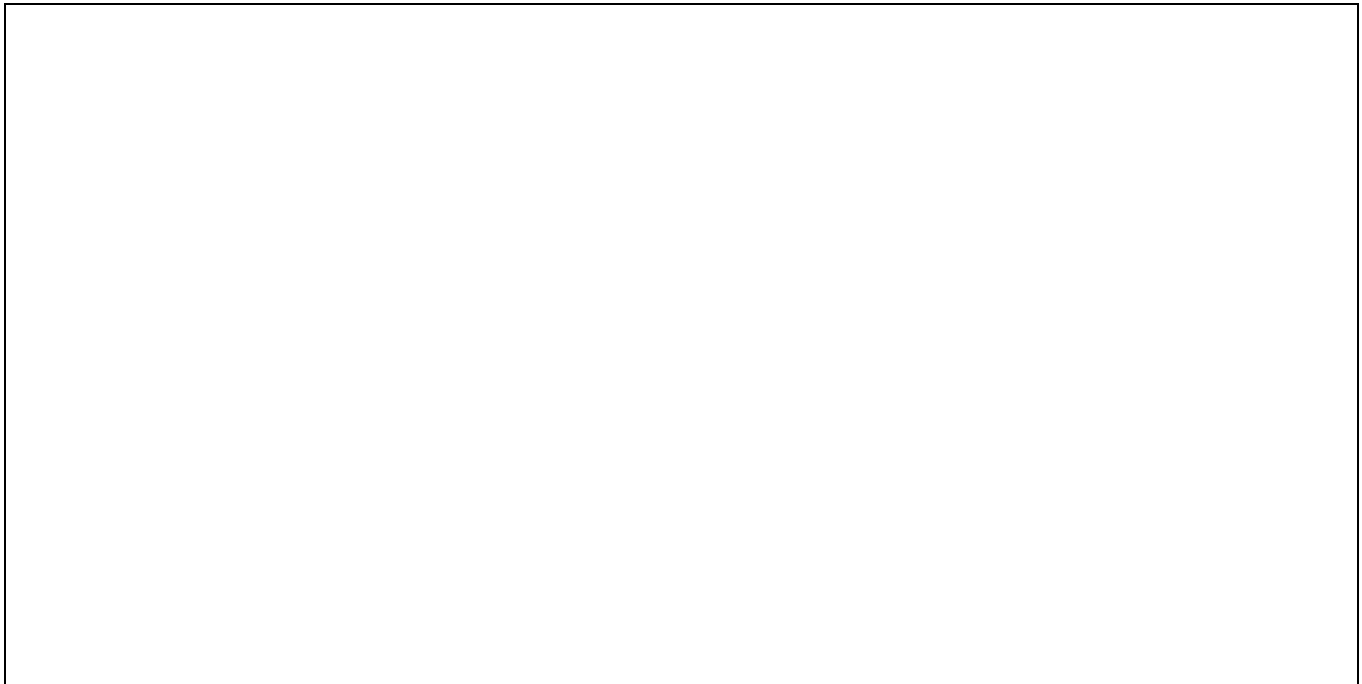
- The EUT is installed on a wooden table 80 cm above the reference plane, at 80cm of the LISN and at 40cm of the vertical conductive wall
 The EUT is installed on a wooden table 40 cm above the reference plane, at 80cm of the LISN.
 The EUT is installed 10 cm above the reference plane, at 80cm of the LISN..

Operating mode:

- Mode 1 Mode 2 Mode 3 ...



Test set up of conducted emission on power supply



Test set up of conducted emission on power supply



4.3. LIMIT

Power supply Class A

Frequency Bands/frequencies	dB ($\mu\text{V}/\text{m}$) quasi-peak	dB ($\mu\text{V}/\text{m}$) average
0.15-0.5MHz	79	66
0.5-30 MHz	73	60

Power supply Class B

Frequency Bands/frequencies	dB ($\mu\text{V}/\text{m}$) quasi-peak	dB ($\mu\text{V}/\text{m}$) average
0.15-0.5MHz	66-56	56-46
0.5-5 MHz	56	46
5-30 MHz	60	50

4.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
EMI receiver	ROHDE & SCHWARZ	ESU26	A2642018	2016/10	2017/10
pulse limiter	ROHDE & SCHWARZ	ESH3-Z2	A2649005	2016/12	2017/12
Cable	CABLES & CONNECTIQUES		A5329411	2016/06	2017/06
V LISN	ROHDE & SCHWARZ	ESH3-Z5	C2322003	2016/08	2017/08
Semi anechoic chamber	SIEPEL	-	D3044008	2016/06	2017/06



4.5. RESULTS

Diagram N°1

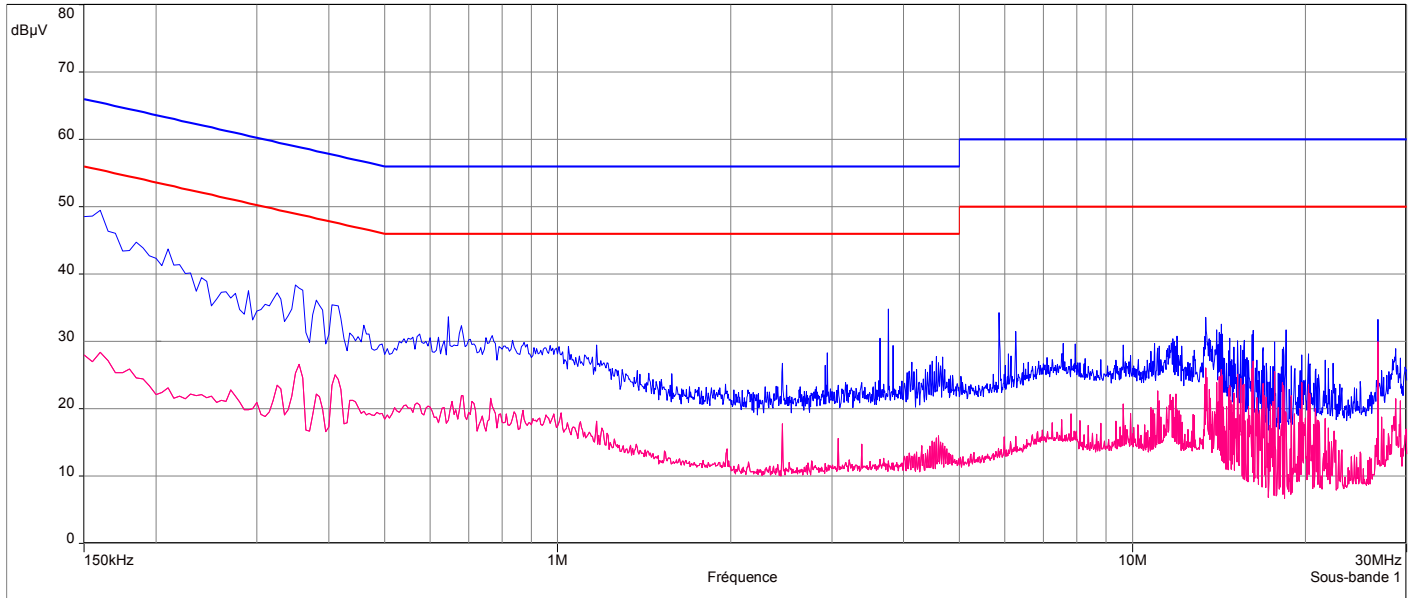
Description Sous-bande 1

Fréquences: 150 kHz - 30 MHz (Mode: Lin, Pas: 5 kHz)

Réglages: RBW: 9 kHz, VBW: Auto, Durée balayage: 50 ms/Pts, Atténuation: 172839248, Nombre de Balayages: 1, Preamp: Off, LN Preamp: Off, Sélection: Mes. Peak (Phase 1)

Ligne: Phase 1

— Civil 55022/EN 55022 Conduit Alim - Classe:B - Moyenne/
— Civil 55022/EN 55022 Conduit Alim - Classe:B - QCrête/
— Mes. Peak (Phase 1)
— Mes.Avg (Phase 1)



Phase

Diagram N°2

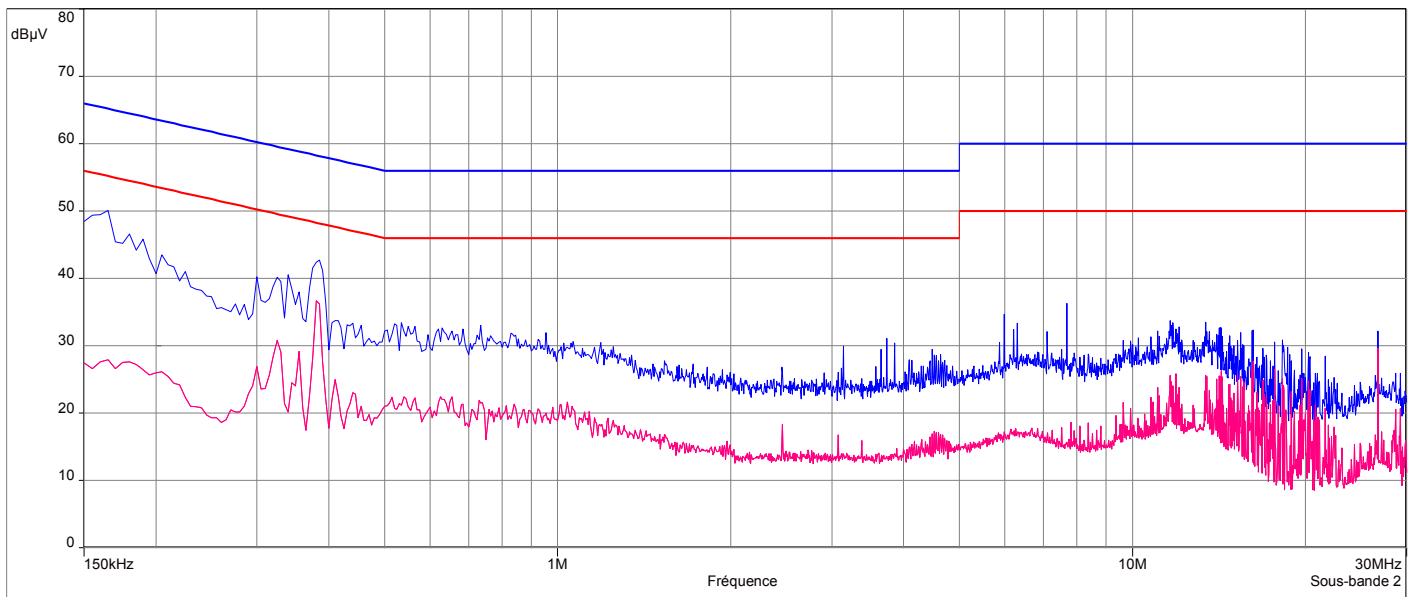
Description Sous-bande 2

Fréquences: 150 kHz - 30 MHz (Mode: Lin, Pas: 5 kHz)

Réglages: RBW: 9 kHz, VBW: Auto, Durée balayage: 50 ms/Pts, Atténuation: 172839280, Nombre de Balayages: 1, Preamp: Off, LN Preamp: Off, Sélection: Mes. Peak (Neutre)

Ligne: Neutre

— Civil 55022/EN 55022 Conduit Alim - Classe:B - Moyenne/
— Civil 55022/EN 55022 Conduit Alim - Classe:B - QCrête/
— Mes. Peak (Neutre)
— Mes.Avg (Neutre)



Neutral



4.6. CONCLUSION

Measures of Conducted Emission, performed on the sample of the product UIW4010TCH, SN: AREYDD01596C, in configuration and description presented in this test report, show levels conform to the FCC part 15 & ICES -003 limits.



5. Uncertainties Chart

Kind of measurement	Wide uncertainty laboratory (k=2) $\pm x$ (dB)	CISPR uncertainty limit $\pm y$ (dB)
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	/

End of test report