Accreditation
N°1-1633
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Template : April 10th, 2024

TEST REPORT

N°: **21806588-799391-C(FILE#8175439)** Version: **01**

Subject	**Electromagnetic compatibility tests according to the standards:** **FCC CFR 47 Part 15, Subpart B** **ANSI C63.4 / ANSI C63.4a** **ICES-003**
Issued to	**EWATTCH** 13 Rue Maurice Jeandon 88100 - SAINT-DIE-DES-VOSGES FRANCE
Apparatus under test	
Product	**SQUID PRO LoRaWAN**
Trade mark	**EWATTCH**
Manufacturer	**EWATTCH**
Model under test	**SQUID-PRO**
Serial number	**70B3D5475012134E**
FCCID	**2BBDC-SQUID-PRO-01**
IC	**31217-SQUIDPRO01**
Conclusion	See Test Program chapter
Test date	April 04, 2024 to April 11, 2024
Test location	LCIE Grenoble
FCC Test site	FR0008 - 197516 (MOI)
ISED Test site	6500A (MOI)
Sample receipt date	April 01, 2024
Composition of document	23 pages
Document issued on	April 29, 2024

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PUBLICATION HISTORY

Version	Date	Author	Modification
01	April 29, 2024	Akram HAKKARI	Creation of the document

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

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1. TEST PROGRAM

Standard:

- ✓ **FCC Part 15, Subpart B (Digital Devices)**
- ✓ **ANSI C63.4 (2014) / ANSI C63.4a (2017)**
- ✓ **ICES-003 (2020)**

1.1.1. Requirements for disturbance emissions – Class B

EMISSION TEST	LIMITS			RESULTS (Comments)
Limits for conducted disturbance 150kHz-30MHz **FCC §15.107 / ICES-003**	**Access: AC power**			**PASS**
	Frequency	**Quasi-peak**	**Average**	
	150-500kHz	66 to 56 dBµV	56 to 46 dBµV	
	0.5-5MHz	56 dBµV	46 dBµV	
	5-30MHz	60 dBµV	50 dBµV	
Radiated emissions 30MHz-1GHz **FCC §15.109**	**Access: Enclosure port of ancillary equipment**			**PASS**
	Frequency	**Quasi-peak @3m**		
	30MHz-88MHz	40.0 dBµV/m		
	88MHz-216MHz	43.5 dBµV/m		
	216MHz-960MHz	46.0 dBµV/m		
	Above 960MHz	54.0 dBµV/m		
Radiated emissions 30MHz-1GHz **ICES-003**	**Access: Enclosure port of ancillary equipment**			**PASS**
	Frequency	**Quasi-peak @3m**		
	30MHz-88MHz	40.0 dBµV/m		
	88MHz-216MHz	43.5 dBµV/m		
	216MHz-230MHz	46.0 dBµV/m		
	230MHz-960MHz	47.0 dBµV/m		
	Above 960MHz	54.0 dBµV/m		
Radiated emissions 1GHz-9.5GHz* **FCC §15.109 / ICES-003**	**Access: Enclosure port of ancillary equipment**			**PASS**
	Frequency	**Peak @3m**	**Average @3m**	
	1- 9.5GHz	74.0 dBµV/m	54.0 dBµV/m	

NA: Not Applicable / NP: Not Performed, not requested by the customer (It cannot be taken into account for the declaration of conformity)

[D]: Divergence, the last version is used to make it possible to test the product with the standard which describes the current state of the art and thus to answer as well as possible his environment of final use. If this test is covered by the COFRAC accreditation, the declaration of conformity for product standard only are carried out outside the framework of accreditation.

***§15.33:** The highest internal source of a testing device is defined like more the highest frequency generated or used in the testing device or on which the testing device works or agrees.

- If the highest frequency of the internal sources of the testing device is lower than 108 MHz, measurement must be only performed until 1GHz.
- If the highest frequency of the internal sources of the testing device ranges between 108 MHz and 500 MHz, measurement must be only performed until 2GHz.
- If the highest frequency of the internal sources of the testing device ranges between 500 MHz and 1 GHz, measurement must be only performed until 5GHz.

If the highest frequency of the internal sources of the testing device is above 1 GHz, measurement must be only performed until 5 times the highest frequency or 40 GHz, while taking smallest of both.

Special condition for intentional radiator:

- For a composite system comprised of a digital device using a clock frequency of 1 GHz as the highest frequency for the digital logic and an intentional radiator operating at 2.4 GHz, the composite is required to be investigated to the upper frequency of 24 GHz (in this case, 10 times the intentional radiator frequency is the higher frequency).

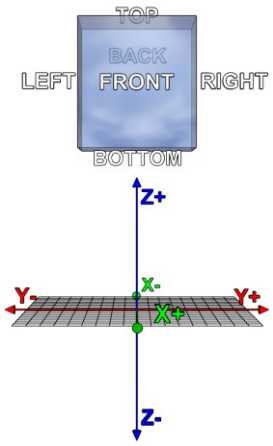
- For a composite system comprised of a digital device using a clock frequency of 2 GHz as the highest frequency for the digital logic and an intentional radiator operating at 913 MHz, the composite is required to be investigated to the upper frequency of 10 GHz (in this case, 5 times the unintentional radiator clock frequency is the higher frequency).

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

2.1. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES)

Equipment under test (EUT):

Model under test :	**SQUID-PRO**
Serial Number:	**70B3D5475012134E**



Dimensions:	103,5 x 87,8 x 62 mm (Length x Width x Height)
Type :	Panel / Rack / Cabinet (considered like table-top)

Power supply:

During all the tests, EUT is supplied by V_{nom}: **24VDC**

For measurement with different voltage, it will be presented in test method.

Name	Type	Rating	Reference / Sn	Comments
Supply1	DC	24 VDC	-	-

NC: Not communicated by provider

Inputs/outputs - Cable:

Access	Type	Length used (m)	Declared <3m	Shielded	Comments
Supply1	24 VDC	3	No	No	-
Access1	Sensor connector	2	Yes	No	-
Access2	Sensor connector	2	Yes	No	-
Access3	Sensor connector	2	Yes	No	-
Access4	Sensor connector	2	Yes	No	-
Access5	Sensor connector	2	Yes	No	-
Access6	Sensor connector	2	Yes	No	-
Access7	Sensor connector	2	Yes	No	-
Access8	Sensor connector	2	Yes	No	-
Access9	Sensor connector	2	Yes	No	-
Access10	Sensor connector	2	Yes	No	-
Access11	Sensor connector	2	Yes	No	-
Access12	Sensor connector	2	Yes	No	-
Access13	USB	1	Yes	Yes	Accessible only for testing
Access14	Connector (three-phase)	3	Yes	No	-

NC: Not communicated by provider

Auxiliary equipment used during test:

Type	Reference	Sn	Comments
Laptop	Lenovo Thinkpad	-	-

NC: Not communicated by provider

2.2. EUT CONFIGURATION

Hardware information			
Highest internal frequency (PLL, Quartz, Clock, Microprocessor…):	**$F_{Highest}$:**	**96**	**MHz**
Firmware (if applicable):	**V. :**	1.6	
Software (if applicable):	**V. :**	EWATTCH Product configurator	

NC: Not communicated by provider

Running mode n°1:

All communications are ON
All tests are done with OutputPower = 8dBm

2.3. EQUIPMENT MODIFICATIONS DURING THE TESTS

None

2.4. 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

2.5. TEST DISTANCE EXTRAPOLATION – FCC/ISED

The field strength is extrapolated to the new measurement distance using formula from FCC Part15.31 (f) and §6.5-6.6 RSS-GEN:

Below 30MHz,

$$FS_{\text{limit}} = FS_{\max} - 40\log\left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$$

Above 30MHz,

$$FS_{\text{limit}} = FS_{\max} - 20\log\left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$$

Where:
FS_{limit} is the calculation of field strength at the limit distance, expressed in dBµV/m
FS_{max} is the measured field strength, expressed in dBµV/m
$d_{measure}$ is the distance of the measurement point from the EUT
d_{limit} is the reference limit distance

2.6. 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. MEASUREMENT OF CONDUCTED EMISSION

3.1. TEST CONDITIONS

Test performed by	: Akram HAKKARI
Date of test	: April 5, 2024
Ambient temperature	: 20 °C
Relative humidity	: 32 %

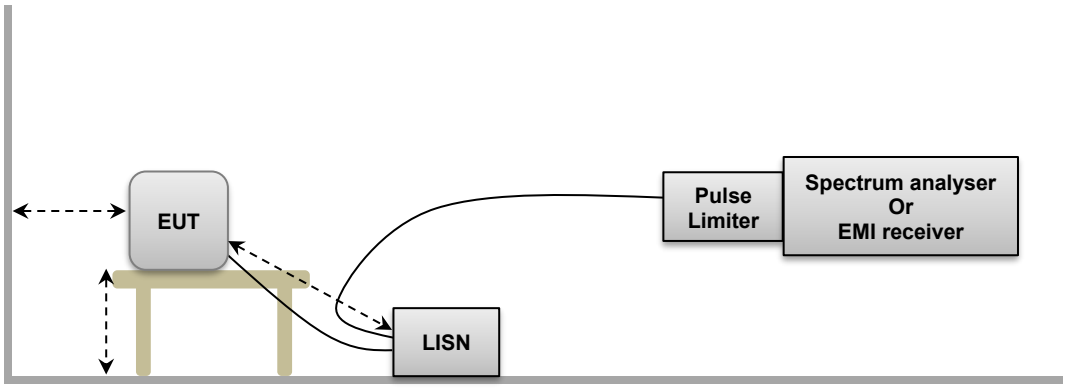
3.2. TEST SETUP

Test procedure:
ANSI C63.10 / C63.4 & FCC Part 15 subpart B/C

The EUT and auxiliaries are set 80cm above the ground on the non-conducting table (Table-top equipment) at 80cm from the LISN, the cable has been shorted to 1meter length. The distance between the EUT and the vertical ground plane is 40cm. Measurement is made with a receiver in peak mode. This was followed by a Quasi-Peak, i.e. CISPR measurement for any strong signal. If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary. Interconnecting cables and equipment were moved to position that maximized emission. The EUT is powered like specified in following table, through a LISN (measure); auxiliaries are powered by another LISN.

Frequency range:	**150kHz to 30MHz**	
Test:	**Pre-Characterization**	**Qualification**
RBW Filter:	10kHz	9kHz
Detector:	Peak & Average	QPeak & Cispr Average
Mode:	Linear Scan	

Type	**Measurement performed:**	
☑ AC / ☐ DC (Auxiliary used)	☑ 120VAC/60Hz	☑ 240VAC/50Hz
☐ USB (Laptop auxiliary)	☐ 120VAC/60Hz (Laptop auxiliary)	☐ 240VAC/50Hz (Laptop auxiliary)



Test setup of AC Power Line Conducted Emissions

Photo of AC Power Line Conducted Emissions

3.3. TEST EQUIPMENT LIST

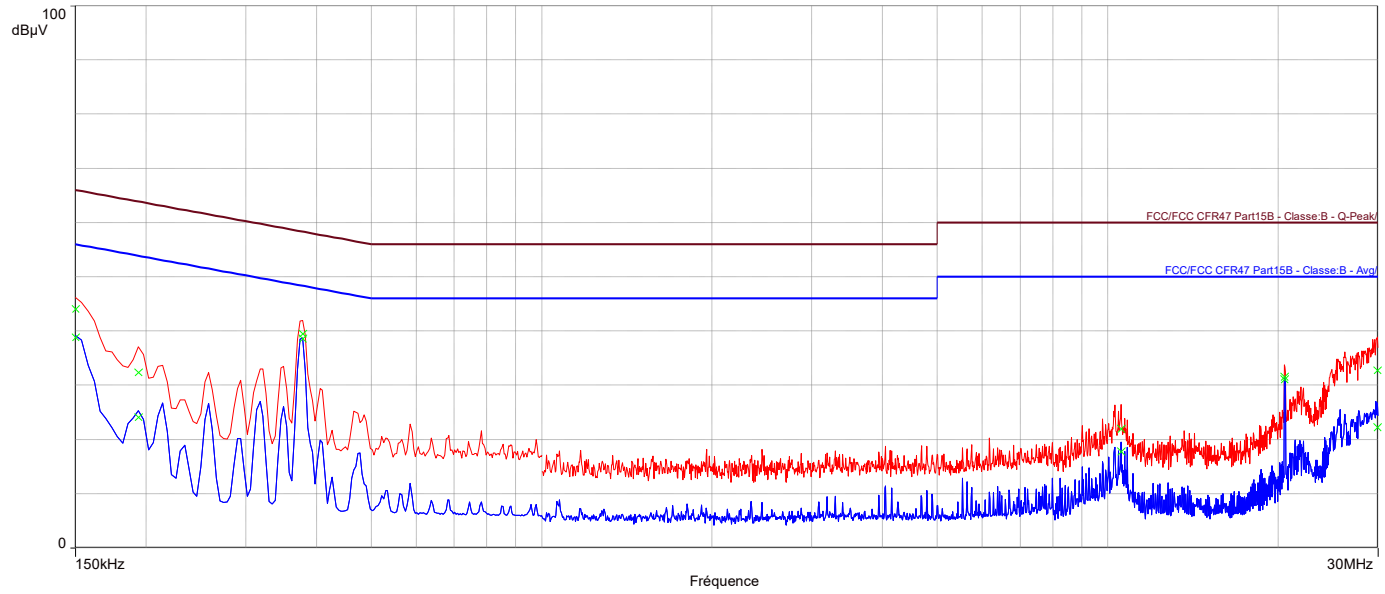
TEST EQUIPMENT USED					
Description	**Manufacturer**	**Model**	**Identifier**	**Cal_Date**	**Cal_Due**
BAT EMC	NEXIO	v3.21.0.32	L1000115		
Cable + self	_	_	A5329578	05/22	05/24
EMC comb generator	LCIE SUD EST	_	A3169098		
LISN	ROHDE & SCHWARZ	ENV216	C2320291	07/23	07/24
LISN tri-phase	ROHDE & SCHWARZ	ESH2-Z5	C2320062	07/23	07/24
LISN tri-phase	ROHDE & SCHWARZ	ESH2-Z5	C2320063	07/23	07/24
Receiver 20Hz – 8GHz	ROHDE & SCHWARZ	ESU8	A2642019	03/23	03/25
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	05/23	05/25
Transient limiter	ROHDE & SCHWARZ	ESH3-Z2	A7122204	08/22	08/24

3.4. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

3.5. TEST RESULTS – RUNNING MODE N°1

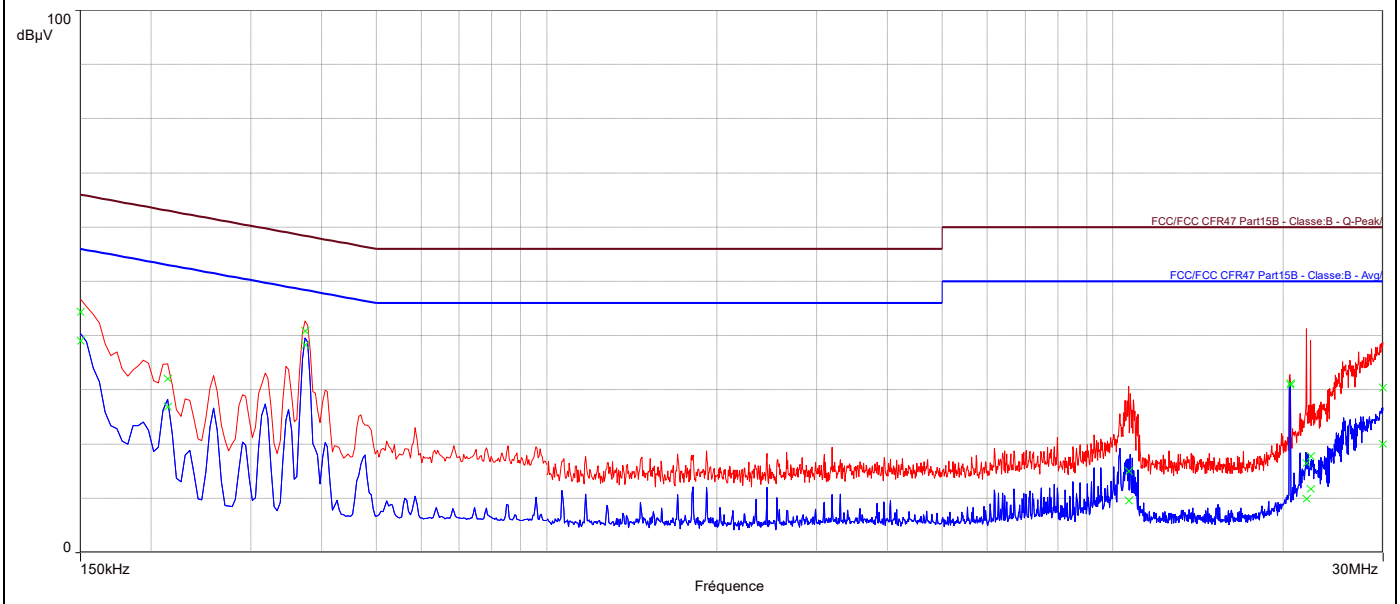
CONDUCTED EMISSIONS			
Graph name:	Emc#1	**Test configuration:**	
Limit:	FCC CFR47 Part15B	EWATTCH 240Vac 50Hz line NEW	
Class:	B		
Frequency range: [150kHz - 30MHz]			
Voltage / Frequency:		**RBW:** 10kHz	**VBW:** 30kHz
Line:		**Trace color & detector:**	PEAK AVG



Spurious emissions

Frequency (MHz)	QPeak (dBµV)	Lim.QPeak (dBµV)	QPeak-Lim.QPeak (dB)	CISPR.AVG (dBµV)	Lim.CISPR.AVG (dBµV)	CISPR.AVG-Lim.CISPR.AVG (dB)	Correction (dB)
0.15	44.16	66.00	-21.84	38.84	56.00	-17.16	19.56
0.194	32.42	63.86	-31.44	24.18	53.86	-29.68	19.72
0.378	39.52	58.32	-18.80	38.60	48.32	-9.72	19.75
10.56	22.00	60.00	-38.00	17.75	50.00	-32.25	19.88
20.516	31.60	60.00	-28.40	31.09	50.00	-18.91	20.35
29.936	32.76	60.00	-27.24	22.23	50.00	-27.77	20.76

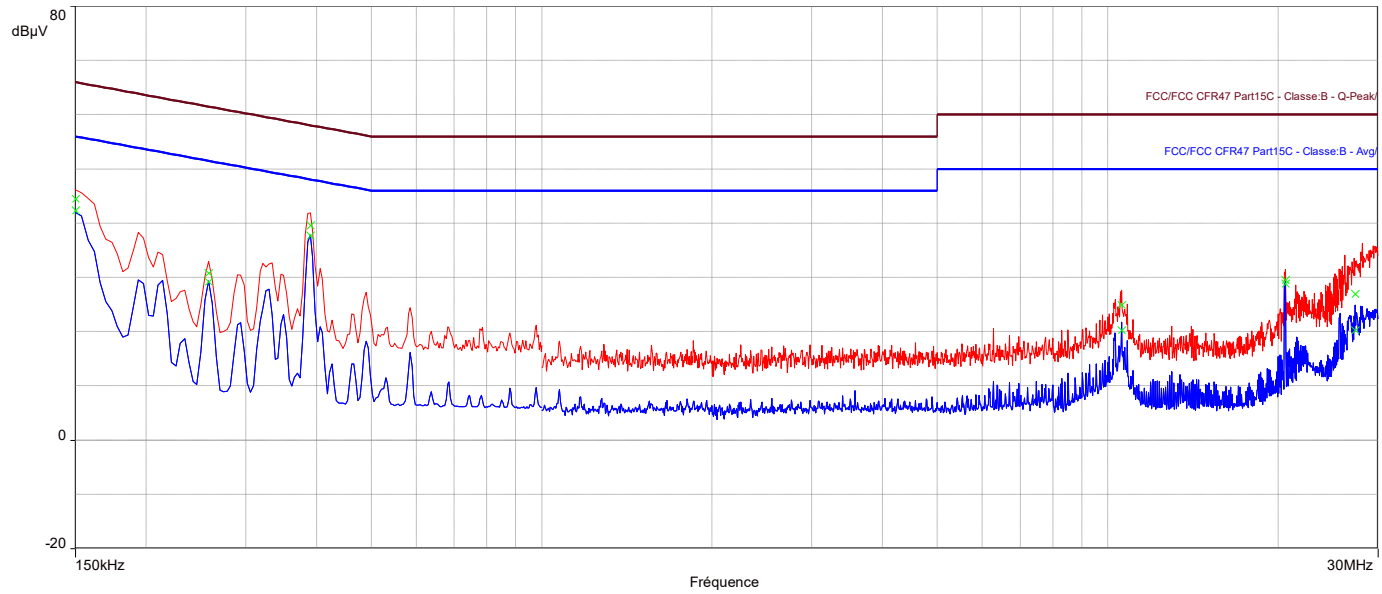
CONDUCTED EMISSIONS			
Graph name:	Emc#2	**Test configuration:**	
Limit:	FCC CFR47 Part15B	EWATTCH 240Vac 50Hz Neutral NEW	
Class:	B		
Frequency range: [150kHz - 30MHz]			
Voltage / Frequency:		**RBW:** 10kHz	**VBW:** 30kHz
Line:		**Trace color & detector:**	PEAK AVG



Spurious emissions

Frequency (MHz)	QPeak (dBµV)	Lim.QPeak (dBµV)	QPeak-Lim.QPeak (dB)	CISPR.AVG (dBµV)	Lim.CISPR.AVG (dBµV)	CISPR.AVG-Lim.CISPR.AVG (dB)	Correction (dB)
0.15	44.43	66.00	-21.57	39.10	56.00	-16.90	19.55
0.214	32.18	63.05	-30.87	26.90	53.05	-26.15	19.59
0.374	40.86	58.41	-17.56	38.33	48.41	-10.08	19.75
10.668	15.07	60.00	-44.93	9.60	50.00	-40.40	19.89
20.6	31.25	60.00	-28.75	30.97	50.00	-19.03	20.38
21.98	16.54	60.00	-43.46	10.03	50.00	-39.97	20.43
22.352	17.82	60.00	-42.18	11.83	50.00	-38.17	20.45
29.98	30.45	60.00	-29.55	20.10	50.00	-29.90	20.81

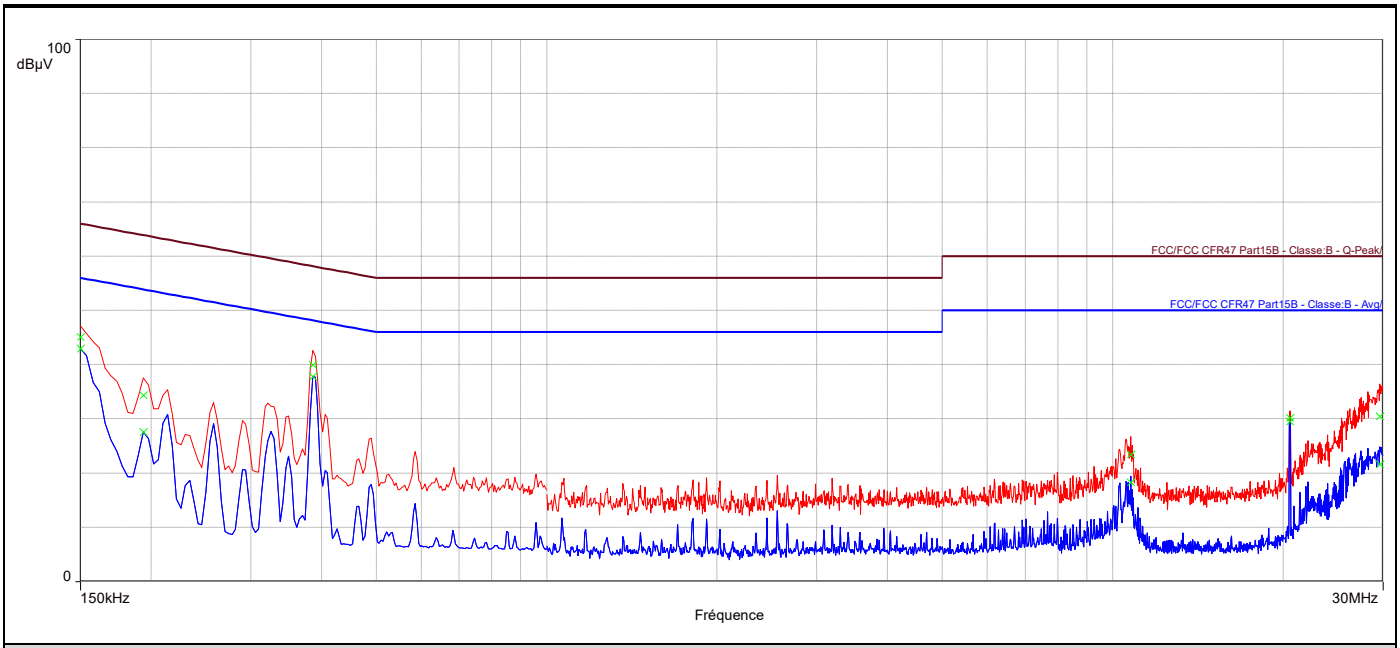
CONDUCTED EMISSIONS			
Graph name:	Emc#3	**Test configuration:**	
Limit:	FCC CFR47 Part15B	EWATTCH 120Vac 60Hz Line NEW	
Class:	B		
Frequency range: [150kHz - 30MHz]			
Voltage / Frequency:		**RBW:** 10kHz	**VBW:** 30kHz
Line:		**Trace color & detector:**	PEAK AVG



Spurious emissions

Frequency (MHz)	QPeak (dBµV)	Lim.QPeak (dBµV)	QPeak-Lim.QPeak (dB)	CISPR.AVG (dBµV)	Lim.CISPR.AVG (dBµV)	CISPR.AVG-Lim.CISPR.AVG (dB)	Correction (dB)
0.15	44.56	66.00	-21.44	42.39	56.00	-13.61	19.56
0.258	30.84	61.50	-30.65	29.23	51.50	-22.26	19.41
0.39	39.64	58.06	-18.42	37.73	48.06	-10.33	19.76
10.568	24.95	60.00	-35.05	20.35	50.00	-29.65	19.88
20.6	29.52	60.00	-30.48	28.90	50.00	-21.10	20.35
27.344	26.92	60.00	-33.08	20.35	50.00	-29.65	20.65

CONDUCTED EMISSIONS			
Graph name:	Emc#4	**Test configuration:**	
Limit:	FCC CFR47 Part15C	EWATTCH 120Vac 60Hz Neutral NEW	
Class:	B		
Frequency range: [150kHz - 30MHz]			
Voltage / Frequency:		**RBW:** 10kHz	**VBW:** 30kHz
Line:		**Trace color & detector:**	PEAK AVG



Spurious emissions

Frequency (MHz)	QPeak (dBµV)	Lim.QPeak (dBµV)	QPeak-Lim.QPeak (dB)	CISPR.AVG (dBµV)	Lim.CISPR.AVG (dBµV)	CISPR.AVG-Lim.CISPR.AVG (dB)	Correction (dB)
0.15	45.14	66.00	-20.86	42.98	56.00	-13.02	19.55
0.194	34.39	63.86	-29.48	27.61	53.86	-26.26	19.72
0.386	40.01	58.15	-18.14	37.86	48.15	-10.29	19.75
10.76	23.49	60.00	-36.51	18.36	50.00	-31.64	19.89
20.56	30.23	60.00	-29.77	29.60	50.00	-20.40	20.38
29.596	30.55	60.00	-29.45	21.73	50.00	-28.27	20.79

3.6. CONCLUSION

The sample of the equipment **SQUID-PRO**, Sn : **70B3D5475012134E**, tested in the configuration presented in this test report **satisfies** to requirements of the product family standard applied (See §Test Program) for conducted emissions.

4. MEASUREMENT OF RADIATED EMISSION

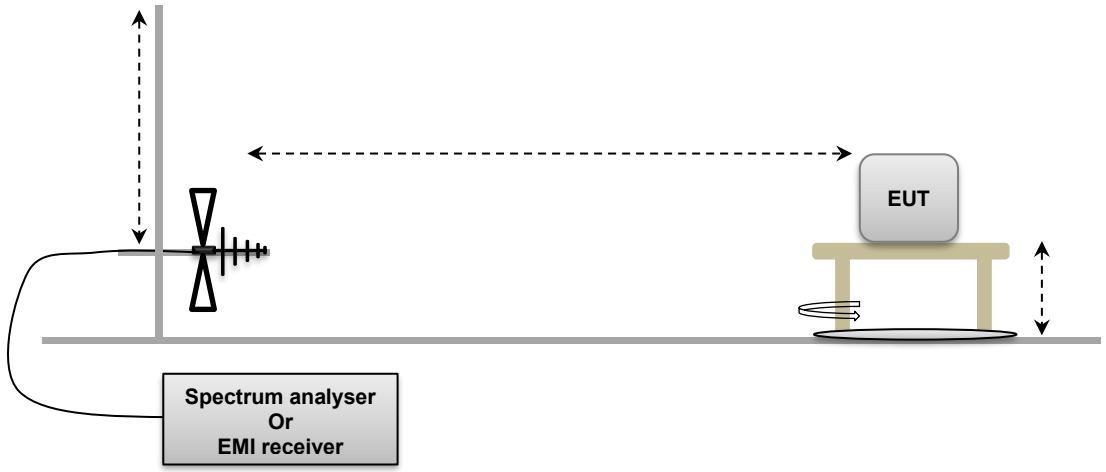
4.1. TEST CONDITIONS

Test performed by	: Akram HAKKARI
Date of test	: April 4, 2024
Ambient temperature	: 22 °C
Relative humidity	: 33 %

4.2. TEST SETUP

Test procedure:
ANSI C63.10 / C63.4 & FCC Part 15 subpart B/C

The EUT and auxiliaries are set 80cm above the ground on the non-conducting table (Table-top equipment).
The EUT is powered by V_{nom}.



Test setup of Radiated Emission

Same setup is used in semi anechoic chamber during pre-characterization, with a distance of 3m between EUT and antenna.

Photo in anechoic chamber – Frequency <1GHz

Photo on OATS

4.3. TEST METHOD

During pre-characterization, a pre-scan of all the setup has been performed on all axis of EUT used in normal configuration. The pre-characterization graphs are obtained in PEAK detection, and AVERAGE detection for frequencies above 1GHz. A summary of the worst case emissions found in all test configurations and modes is shown. Spurious or frequency band are measured with qualification method to show compliance with limits.
Following frequency ranges, test setup parameters are different and specified in tables below.

4.3.1. 30MHz –1GHz

Frequency range:	30MHz to 1GHz	
Test:	**Pre-Characterization**	**Qualification**
Antenna Polarization:	Horizontal and Vertical	
Antenna Height:	Centered on EUT, EUT smaller than the beamwidth of antenna	Varied by step from 1m to 4m
Antenna Type:	Bi-Log	Bi-Log
Min. Antenna Beamwidth:	Teseq CBL 6143 / w@3m - 3.5m<1GHz	Teseq CBL 6111 / w@10m - 14m<1GHz
RBW Filter:	200Hz - f<150kHz / 10kHz - f>150kHz	9kHz
Maximization:	Turntable rotation of 360 degrees range	
Test site:	Full Anechoic Chamber	Open Aera Test Site
Distance EUT - Antenna:	3m	10m
Detector:	QPeak	Average
Mode:	Linear Scan	

4.3.2. 1GHz – 9GHz:

Frequency range:	1GHz to 9.5GHz	
Test:	**Pre-Characterization**	**Qualification**
Antenna Polarization:	Horizontal and Vertical	
Antenna Height:	Centered on EUT, EUT smaller than the beamwidth of antenna	Centered on EUT, EUT smaller than the beamwidth of antenna
Antenna Type:	Horn	Horn
Min. Antenna Beamwidth:	Teseq CBL 6143 / w@3m - 2.5m>1GHz	Teseq CBL 6143 / w@3m - 2.5m>1GHz
RBW Filter:	1MHz	1MHz
Maximization:	Turntable rotation of 360 degrees range	
Test site:	Full Anechoic Chamber	Full Anechoic Chamber
Distance EUT - Antenna:	3m	3m
Detector:	Peak & Average	QPeak
Mode:	Linear Scan	

4.4. TEST EQUIPMENT LIST

TEST EQUIPMENT USED					
Description	**Manufacturer**	**Model**	**Identifier**	**Cal_Date**	**Cal_Due**
Amplifier 10MHz - 18GHz	LCIE SUD EST	_	A7102082	05/22	05/24
Antenna Bi-log	AH System	SAS-521-7	C2040180	05/23	05/25
Antenna horn 18GHz	EMCO	3115	C2042029	03/22	03/25
BAT EMC	NEXIO	v3.21.0.32	L1000115		
Cable 0.75m	-	18GHz	A5329900	08/22	08/24
Comb EMR HF	YORK	CGE01	A3169114		
CONTROLLER	INNCO	CO3000	D3044034		
Filter Matrice	LCIE SUD EST	Combined filters	A7484078	03/23	03/25
Rehausse Table C3	LCIE	_	F2000511		
Rehausse Table C3	LCIE	_	F2000507		
Semi-Anechoic chamber #3 (BF)	SIEPEL	_	D3044017_BF	04/22	04/25
Semi-Anechoic chamber #3 (VSWR)	SIEPEL	_	D3044017_VSWR	04/22	04/25
SMA Cable 18GHz 0.5m	TELEDYNE	18GHz	A5330059	02/23	02/24
SMA Cable 18GHz 0.5m	TELEDYNE	18GHz	A5330060	02/23	02/24
SMA Cable 18GHz 0.6m	TELEDYNE	18GHz	A5330055	02/23	02/24
SMA Cable 18GHz 3.5m	TELEDYNE	18GHz	A5330058	02/23	02/24
SMA Cable 18GHz 6m	TELEDYNE	18GHz	A5330057	02/23	02/24
Spectrum analyzer	ROHDE & SCHWARZ	FSU 26	A4060058	09/23	09/25
Table C3	LCIE	_	F2000461		
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	05/23	05/25
TILT	INNCO	TILT	D3044033		
Turntable chamber (Cage#3)	ETS Lingren	Model 2165	F2000371		
Turntable controller (Cage#3)	ETS Lingren	Model 2090	F2000444		
Antenna loop	ELECTRO-METRICS	EM-6879	C2040294	08/22	08/24
Antenna Mat (OATS)	ETS Lingren	2071-2	F2000392		
Biconic Antenna	EATON	94455-1	C2040234	05/23	05/25
Cable (OATS)	_	1GHz	A5329623	09/23	09/24
Emission Cable	MICRO-COAX	1GHz	A5329656	09/23	09/24
Emission Cable	RADIALEX		A5329061	07/23	07/24
Emission Cable	CABELTEL	6GHz	A5329069	02/24	02/25
OATS	_	_	F2000409	08/23	08/24
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		

4.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

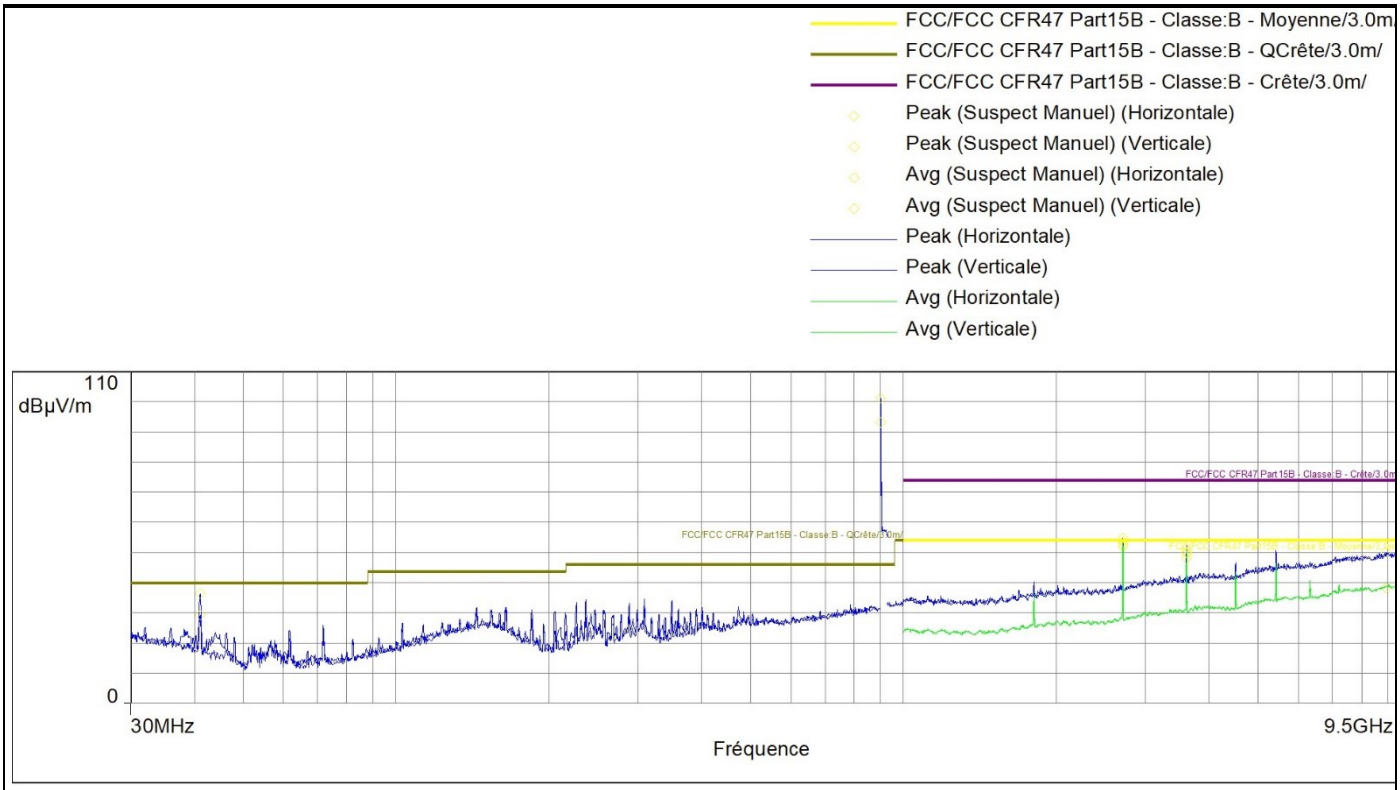
4.6. TEST RESULTS – RUNNING MODE N°1

4.6.1. 30MHz –9.5GHz

Pre-qualification measurement

Graph identifier	Polarization	Mode	Channel	EUT position	Comments
Emr# 1	H/V	TX	Cmin	Axis XY/Z	See the following results

RADIATED EMISSIONS			
Graph name:		**Test configuration:**	
Limit:	FCC CFR47 Part15B	(H+V) - TX mode - Automatic Axis	
Class:	V		
Frequency range: [30MHz - 9.5GHz]			
Antenna polarization:		**RBW :**	100kHz to 1MHz
Azimuth:	0° - 360°	**VBW :**	300kHz to 3MHz



Spurious emissions

Frequency	PK Level (dBµV/m)	Lim.PK (dBµV/m)	Avg (dBµV/m)	Lim.Avg (dBµV/m)	Lim.QP (dBµV/m)	Angle (°)	Polar.	Correct. (dB)
2.7442 GHz	55.06	74.00	52.43	54.00		175	H	-26.25
3.65965 GHz	53.63	74.00	50.48	54.00		231	H	-22.57
5.4897 GHz	47.72	74.00	44.17	54.00		253	H	-17.89
9.0087 GHz	50.32	74.00	38.46	54.00		48	H	-12.93
914.922 MHz*	100.55						H	28.02
914.87 MHz*	99.96						V	28.02
41.0744 MHz	36.53				40.00	234	V	15.96

*Carrier frequency
Significant frequency observed

Final measurement:

Test Frequency (MHz)	Meter Reading dB(µV)	Detector (Pk/QP/Av)	Transducer Factor (dB)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
41.0744	25.6	QP	13.8	39.4	40.0	**-0.6**

4.7. CONCLUSION

The sample of the equipment **SQUID-PRO**, Sn : **70B3D5475012134E**, tested in the configuration presented in this test report **satisfies** to requirements of the product family standard applied (See §Test Program) for radiated emissions.

5. UNCERTAINTIES CHART

Type de mesure / Kind of measurement	Incertitude élargie laboratoire / Wide uncertainty laboratory (k=2) ±x	Incertitude limite du CISPR / CISPR uncertainty limit ±y
Mesure des perturbations conduites en tension sur le réseau d'énergie (monophasé /triphasé) 9kHz-150kHz *Measurement of conducted disturbances in voltage on the power port (single & three phases)9kHz-150kHz*	3.7dB	3.8dB
Mesure des perturbations conduites en tension sur le réseau d'énergie (monophasé /triphasé) 150kHz-30MHz *Measurement of conducted disturbances in voltage on the power port (single & three phases)150kHz-30MHz* LISN 50Ω/50µH Capacitive Voltage Probe	 3.3dB 3.7dB	 3.4dB 3.9dB
Mesure des perturbations conduites en tension sur le réseau de télécommunication *Measurement of conducted disturbances in voltage on the telecommunication port.* AAN avec aLCL = 55 … 40 dBc AAN avec aLCL = 65 … 50 dBc AAN avec aLCL = 75 … 60 dBc	 4.2dB 4.6dB 5.0dB	 4.2dB 4.6dB 5.1dB
Mesure des perturbations discontinues conduites en tension *Measurement of discontinuous conducted disturbances in voltage*	3.4dB	3.4dB
Mesure des perturbations conduites en courant *Measurement of conducted disturbances in current*	2.9dB	2.9dB
Mesure du champ électrique rayonné en cage de Faraday semi-anéchoïque de 30MHz à 1GHz *Measurement of radiated electric field in half-anechoic Faraday room From 30MHz to 1GHz*	6.3dB	6.3dB
Mesure du champ électrique rayonné en cage de Faraday anéchoïque de 1GHz à 6GHz *Measurement of radiated electric field in full-anechoic Faraday room From 1GHz à 6GHz*	5.2dB	5.2dB
Mesure du champ électrique rayonné en cage de Faraday anéchoïque de 6GHz à 18GHz *Measurement of radiated electric field in full-anechoic Faraday room From 6GHz to 18GHz*	5.5dB	5.5dB
Mesure du champ électrique rayonné sur le site en espace libre de Moirans 30MHz – 1GHz. *Measurement of radiated electric field on the Moirans open area test site 30MHz – 1GHz.*	6.3dB	6.3dB
Mesure du champ électrique rayonné IN SITU de 30 à 1000 MHz *IN SITU measurement of radiated electric field from 30 to 1000MHz*	A l'étude / Under consideration	5.2dB
Mesure de la puissance perturbatrice *Measurement of disturbance power*	3.32dB	4.5dB
Mesure des harmoniques de courant *Measurement of current harmonics*	11.11%	/
Mesure du flicker *Flicker measurement*	9.26%	/

Les valeurs d'incertitudes calculées du laboratoire étant inférieures aux valeurs d'incertitudes limites établies par le CISPR, la conformité de l'échantillon est établie directement par les niveaux limites applicables. Ce tableau regroupe l'ensemble des incertitudes maximales pour les essais réalisables dans le laboratoire, qu'ils aient été ou non réalisés dans le cadre du présent rapport / *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*

Note - L'incertitude de mesure instrumentale est déterminée selon la CISPR 16-4-2. / *The instrumentation measurement uncertainty is determined according to CISPR16-4-2*