



TEST REPORT

N°: 158305-729579-B (FILE#1011014)

Version: 02

Subject	Electromagnetic compatibility and Radio spectrum Matters (ERM) tests according to standards: FCC CFR 47 Part 15, Subpart C RSS-247 Issue 2.0
Issued to	INGENICO 9 avenue de la Gare – Rovaltain TGV - B.P. 25156 26958 VALENCE Cedex 9 FRANCE
Apparatus under test ♥ Product ♥ Trade mark ♥ Manufacturer ♥ Family range ♥ Model under test ♥ Serial number ♥ FCCID ♥ IC Conclusion Test date Test location IC Test site Composition of docume	NFC card reader module INGENICO INGENICO OPEN1500 POE/BT/RS232 – OPEN2500 POE/BT/RS232 OPEN2500 POE/BT/RS232 18163000149 / 1816300112 XKB-OPE15CLBT 2586D-OPE15CLBT See Test Program chapter November 15, 2018 to November 21, 2018 MOIRANS 6500A-1 & 6500A-3 at 54 pages
Written by : Majid MOURZAC Tests operato	

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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

Fax 04

LineCas

SAS au capital de 15 745 984 € / RCS Nanterre B 408 363 174 / N° TVA intracommunautaire FR01 408 363 174 / N° SIRET 408 363 174 00017



PUBLICATION HISTORY

Version	Date	Author	Modification
01	December 4, 2018	Majid MOURZAGH	Creation of the document
02	March 13, 2019	Majid MOURZAGH	Modification model

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 C 15.247

- ANSI C63.10 (2013)

- RSS-247 Issue 2.0

- RSS-Gen Issue 5

- 558074 D01 DTS Measurement Guidance v05

EMISSION TEST		RESULTS (Comments)		
Limits for conducted disturbance at mains ports 150kHz-30MHz	Frequency 150-500kHz 0.5-5MHz 5-30MHz	Quasi-peak value (dBμV) 66 to 56 56 60	Average value (dBμV) 56 to 46 46 50	 ✓ PASS □ FAIL □ NA □ NP
Radiated emissions 9kHz-30MHz CFR 47 §15.209 (a) CFR 47 §15.247 (d) RSS-247 §5.5	3-500HZ 00 50 Measure at 300m 9kHz-490kHz : 67.6dBµV/m /F(kHz) 9kHz-490kHz : 67.6dBµV/m /F(kHz) Measure at 30m 490kHz-1.705MHz : 87.6dBµV/m /F(kHz) 1.705MHz-30MHz : 29.5 dBµV/m			□ PASS □ FAIL ☑ NA □ NP
Radiated emissions30MHz-25GHz*CFR 47 §15.209 (a)CFR 47 §15.247 (d)RSS-247 §5.5Highest frequency :600MHz(Declaration of provider)	Measure at 3m 30MHz-88MHz : 4 88MHz-216MHz : 216MHz-960MHz 960MHz-1GHz : 5 1GHz – 25GHz: 5	43.5 dBμV/m : 46.0 dBμV/m	dBµV/m (PK)	☑ PASS □ FAIL □ NA □ NP
Maximum Peak Output Power CFR 47 §15.247 (b) RSS-247 §5.4	Limit: 21dBm Conducted or Radiated measurement			☑ PASS □ FAIL □ NA □ NP
Hopping Channel Separation CFR 47 §15.247 (a) (1) RSS-247 §5.1	Minimum between: Two-third 20dB Bandwidth or 25kHz Whichever is greater			☑ PASS □ FAIL □ NA □ NP
Number of Hopping Frequencies CFR 47 §15.247 (a) (1) (iii) RSS-247 §5.1	At least 15 channels used			☑ PASS □ FAIL □ NA □ NP
Time of Occupancy (Dwell Time) CFR 47 §15.247 (a) (1) (iii) RSS-247 §5.1	Maximum 0.4 sec within 31.6sec			☑ PASS □ FAIL □ NA □ NP
Band Edge Measurement CFR 47 §15.209 (a) CFR 47 §15.247 (d) RSS-247 §5.5	Limit: -20dBc		☑ PASS □ FAIL □ NA □ NP	
Occupied bandwidth RSS-Gen §6.7	No limit			☑ PASS □ FAIL □ NA □ NP
Receiver Spurious Emission** RSS-Gen §7.3	Measure at 3m 30MHz-88MHz : 40 dBμV/m 88MHz-216MHz : 43.5 dBμV/m 216MHz-960MHz : 46.0 dBμV/m Above 960MHz : 54.0 dBμV/m			□ PASS □ FAIL ☑ NA □ NP

*§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 5GHz. If the highest frequency of the internal sources of the testing device is above 1 GHz, measurement must be only performed until 5 GHz. 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. **Testing covered the receive mode, and receiver spurious emissions are considered to be the same as transmitter.



2. **SYSTEM TEST CONFIGURATION**

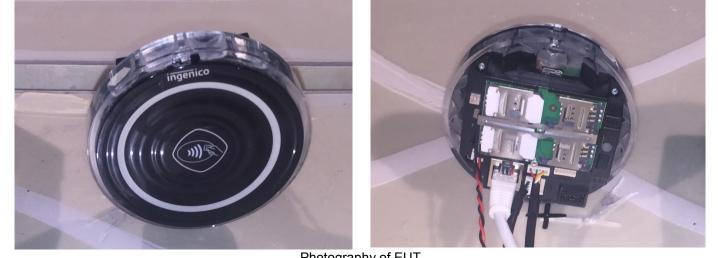
2.1. **JUSTIFICATION**

All test are performed with 24VDC on supply1 Conducted and radiated emission data are also performed with 48VDC on supply2 (POE).

Open1500 and OPEN 2500 are same electronics, difference is plastic casing.

2.2. HARDWARE IDENTIFICATION (EUT AND AUXILIARIES):

Equipment under test (EUT): OPEN2500 POE/BT/RS232 Serial Number: 18163000149



Photography of EUT

Power supply:

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

Name	Туре	Rating	Reference / Sn	Configuration	Comments
Supply1	☑ DC	12-24VDC	/	Configuration n°1	1
Supply2	☑ DC	48VDC	/	Configuration n°2	Power supply on POE (Power Over Eternet)

Inputs/outputs - Cable:

Access	Туре	Length used (m)	Declared <3m	Shielded	Under test	Comments
Supply1	L+N	1.			\checkmark	Configuration n°1
Supply2	2 wires	1.3			\checkmark	Configuration n°2
Ethernet_cable	RJ45 (Ethernet)	1.8			\checkmark	/
COM0_cable	RS232	1			\checkmark	/
USB_Device_cable	USB	0.9			\checkmark	/
Access4	microSD (MMC)				\checkmark	/
Access5	SAM1				\checkmark	/
Access6	SAM2				\checkmark	/



Auxiliary equipment used during test:

Туре	Reference	Sn	Comments
CBT Bluetooth tester	ROHDE & SCHWARZ	CBT	A2440007
POE adapter	TP-LINK / TL-POE200A	2168528003068	48VDC
AC/DC power source	TP-LINK Technologies Co	T480050-2C1	Input 100-240Vac Output 48VDC
Laptop	DELL	/	/
Laptop	TOSHIBA	1	1

Equipment information:

Blueteeth Cleasie Type:	□ v1.2		□ v2.0	□ v2.1+	EDR	□ v3.0+HS	
Bluetooth Classic Type:	□ v4.0		<u>ا</u> ا	/4.1		□ v4.2	
Frequency band:		[2400 – 2					
Sub-band REC7003:			Anne	x 3 (a)			
Spectrum Modulation:			⊠ F	HSS			
Number of Channel:	Maximum:		79	Minimu	ım:	20	
Spacing channel:			1N	lHz			
Channel bandwidth:	1MHz						
Antenna Type:	Integral Integral Integral		ternal		Dedicated		
Antenna connector:	✓ Yes			No		Temporary for test	
				1			
Transmit chains:			Single a	antenna			
	Gain 1:	-1.3dB	Bi				
Beam forming gain:	N			lo			
Receiver chains	1						
Type of equipment:	✓ Stand-alone		🗆 PI	ug-in			
Ad-Hoc mode:	□ Y	/es		⊠ No			
Dwell time:			400)ms			
Adaptivity mode:	✓ Yes (Load Based)	DAA)	□ Off	Off mode		🗆 No	
Adaptivity mode.			Assessment Time:		Xμs		
Duty cycle:	Continuous du	ty	🗆 Interm				
Equipment type:	✓ Product	ion mo		Pre-production mode			
	Tmin:		⊠ -20°C			□X°C	
Operating temperature range:	Tnom: 20°C						
	Tmax:		□ 35°C	⊠ 5	5°C	□ X°C	
Type of power source:	AC power supply	,	☑ DC power	supply		Battery	
		C	onfiguration n°1		Configu	iration n°2 (Supply2)	
Operating voltage range:	Vmin:		⊠ 10.8V		☑ 43.2VDC		
Operating voltage range.	Vnom:		⊠ 24 VE		☑ 48 VDC		
	Vmax		⊠ 26.4 V	DC		☑ 52.8 VDC	
	🗌 🗆 Yes (The geog						
	determined by the						
Geo-location capability:	accessible to the en				\checkmark	No	
	section 4.3.1.13.2 of ETSI EN 300 328						
	V2.1.1 s	tandar	d)				
Minimum performance criteria for Receiver blocking test:	☑ PER less than	or equ	ual to 10%	🗆 Alterna	tive perfo	ormance criteria (4)	

(4): Description of the alternative performance criteria:



		CHA	ANNEL PLAN		
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Cmin: 0	2402	27	2429	54	2456
1	2403	28	2430	55	2457
2	2404	29	2431	56	2458
3	2405	30	2432	57	2459
4	2406	31	2433	58	2460
5	2407	32	2434	59	2461
6	2408	33	2435	60	2462
7	2409	34	2436	61	2463
8	2410	35	2437	62	2464
9	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	Cmid: 39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	Cmax: 78	2480
25	2427	52	2454		
26	2428	53	2455		

		DATA RATE		
Available for EUT	Modulation type	Max. Data Rate (Mbps)	Packet type	Worst Case Modulation
	GFSK	1	1-DM1	
\checkmark	GFSK	1	1-DH1	
	GFSK	1	1-DM3	
\checkmark	GFSK	1	1-DH3	
	GFSK	1	1-DM5	
\checkmark	GFSK	1	1-DH5	\checkmark
	GFSK	1	AUX1	
\checkmark	π/4 DQPSK	2	2-DH1	
\checkmark	π/4 DQPSK	2	2-DH3	
\checkmark	π/4 DQPSK	2	2-DH5	\checkmark
\checkmark	8DPSK	3	3-DH1	
\checkmark	8DPSK	3	3-DH3	
V	8DPSK	3	3-DH5	\checkmark



2.3. EUT CONFIGURATION

Hardware information					
Firmware (if applicable):	V. :	OS044592			
Software (if applicable):	V . :	HTB010001			
1					

The EUT is set in the following modes during tests with CBT Bluetooth tester

- Permanent emission with modulation on a fixed channel in the data rate that produced the highest power

- Permanent reception

The specific test software "AppNonRegT3-Hardtoolbox" are used to set the product on DUT mode

and the second se	IT TEST LEL TEXT //EMC TEST EST MODE			Terminal info SYS 944592 ADP APPNONREGT3.00001 HARD PLATLORM_T3_OPEN TYPE OPENISSO PID 34711137 PSN 9000003 MODX Release SECURE_DS 30000010608 BOOTRAM 301000010810
	UP	DOWN	INFO	Debug info
1	2	3	F	Open port COM13 OK
4	5	6	x	
7	8	9	<	Last mouse clicked: 2 R&D EXPERTISE
	0		0	

2.4. EQUIPMENT MODIFICATIONS

 \square None \square Modification:

2.5. 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 52.5dBµV 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 dBµV/m.

FS = 52.5 + 7.4 + 1.1 – 29 = 32 dBµV/m

The 32 dB μ V/m value can be mathematically converted to its corresponding level in μ V/m. Level in μ V/m = Common Antilogarithm [(32dB μ V/m)/20] = 39.8 μ V/m.

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. CONDUCTED EMISSION DATA

3.1. ENVIRONMENTAL CONDITIONS

Date of test	:	November 19, 2018
Test performed by	:	Majid Mourzagh
Atmospheric pressure (hPa)	:	999
Relative humidity (%)	:	45
Ambient temperature (°C)	:	21

3.2. TEST SETUP

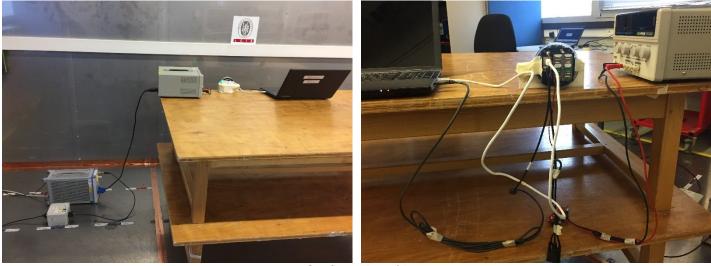
Mains terminals

The EUT and auxiliaries are set: ☑ 80cm above the ground on the non-conducting table (Table-top equipment) □ 10cm above the ground on isolating support (Floor standing equipment)

The distance between the EUT and the LISN is 80cm. The EUT is 40cm away for the vertical ground plane.

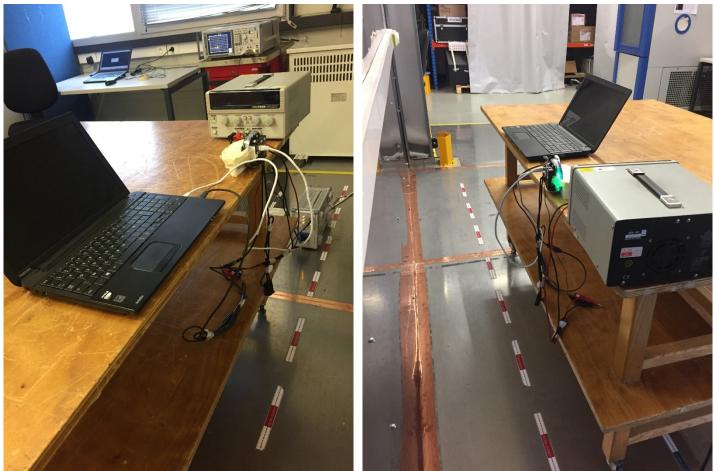
The EUT is powered by 120VAC/60Hz.

The EUT is powered through a LISN (measure). Auxiliaries are powered by another LISN.



Configuration n°1

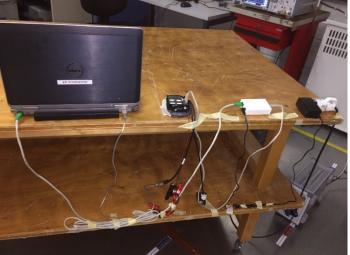




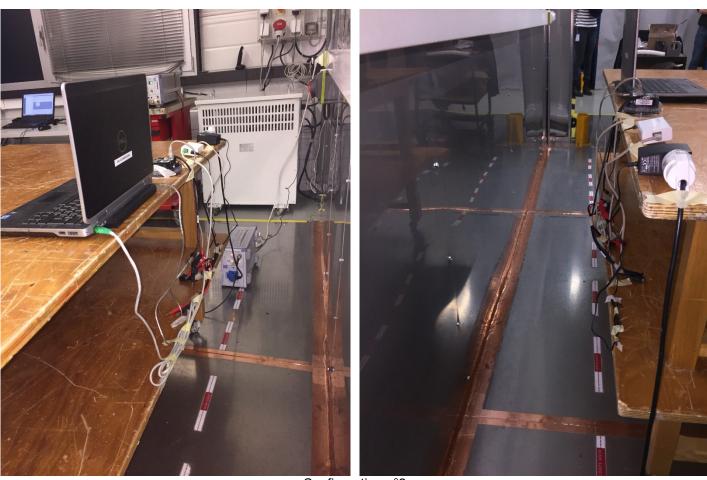
Configuration n°1







Configuration n°2



Configuration n°2

<u>Test setup</u>



3.3. TEST METHOD

The product has been tested according to ANSI C63.10 and FCC Part 15 subpart C. The product has been tested with 120V/60Hz power line voltage and compared to the FCC Part 15 subpart C limits. Measurement bandwidth was 9kHz from 150kHz to 30MHz. 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. The LISN (measure) is $50\Omega / 50\mu$ H. The Peak data are shown on plots in annex 1. Quasi-Peak and Average measurements are detailed in a table with frequencies and levels measured. Interconnecting cables and equipment's were moved to position that maximized emission. A summary of the worst case emissions found in all test configurations and modes is shown on the following page.

Measurements are performed on the phase (L1) and neutral (N) of power line voltage. Graphs are obtained in PEAK detection. Measures are also performed in Quasi-Peak and Average for any strong signal.

3.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Cable + self	-	-	A5329578	10/18	10/19
EMC comb generator	LCIE SUD EST	-	A3169098	-	-
Receiver 20Hz – 8GHz	ROHDE & SCHWARZ	ESU8	A2642019	12/17	12/18
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	10/18	10/20
Transient limiter	RHODE & SCHWARZ	ESH3-Z2	A7122204	02/18	02/19

3.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

🗹 None

Divergence:

3.6. TEST RESULTS

Measurements are performed on the phase (L1) and neutral (N) of the power line.

Results: (PEAK detection)

Graph identifier	Line	Mode	Configuration	Comments
Emc# 1	L	TX	Configuration n°1	See annex 1
Emc# 2	Ν	ΤX	Configuration n°1	See annex 1

Graph identifier	Line	Mode	Configuration	Comments
Emc# 3	L	TX	Configuration n°2	See annex 1
Emc# 4	N	TX	Configuration n°2	See annex 1

3.7. CONCLUSION

Conducted emission data measurement performed on the sample of the product **OPEN2500 POE/BT/RS232**, SN: **18163000149**, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-247 limits.



4. RADIATED EMISSION DATA

4.1. ENVIRONMENTAL CONDITIONS

Date of test	:	November 16, 2018
Test performed by	:	Majid MOURZAGH
Atmospheric pressure (hPa)	:	998
Relative humidity (%)	:	42
Ambient temperature (°C)	:	21
Test performed by Atmospheric pressure (hPa) Relative humidity (%)	:	Majid MOURZAGH 998 42

4.2. TEST SETUP

The installation of EUT is identical for pre-characterization measures in a 3 meters semi- anechoic chamber and for measures on the 10 meters Open site.

The EUT and auxiliaries are set:

 \boxtimes 80cm above the ground on the non-conducting table (Table-top equipment) - Below 1GHz \square 150cm above the ground on the non-conducting table (Table-top equipment) - Above 1GHz

□ 10cm above the ground on isolating support (Floor standing equipment)

The EUT is powered by V_{nom}.

The EUT is powered by V_{nom}.



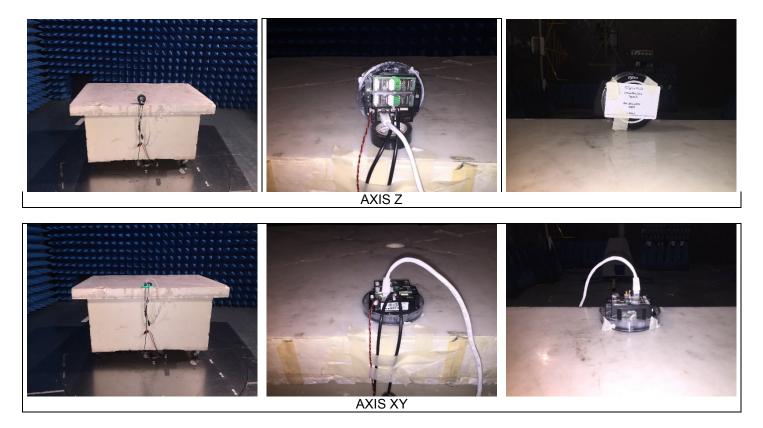
AXIS Z



AXIS XY

Test setup on OATS





Test setup in anechoic chamber

4.3. TEST METHOD

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

Pre-characterisation measurement: (9kHz - 6GHz)

A pre-scan of all the setup has been performed in a 3 meters semi-anechoic chamber for frequency from 30MHz to 6GHz. Test is performed in horizontal (H) and vertical (V) polarization, the loop antenna was rotated during the test to maximize the emission measurement. Continuous linear turntable azimuth search was performed with 360 degrees range. Measurement performed on all axis of EUT used in normal configuration.

The pre-characterization graphs are obtained in PEAK detection and PEAK/AVERAGE from 1GHz to 6GHz.

Characterization on 10 meters open site from 9kHz to 1GHz:

Radiated Emissions were measured on an open area test site. A description of the facility is on file with the FCC. The product has been tested at a distance of **10 meters** from the antenna and compared to the FCC part 15 subpart C limits. Measurement bandwidth was 9kHz below 30MHz and 120kHz from 30 MHz to 1GHz. Test is performed in horizontal (H) and vertical (V) polarization, the loop antenna was rotated during the test to maximize the emission measurement. The height antenna is varied from 1m to 4m. Continuous linear turntable azimuth search was performed with 360 degrees range. Measurement performed on all axis of EUT used in normal configuration. A summary of the worst case emissions found in all test configurations and modes is shown.

Frequency list has been created with anechoic chamber pre-scan results.



Characterization on 3 meters full anechoic chamber from 1GHz to 6GHz:

The product has been tested at a distance of **3 meters** from the antenna and compared to the FCC part 15 subpart C limits. Measurement bandwidth was 1MHz from 1GHz to 6GHz.

Test is performed in horizontal (H) and vertical (V) polarization. Continuous linear turntable azimuth search was performed with 360 degrees range. Measurement performed on all axis of EUT used in normal configuration. A summary of the worst case emissions found in all test configurations and modes is shown. The height antenna is \Box On mast, varied from 1m to 4m

□ Fixed and centered on the EUT (EUT smaller than the beamwidth of the measurement antenna, ANSI C63.10 §6.6.5) Frequency list has been created with anechoic chamber pre-scan results.

4.4. TEST EQUIPMENT LIST

	anecho	ic chamber			
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Amplifier 0.1MHz – 1300 MHz	HEWLETT PACKARD	8447D	A7085008	12/17	12/18
Antenna Bi-Log	AH System	SAS-521-7	C2040180	09/18	09/20
Cable	-	6GHz	A5329191	06/18	06/19
Emission Cable	MICRO-COAX	18GHz	A5329657	06/18	06/19
Emission Cable	MICRO-COAX	18GHz	A5329658	03/18	03/19
Semi-Anechoic chamber #1	SIEPEL	-	D3044016	09/18	09/19
Radiated emission comb generator	BARDET	-	A3169050	-	-
HF Radiated emission comb generator	LCIE SUD EST	-	A3169088	-	-
Receiver 20Hz – 8GHz	ROHDE & SCHWARZ	ESU8	A2642019	12/17	12/18
Spectrum analyzer	ROHDE & SCHWARZ	FSU 26	A4060058	06/18	06/19
BAT EMC	NEXIO	v3.9.0.10	L1000115	-	-
Thermo-hygrometer (C1)	OREGON	WMR 80	B4206013	06/18	06/20
Turntable chamber (Cage#1)	MATURO Gmbh	TT 2.0 SI	F2000406	-	-
Antenna mast (Cage#1)	MATURO Gmbh	AM 4.0	F2000407	-	-
Turntable controller (Cage#1)	MATURO Gmbh	Control Unit	F2000408	-	-
Table C1/OATS	LCIE	-	F2000445	-	-

		OATS			
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Antenna Bi-log	CHASE	CBL6111A	C2040051	01/18	01/19
Emission Cable	SUCOFLEX	6GHz	A5329061	03/18	03/19
Cable (OATS)	-	1GHz	A5329623	03/18	03/19
Radiated emission comb generator	BARDET	-	A3169050	-	-
OATS	-	-	F2000409	10/17	10/18
Receiver 20-1000MHz	ROHDE & SCHWARZ	ESVS30	A2642006	12/17	12/19
Facteur OATS 30M-1GHz	LCIE	V3	L2000035	-	-
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	10/18	10/20
Turntable / Mast controller (OATS)	ETS Lindgren	Model 2066	F2000372	-	-
Antenna mast (OATS)	ETS Lindgren	2071-2	F2000392	-	-
Turntable (OATS)	ETS Lindgren	Model 2187	F2000403	-	-
Table C1/OATS	MATURO Gmbh	-	F2000437	-	-



4.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

 \square None \square Divergence:

4.6. TEST RESULTS

4.6.1. Pre-characterization at 3 meters [30MHz-1GHz]

See graphs for 30MHz-1GHz:

Graph identifier	Polarization	Mode	EUT position	Channel	Configuration	Comments
Emr# 1	H/V	ТΧ	Axis XY	Hopping	Configuration n°1	See annex 1
Emr# 2	H/V	ТΧ	Axis Z	Hopping	Configuration n°1	See annex 1

	Graph identifier	Polarization	Mode	EUT position	Channel	Configuration	Comments
E	Emr# 3	H/V	ΤX	Axis XY	Hopping	Configuration n°2	See annex 1
E	Emr# 4	H/V	ΤX	Axis Z	Hopping	Configuration n°2	See annex 1

4.6.2. Characterization on 10 meters open site below 30 MHz

Worst case final data result:

Frequency list has been created with semi-anechoic chamber pre-scan results. Measurements are performed using a QUASI-PEAK detection.

No	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	
	No significant frequency observed, see §9.7									

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

4.6.3. Characterization on 10 meters open site from 30MHz to 1GHz

Worst case final data result:

Frequency list has been created with semi-anechoic chamber pre-scan results. Measurements are performed using a QUASI-PEAK detection.

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)
250.000	18.0	QP	V	70	100	15.9	33.9	46.0	-12.1
275.000	14.0	QP	V	70	100	16.4	30.4	46.0	-15.6
500.000	11.2	QP	V	80	130	22.5	33.7	46.0	-12.3

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



4.6.4. Characterization on 3meters anechoic chamber from 1GHz to 6GHz

Worst case final data result:

The frequency list is created from the results obtained during the pre-characterization in anechoic chamber. Measurements are performed using a PEAK and AVERAGE detection.

No	Frequency (MHz)	Limit Peak (dBµV/m)	Measure Peak (dBµV/m)	Margin (Mes-Lim) (dB)	Angle Table (deg)	Pol Ant.	Ht Ant. (cm)	Correc. Factor (dB)	Comments		
	No significant frequency observed , see §9.7										

No	Frequency (MHz)	Limit Average (dBµV/m)	Measure Average (dBµV/m)	Margin (Mes-Lim) (dB)	Angle Table (deg)	Pol Ant.	Ht Ant. (cm)	Correc. Factor (dB)	Comments
	No significant frequency observed , see §9.7								

4.7. CONCLUSION

Radiated emission data measurement performed on the sample of the product **OPEN2500 POE/BT/RS232**, SN: **18163000149**, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-247 limits.



5. MAXIMUM PEAK OUTPUT POWER (15.247)

5.1. ENVIRONMENTAL CONDITIONS

Date of test		November 16, 2018
Test performed by	:	Majid MOURZAGH
Atmospheric pressure (hPa)	:	998
Relative humidity (%)	:	42
Ambient temperature (°C)	:	21

5.2. EQUIPMENT CONFIGURATION

Packet type: 1-DH5 / 2-DH5 / 3-DH5 Worst case presented Hopping sequence: □ ON ☑ OFF

5.3. TEST SETUP

☑ Conducted measurement:

The EUT is turned ON and connected to measurement instrument; the center frequency of the spectrum analyzer is set to the fundamental frequency and using 3MHz RBW and 10MHz VBW.

The captured power is measured and recorded; the measurement is repeated until all frequencies required were complete.

□ Radiated measurement:

The product has been tested at a distance of 3 meters from the antenna and using 3MHz RBW and 10MHz VBW. Antenna height search was performed from 1m to 4m for both horizontal and vertical polarization. Continuous linear turntable azimuth search was performed with 360 degrees range. Measurement performed on 3 axis of EUT. A summary of the worst case emissions found in all test configurations and modes is shown on following table. The captured power is measured and recorded; the measurement is repeated until all frequencies required were complete.

To demonstrate compliance with peak output power requirement of section 15.247 (b), the transmitter's peak output power is calculated using the following equation:

$$E = \frac{\sqrt{30 PG}}{d}$$

Where:

- E is the measured maximum fundamental field strength in V/m, utilizing a RBW \geq the 20 dB bandwidth of the emission, VBW > RBW, peak detector function. Follow the procedures in C63.4-1992 with respect to maximizing the emission. - G is the numeric gain of the transmitting antenna with reference to an isotropic radiator.

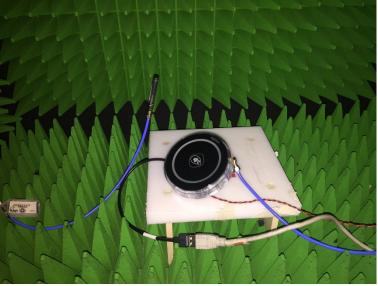
- d is the distance in meters from which the field strength was measured.

- P is the power in watts for which you are solving:

$$P = \frac{(Ed)^2}{30G}$$

 $(- -)^2$





Test setup

5.4. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Cable SMA	-	18G	A5329373	12/17	12/18
Cable SMA	-	6GHz	A5329635	02/18	02/19
Cable SMA 60cm	STORMFLEX	18GHz	A5329688	02/18	02/19
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060051	03/18	03/19
Antenna		SMA	C2040219	-	-
Full Anechoic Room	SIEPEL	-	D3044024	-	-
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	10/18	10/20

5.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

 \square None \square Divergence:



5.6. TEST RESULTS

GFSK DH5

Channel Chann Freque (MHz				(d	tput Power Bm)		Powe Limi (dBn	it		
0		2402			3.04		21			
39		2441		-	.99		21			
78		2480			.29		21			
Spectrum				Spectrum)					
RefLevel 11.10 dBm C	Offset 1.10 dB - RBW 3	MHz		Ref Level 11.1	0 dBm Offset 1.10 dB 👄	RBW 3 MHz				
Att 20 dB S	SWT 1 ms 👄 VBW 10	MHz Mode Sweep		Att IPk Max	20 dB SWT 1 ms 👄	VBW 10 MHz M	ode Sweep			
		M1[1]	-3.04 2.4020840				M1[1]	-1.99 dBn 2.4408680 GH		
D dBm			2.4020840	GHz 0 dBm		M1	1 1	2.4408680 GH		
JUBII				U asm						
-10 dBm		+		-10 dBm						
-20 dBm				-20 dBm						
38 dBm				-30 dBm						
40 dBm				-40 dBm						
50 dBm				-50 dBm						
60 dBm				-60 dBm						
70 dBm				70 d0m						
/ G GDII				-70 dBm						
80 dBm		+ + +		-80 dBm						
CF 2.40208 GHz	(591 pts	Span 10.0 N	1Hz CF 2.440868 GH	z	691 pts		Span 10.0 MHz		
		Spectrum								
		RefLevel 11.10 dBm Att 20 dB	Offset 1.10 dB RBW SWT 1 ms VBW							
		●1Pk Max	L							
				M1[1]	2.4	-1.29 dBm 798400 GHz				
		0 dBm		M1		 				
					+					
		-10 dBm								
		-20 dBm			+					
		-30 dBm								
		-40 dBm								
		-to dom								
		-50 dBm								
		-60 dBm								
		-70 dBm								
		-80 dBm								
		CF 2.479826 GHz		691 pts	Spar	10.0 MHz				

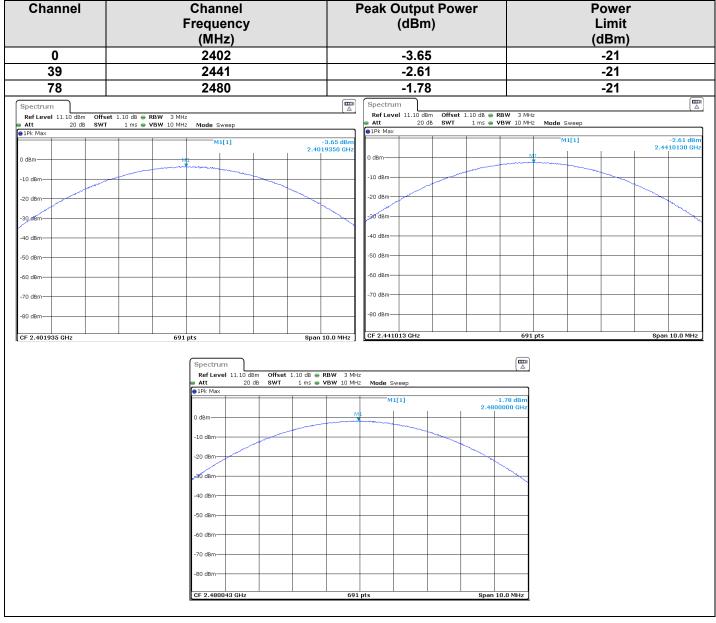


$\pi/4$ DQPSK 2-DH5

Channel	Channel Frequency (MHz)			F	Peak Output Power (dBm)					Power Limit (dBm)						
0	0		2402				-3.8				-21					
39		244′	1					-2.69						-21		
78		2480)					-2.19)					-21		
Spectrum Ref Level 11.10 dBm Off Att 20 dB SW	fset 1.10 dB ● RBW 3 MH /T 1 ms ● VBW 10 MH	lz Iz Mode Sw	кер				Spectrur Ref Leve Att	n al 11.10 dBm 20 dB		1.10 dB 👄 🛛 1 ms 🖶 '	RBW 3 MH VBW 10 MH		Sweep			
		M1	[1]		2.40	-3.80 dBm 18770 GHz						N	11[1]		2.44	-2.69 dBm 18680 GHz
0 dBm		<u>1</u>					0 dBm									
-10 dBm							-20 dBm									
-30 d8m							-30-dBm-									
-40 dBm							-40 dBm									
-50 dBm							-50 dBm—									
-60 dBm							-60 dBm									
-70 dBm							-70 dBm-									
-80 dBm																
CF 2.401877 GHz	69	Spectrum			Span	10.0 MHz	CF 2.4408	339 GHZ			691				span	10.0 MHz
			11.10 dBm 20 dB		1.10 dB 👄 I 1 ms 👄 '	RBW 3 MH: VBW 10 MH:	z z Mode S	ween				1				
		1Pk Max						1[1]			-2.19 dBm					
		0 dBm				M	1	-[-]		2.47	99420 GHz					
		-10 dBm														
		-20 dBm														
		-30 dBm														
		-40 dBm														
		-50 dBm														
		-60 dBm														
		-70 dBm														
		-80 dBm								_	10.0					
		CF 2.47994	12 GHz			691	pts			Span	10.0 MHz	Į				



8DPSK 3-DH5



5.7. CONCLUSION

Maximum Peak Output Power measurement performed on the sample of the product **OPEN2500 POE/BT/RS232**, SN: **1816300112**, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-247 limits.



6. HOPPING CHANNEL SEPARATION (15.247)

6.1. ENVIRONMENTAL CONDITIONS

Date of test	:	November 16, 2018
Test performed by	:	Majid MOURZAGH
Atmospheric pressure (hPa)	:	998
Relative humidity (%)	:	42
Ambient temperature (°C)	:	21

6.2. LIMIT

For frequency hopping system, hopping channel carrier frequencies must be separated by a minimum of 25kHz or the 20dB bandwidth of hopping channel, whichever is greater.

For frequency hopping system operating in the 2400-2483.5MHz, if the 20dB bandwidth of hopping channel is greater than 25kHz, two-thirds 20dB Bandwidth of hopping channel shell be a minimum limit for the hopping channel separation.

6.3. EQUIPMENT CONFIGURATION

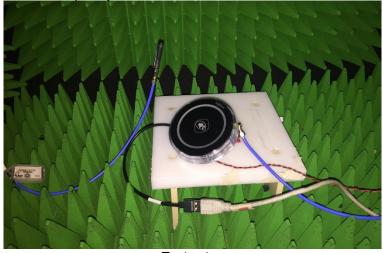
Packet type:1-DH5 / 2-DH5 / 3-DH5Hopping sequence:□ ON☑ OFF

6.4. SETUP – 20DB BANDWIDTH

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.

6.5. SETUP – ADJACENT CHANNEL SEPARATION

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 separation of two adjacent channels is recorded. A delta marker is used to measure the frequency difference.



Test setup



6.6. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Cable SMA	-	18G	A5329373	12/17	12/18
Cable SMA	-	6GHz	A5329635	02/18	02/19
Cable SMA 60cm	STORMFLEX	18GHz	A5329688	02/18	02/19
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060051	03/18	03/19
Antenna		SMA	C2040219	-	-
Full Anechoic Room	SIEPEL	-	D3044024	-	-
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	10/18	10/20

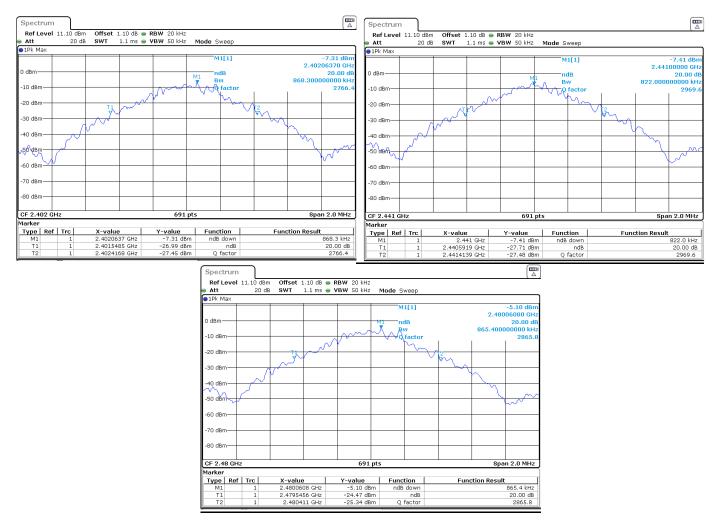
6.7. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

 \square None \square Divergence:

6.8. TEST SEQUENCE AND RESULTS

GFSK DH5:

20DB BANDWIDTH:





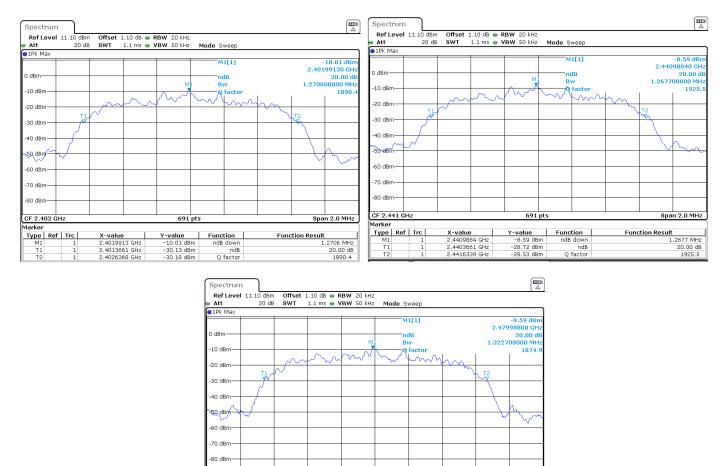


Limit used: Two-third 20dB Bandwidth



<u>π/4 DQPSK 2-DH5:</u>

20DB BANDWIDTH:



691 pts

Function ndB down ndB Q factor

Y-value -9.59 dBm -29.63 dBm -29.51 dBm

X-value 2.479988 GHz 2.479343 GHz 2.4806657 GHz Span 2.0 MHz

1.3227 MHz 20.00 dB 1874.9

Function Result

CF 2.48 GH

Marker Type Ref Trc

N° 158305-729579-B	



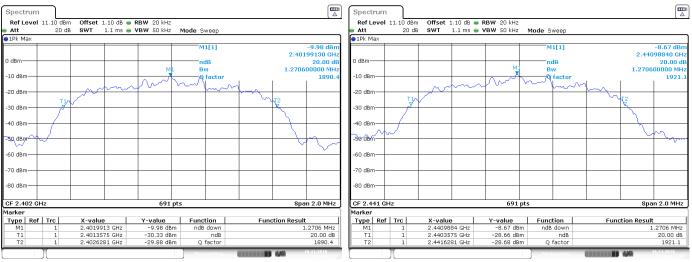
Modulation: Channel Adjacent Channel 20dB Bandwidth **Minimum Limit** Channel Separation Frequency (kHz) (kHz) (MHz) (kHz) Cmin 2402 839 1270.6 847.1 2441 839 1267.7 845.1 Cmid Cmax 2480 839 1322.7 881.8 Spectrum RefLevel 11.10 dbm Offset 1.10 db ● RBW 100 kHz Att 20 db SWT 1 ms ● VBW 300 kHz ●IPk View●2AP View Spectrum Ref Level 11.10 dBm Offset 1.10 dB RBW 100 kHz att 20 dB SWT 1 ms VBW 300 kHz PIR View@2AP View Mode Sweep Mode Swi -4.12 dBr 2.4411670 GF 0.14 d 839.0 kF 1.62 d 839.0 kl -5.61 dB 2.4021670 G M1[1] D2[1] dBn D2[1]) dBm 41[1] M MAN $\overline{\mathcal{M}}$ MA -10 dBn -10 dBn 20 dBm -20 dBn 30 dBm -30 dBn 40 dBm -40 dBm 50 dBm -50 dBm Thinking 1 Λ 60 dBm -60 dBm -70 dBm -80 dBr -80 dBm Span 10.0 MHz 691 pts CF 2.4025 691 pt: CF 2.4415 GH Spar Marker Type Ref Trc M1 1 D2 M1 1 X-value 2.441167 GHz 839.0 kHz Y-value -4.12 dBm 0.14 dB Y-value z -5.61 dBm z 1.62 dB Type Ref Trc X-value 2.402167 GHz 839.0 kHz Function Function Result Function Function Result M1 D2 M1 Spectrum Ref Level 11.10 dB Offset 1.10 dB RBW 100 kHz Att 20 dB SWT 1 ms VBW 300 kHz ■ IPK View●2AP View 1 ms • VBW 300 kHz Mode -3.62 dB 2.4790080 C) dBn -D2[1] -0.03 d 339.0 kH ñ D2 A~~~ -10 dBm -20 dBn -30 dBn -40 dBm Α -50 dBm ٨ -60 dBm -70 dBm -80 dBrr CF 2.4795 GHz 691 Span 10.0 MHz Marker Type Ref Trc X-value 2.479008 GHz 839.0 kHz Y-value Iz -3.62 dBm Iz -0.03 dB Function Function Result M1 D2 M1

Limit used: Two-third 20dB Bandwidth



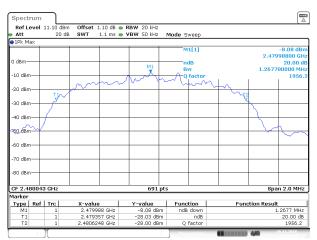
8DPSK 3-DH5:

20DB BANDWIDTH:



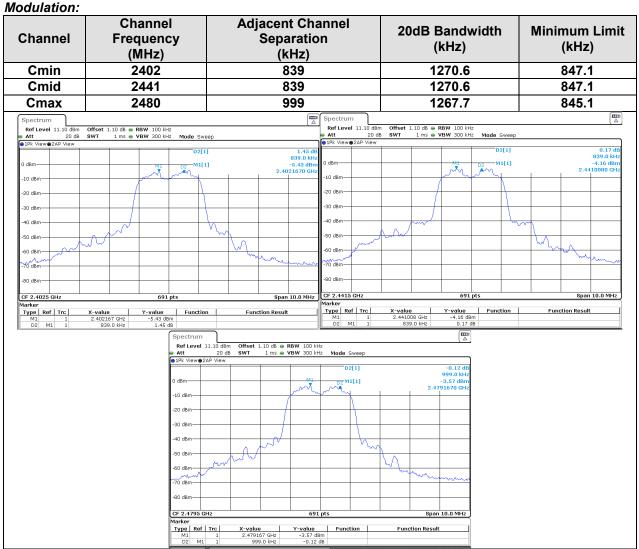
Date:16.NOV.2018 11:13:48

Date:16.NOV.2018 11:11:42



Date:16NOV.2018 11:05:34





Limit used: Two-third 20dB Bandwidth

6.9. CONCLUSION

Hopping Channel Separation measurement performed on the sample of the product **OPEN2500 POE/BT/RS232**, SN: **1816300112**, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-247 limits.



7. NUMBER OF HOPPING FREQUENCIES (15.247)

7.1. ENVIRONMENTAL CONDITIONS

Date of test	:	November 16, 2018
Test performed by	:	Majid MOURZAGH
Atmospheric pressure (hPa)	:	998
Relative humidity (%)	:	42
Ambient temperature (°C)	:	21

7.2. LIMIT

For frequency hopping system operating in the 2400-2483.5MHz, at least 15 channels frequencies must be used and should be equally spaced.

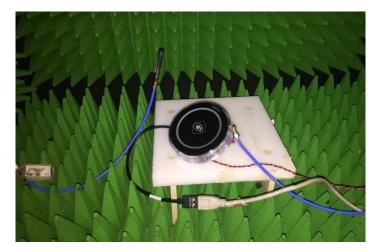
7.3. EQUIPMENT CONFIGURATION

Packet type: 1-DH5 / 2-DH5 / 3-DH5 Hopping sequence: ☑ ON □ OFF

7.4. SETUP

The EUT is placed in an anechoic chamber. The EUT is turn ON and using the MaxHold function and a delta marker the number of frequencies used for this FHSS system is recorded, see following graphs. RBW: 100kHz

VBW: 300kHz



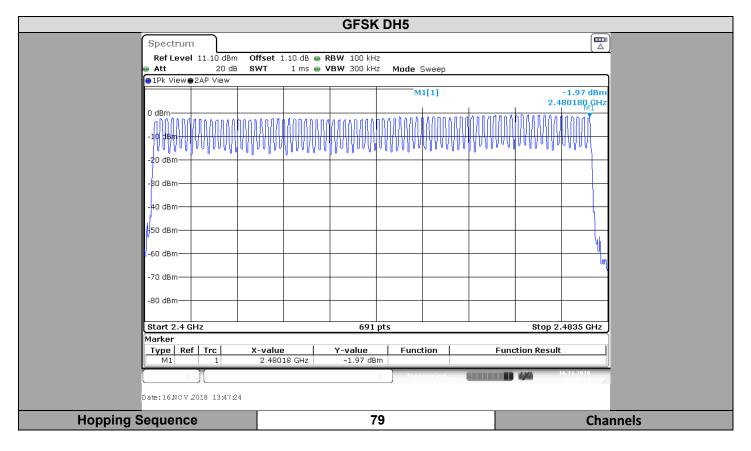
7.5. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Cable SMA	-	18G	A5329373	12/17	12/18
Cable SMA	-	6GHz	A5329635	02/18	02/19
Cable SMA 60cm	STORMFLEX	18GHz	A5329688	02/18	02/19
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060051	03/18	03/19
Antenna		SMA	C2040219	-	-
Full Anechoic Room	SIEPEL	-	D3044024	-	-
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	10/18	10/20
Attenuator 10dB	AEROFLEX	-	A7122269	12/17	12/18



7.6. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

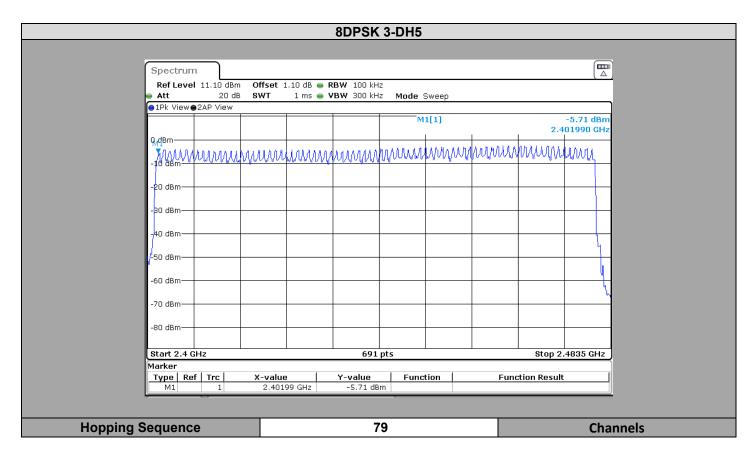
7.7. TEST SEQUENCE AND RESULTS





		т	т/4 DQPSK 2-D	H5		
	Spectrum					
	Ref Level 11.10			_		
	Att 20 ● 1Pk View●2AP Vie		VBW 300 kHz Mode	Sweep)	
				M1[1]	-5.65 dBm 2.401990 GHz	
		www.www.	Munuhum	www.www	MMMMMM	
	-20 dBm					
	-30 dBm					
	-140 dBm					
	-50 dBm					
	-70 dBm					
	-80 dBm					
	Start 2.4 GHz		691 pts		Stop 2.4835 GHz	
	Marker Type Ref Trc M1 1	X-value 2.40199 GHz	Y-value Fun -5.65 dBm	ction Fu	Inction Result	
		5.40133 0H5		asuring	16.11.2018	
	Date:16NOV.2018 13:	44:48				
Hopping S	Sequence		79		Cha	nnels





7.8. CONCLUSION

Number of hopping frequencies measurement performed on the sample of the product **OPEN2500 POE/BT/RS232**, SN: **1816300112**, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-247 limits.



8. TIME OF OCCUPANCY (DWELL TIME) (15.247)

8.1. ENVIRONMENTAL CONDITIONS

Date of test	:	November 19, 2018
Test performed by	:	Majid MOURZAGH
Atmospheric pressure (hPa)	:	999
Relative humidity (%)	:	39
Ambient temperature (°C)	:	20

8.2. LIMIT

The average time of occupancy on any channel shall not be greater than 0.4 seconds within period of 0.4 seconds multiplied by the number of hopping channels employed.

8.3. EQUIPMENT CONFIGURATION

Packet type: 3-DH1 / 3-DH3 / 3-DH5 worst case presented Hopping sequence: ☑ ON □ OFF

8.4. SETUP

☑ Conducted measurement:

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.

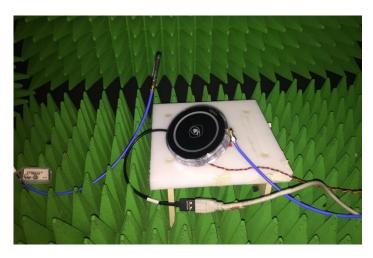
□ Radiated measurement:

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.

Measurement Procedure:

Dwell Time is measured and calculated using the zero SPAN mode on a channel frequency and a SWEEP with an adapter value to measure the number of transmission within a period and the time of transmission RBW: 100kHz

VBW: 300kHz





8.5. TEST EQUIPMENT LIST

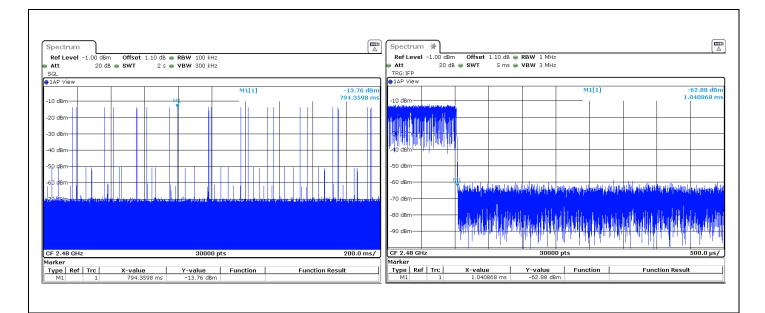
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Cable SMA	-	18G	A5329373	12/17	12/18
Cable SMA	-	6GHz	A5329635	02/18	02/19
Cable SMA 60cm	STORMFLEX	18GHz	A5329688	02/18	02/19
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060051	03/18	03/19
Antenna		SMA	C2040219	-	-
Full Anechoic Room	SIEPEL	-	D3044024	-	-
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	10/18	10/20

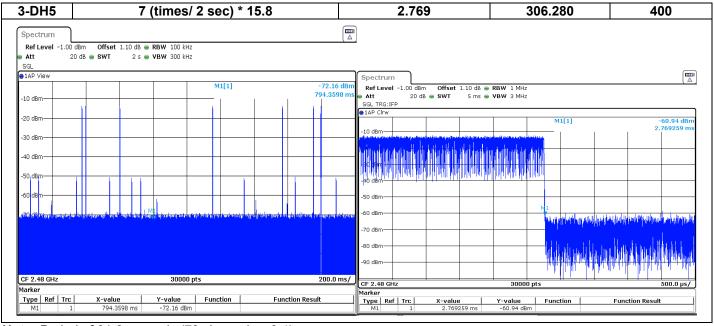
8.6. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

8.7. TEST SEQUENCE AND RESULTS

Packet Mode	Number of transmission in the period	Length of transmission time (ms)	Result (ms)	Limit (ms) 400
3-DH1	21 (times/ 2 sec) * 15.8	0.219	72.877	
Spectrum Ref Level -1.00 d Att 20 SGL	im Offset 1.10 dB ● RBW 100 kHz dB ● SWT 2 s ● VBW 300 kHz	Spectrum Ref Level -1.00 dBm Offset 1.10 dB Att 20 dB SWT 2 ms SGL TRG:IFP	• RBW 1 MHz VBW 3 MHz	
●1AP Clrw		O 1AP Clrw		
-10 dBm	MI[1] -13.7 353.01		M1[1]	-67.38 dBm 219.6407 μs
-20 dBm				
-30 dBm				
-50 dBm		-50 dBm		
-6C dBm			n alasi di Mandalandi dapata mini	
		-90 dBm		
CF 2.48 GHz	30000 pts 200.0		30000 pts	200.0 µs/
Marker Type Ref Trc M1 1	X-value Y-value Function Function Result 353.0118 ms -13.79 dBm -13.79 dBm -13.79 dBm	Marker Type Ref Trc X-value Μ1 1 219.6407 μs	Y-value Function -67.38 dBm	Function Result
3-DH3	17 (times/ 2 sec) * 15.8	1.0408	279.577	400







Note: Period of 31.6 seconds (79 channels x 0.4)

8.8. CONCLUSION

Time of occupancy measurement performed on the sample of the product **OPEN2500 POE/BT/RS232**, SN: **1816300112**, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-247 limits.



9. BAND EDGE MEASUREMENT (15.247)

9.1. ENVIRONMENTAL CONDITIONS

Date of test Test performed by		November 16, 2018 Majid MOURZAGH
Atmospheric pressure (hPa)		998
Relative humidity (%)	:	42
Ambient temperature (°C)	:	21

9.2. LIMIT

RF antenna conducted test:

Set RBW = 100 kHz, Video bandwidth (VBW) > RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the device complies with the use of power option 2 the attenuation under this paragraph shall be 30 dB instead of 20 dB. *For -20dBc limit, lowest power output level is considered, worst case.*

Radiated emission test:

Applies to harmonics/spurs that fall in the restricted bands listed in Section 15.205. The maximum permitted average field strength is listed in Section 15.209. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation. See results in Radiated emissions section before.

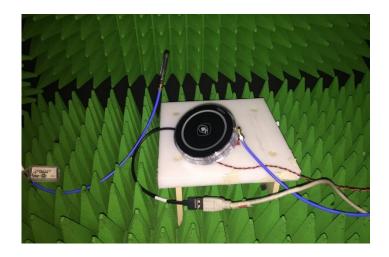
9.3. EQUIPMENT CONFIGURATION

Packet type:1-DH5 / 2-DH5 / 3-DH5 Worst case presentedHopping sequence:□ ON☑ OFF

9.4. SETUP

The EUT is placed in an anechoic chamber; levels have been corrected to be in compliant with Peak Output Power measurement. The EUT is turn ON; the graphs of the restrict frequency band are recorded with a display line indicating the highest level and other the 20dB offset below to show compliance with 15.247 (d) and 15.205. The emissions in restricted bands are compared to 15.209 limits.

RBW: 100kHz VBW: 300kHz





9.5. TEST EQUIPMENT LIST

DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Cable SMA	-	18G	A5329373	12/17	12/18
Cable SMA	-	6GHz	A5329635	02/18	02/19
Cable SMA 60cm	STORMFLEX	18GHz	A5329688	02/18	02/19
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060051	03/18	03/19
Antenna		SMA	C2040219	-	-
Full Anechoic Room	SIEPEL	-	D3044024	-	-
Thermo-hygrometer (PM1/2/3)	KIMO	HQ 210	B4206022	10/18	10/20
Attenuator 10dB	AEROFLEX	-	A7122269	12/17	12/18

9.6. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

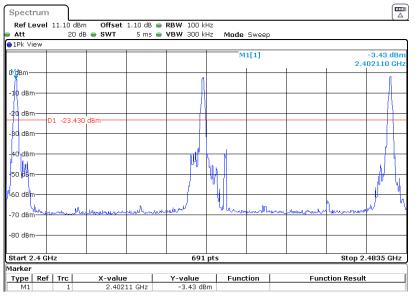
 \square None \square Divergence:

9.7. TEST SEQUENCE AND RESULTS

NOTE:

1. Average value = Peak value + 20 Log (duty cycle) = Peak value - 30.1dB.

2. The DH5 packet was the worst case duty cycle for a transmit dwell time on a channel, based upon Bluetooth theory the transmitter is on 0.625 * 5 per 296.25 ms per channel. Therefore, the duty cycle correction factor be equal to: 20log (3.125/100) = -30.1 dB.



Worst case: Cmin and display line at -23.43dBm.



Spectrum									Spectrur	n								
	3m Offset dB 🖷 SWT	1.10 dB 👄 5 ms 👄	RBW 100 k VBW 300 k		Sweep				🗕 Att	l 11.10 dBn 20 dl	n Offset B e SWT		RBW 100 kH VBW 300 kH		Sweep			
●1Pk View	_								⊖1Pk View									
				M	1[1]			-52.00 dBm 35.830 kHz						м	1[1]	1		-70.29 dBn 150.0 kH:
0 dBm									0 dBm									
-10 dBm									-10 dBm—									
-20 dBm									-20 dBm									
D1 -23.43	30 dBm									D1 -23.430) dBm							
-30 dBm									-30 dBm									
-40 dBm									-40 dBm									<u> </u>
-50 dBm	11								-50 dBm									
manner	Murran	anarmy	meterner.															
-50 dBm -60 dBm -70 dBm -80 dBm				and a grand and	moundance	manne	unanter bra	da la	-60 dBm									
-70 dBm								an abour off	CZQ dBm	Manner R. M.	an within	human	non	- day the burget	monor	nouna	permit	alter them
-80 dBm									-80 dBm									
Start 9.0 kHz			691	pts		·	Stop	150.0 kHz	Start 150.	0 kHz	·		691	pts			Stop	30.0 MHz
Marker	¥			1		-			Marker	(17-1	×			1				
Type Ref Trc M1 1	X-value 35	83 kHz	-52.00 dB	Func im	tion	Fund	tion Result	C	Type Re M1	f Irc 1	X-valu 15	e 0.0 kHz	Y-value -70.29 dBi	Func m	tion	Fun	ction Result	
				Mea	suring		4,40	16.11.2018)[]				Mea	suring		4/4	16.11.2018
Date:16NOV.2018 14:13	3:52								Date:16.NOV	2018 14:14:	22							

Spectrum Spectrum Ref Level 11.10 dBm Att 20 dB Offset 1.10 dB ● RBW 100 kHz SWT 9.7 ms ● VBW 300 kHz Mode Sweep Mode Sweep -66.72 dBn 947.40 MH -67.52 dBr 2.03590 GH dBr 0 dBm -10 dBm -10 dBn -20 dBm -20 dBm 01 -23.43 D1 -23.430.dBm -30 dBm -30 dB -40 dBm 40 di -50 dBm -50 dBr -60 dBm -60 dBi м1 Л. м1 Т. 70 d8n 70. d -80 dBm -80 dBi 691 pts 691 pts Stop 1.0 GHz Start 1.0 GHz Stop 2.2 GHz Start 30.0 MHz 1arkei Y-value -67.52 dBm Y-value Function Function Result Type Ref Trc Function Function Result Type Ref Trc M1 1 X-value 947.4 MHz 1 X-value 2.0359 GHz 1111 444

Date:16NOV.2018 14:15:11

Date:16.NOV 2018 14:15:55



pectrum			Spectrum			
RefLevel 11.10 dBm Offset Att 20 dB SWT	: 1.10 dB		RefLevel 11.10 dBm Offse Att 20 dB SWT	at 1.10 dB	Mode Sweep	
Pk View			●1Pk View			
	M1[1]	-66.87 dBm 2.389040 GHz			M1[1]	-65.22 (2.4979880
Bm			0 dBm			
) dBm			-10 dBm			
dBm			-20 dBm			
D1 -23.430 dBm			D1 -23.430 dBm			
dBm			-30 dBm			
dBm-			-40 dBm			
dom			-10 Abin			
dBm			-50 dBm			
dBm		M	-60 dBm			MI
Hert particular an and a second second	and descendents and many the street descendent her and the second s	all have no descent series and a series of the	-70 dBm	mouriment	maranma	men mound men men
dBm			-80 dBm F1			
irt 2.2 GHz	691 pts		CF 2.49 GHz	691 p		Span 20.0 M
ker	691 pts	Stop 2.39 GHz	GF 2.49 GHZ Marker	641 b	its	Span 20.0 M
pe Ref Trc X-valu		Function Result	Type Ref Trc X-va		Function	Function Result
M1 1 2.38	3904 GHz -66.87 dBm		M1 1 2.4	97988 GHz -65.22 dBm	n	
ectrum	Heading		Date: 16.NOV 2018 14:23:51		Measuring	
ectrum ef Level 11.10 dBm Offset tt 20 dB SWT	1.10 dB ● RBW 100 kHz 1.1 ms ● VBW 300 kHz Mode Sweep		Spectrum Ref Level 11.10 dBm Offse Att 20 dB SWT	et 1.10 dB ● RBW 100 kHz 1 ms ● VBW 300 kHz	Mode Sweep	
ectrum af Level 11.10 dBm Offset tt 20 dB SWT	1.1 ms 😑 VBW 300 kHz 🛛 Mode Sweep		Spectrum Ref Level 11.10 dBm Offse			
ectrum af Level 11.10 dBm Offset tt 20 dB SWT			Spectrum Ref Level 11.10 dBm Offse Att 20 dB SWT		Mode Sweep M1[1]	-1.90 2.4800140
ectrum ef Level 11.10 dBm Offset tt 20 dB SWT Vk View	1.1 ms 😑 VBW 300 kHz 🛛 Mode Sweep	-3.66 dBm	Spectrum Ref Level 11.10 dBm Offse Att 20 dB SWT			-1.90 2.4800140
ectrum ef Level 11.10 dBm Offset 20 dB SWT % View	1.1 ms 😑 VBW 300 kHz 🛛 Mode Sweep	-3.66 dBm	Spectrum Ref Level 11.10 dBm Offse Att 20 dB SWT @ IPk View 0 dBm			-1.90 2.4800140
ectrum ef Level 11.10 dBm Offset tt 20 dB SWT k View Bm	1.1 ms 😑 VBW 300 kHz 🛛 Mode Sweep	-3.66 dBm	Spectrum Ref Level 11.10 dBm Offse Att 20 dB SWT			-1.90 2.4800140
ectrum ef Level 11.10 dBm Offset tt 20 dB SWT k View Bm dBm dBm	1.1 ms 😑 VBW 300 kHz 🛛 Mode Sweep	-3.66 dBm	Spectrum Ref Level 11.10 dBm Offset Att 20 dB SWT ●1Pk View I0 dBm			-1.90 2.4800140
ectrum af Level 11.10 dBm Offset tt 20 dB SWT k View dBm dBm D1 -23.430 dBm	1.1 ms 😑 VBW 300 kHz 🛛 Mode Sweep	-3.66 dBm	Spectrum Ref Level 11.10 dBm Offset Att 20 dB SWT IPk View			-1.90 2.4800140
ectrum af Level 11.10 dBm Offset tt 20 dB SWT k View dBm dBm D1 -23.430 dBm	1.1 ms 😑 VBW 300 kHz 🛛 Mode Sweep	-3.66 dBm	Spectrum Ref Level 11.10 dBm Offset Att 20 dB SWT ●1Pk View I0 dBm			-1.90 2.4800140
ectrum sf Level 11.10 dBm Offset t 20 dB SWT k View dBm 01 -23.430 dBm	1.1 ms 😑 VBW 300 kHz 🛛 Mode Sweep	-3.66 dBm 2.4019910 GHz	Spectrum Ref Level 11.10 dBm Offset Att 20 dB SWT IPk View			-1.90 2.4800140
ectrum ef Level 11.10 dBm Offset 20 dB SWT k View Bm dBm dBm D1 -23.430 dBm dBm dBm	1.1 ms 😑 VBW 300 kHz 🛛 Mode Sweep	-3.66 dBm	Spectrum Ref Level 11.10 dBm Offse Att 20 dB SWT IPk View 0 dBm 10 dBm			-1.90 2.4800140
ectrum ef Level 11.10 dBm Offset 20 dB SWT k View dBm dBm D1 -23.430 dBm dBm dBm	1.1 ms 😑 VBW 300 kHz 🛛 Mode Sweep	-3.66 dBm 2.4019910 GHz	Spectrum Ref Level 11.10 dBm Offse Att 20 dB SWT P1k View 0 dBm -20 dBm -20 dBm -30 dBm			-1.90 2.4800140
ectrum of Level 11.10 dBm Offset t 20 dB Offset k View dBm 01 -23.490 dBm dBm dBm dBm dBm dBm	1.1 ms 😑 VBW 300 kHz 🛛 Mode Sweep	-3.66 dBm 2.4019910 GHz	Spectrum Ref Level 11.10 dBm Offse Att 20 dB SWT PIPk View 0 dBm			-1,90 2.4800140
ectrum ef Level 11.10 dBm Offset 20 dB SWT k View dBm 01 -23.430 dBm dBm 01 -23.430 dBm dBm 01 -23.430 dBm	1.1 ms • VBW 300 kHz Mode Sweep	-3.66 dBm 2.4019910 GHz	Spectrum Ref Level 11.10 dBm Offse Att 20 dB SWT IPk View 0 dBm 10 dBm			-1.90 2.4800140
eetrum Offset ef Level 11.10 dBm Offset 20 dB SWT 2k View SWT Bm Image: SWT idBm Image: SWT	1.1 ms 😑 VBW 300 kHz 🛛 Mode Sweep	-3.66 dBm 2.4019910 GHz	Spectrum Ref Level 11.10 dBm Offsa 41t 20 dB SWT 9 IPk View 0 dBm			-1.90 2.4800140
ectrum Offset ef Level 11.10 dBm Offset 20 dB SWT k View Bm dBm Bm	1.1 ms • VBW 300 kHz Mode Sweep	-3.66 dBm 2.4019910 GHz	Spectrum Ref Level 11.10 dBm Offse 10 dBm 20 dB SWT 10 dBm			-1.90 2.4800140
ectrum af Level 11.10 dBm Offset a 20 dB WT k View dBm 01 -23.430 dBm dBm 01 -23.430 dBm dBm 01 -23.430 dBm dBm 01 -23.430 dBm	1.1 ms • VBW 300 kHz Mode Sweep	-3.66 dBm 2.4019910 GHz	Spectrum Ref Level 11.10 dBm Offse Att 20 dB SWT • IPk View • IPk View • OdBm			-1.90 2.4800140
ectrum Offset ef Level 11.10 dBm Offset 20 dB SWT k View Bm dBm Bm	1.1 ms • VBW 300 kHz Mode Sweep	-3.66 dBm 2.4019910 GHz	Spectrum Ref Level 11.10 dBm Offse 11.10 dBm 20 dB SWT 11.10 dBm 0 dBm 0 dBm 10 dBm 0 dBm 0 dBm -20 dBm 01 -23.430 dBm 0 dBm -30 dBm 01 -23.430 dBm 0 dBm -50 dBm -50 dBm -50 dBm -50 dBm -50 dBm -50 dBm -70 dBm -70 dBm -70 dBm	1 ms • VBW 300 kHz	M1[1]	2.4800140
eetrum Offset ef Level 11.10 dBm Offset 20 dB SWT 20 dB SWT sk View Bm dBm Image: Switch of Sw	1.1 ms • VBW 300 kHz Mode Sweep	-3.66 dBm 2.4019910 GHz	Spectrum Ref Level 11.10 dBm Offse 11.10 dBm 20 dB SWT 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm -20 dBm D1 -23.430 dBm -30 dBm -30 dBm -50 dBm -50 dBm -50 dBm -50 dBm -50 dBm -50 dBm -51 dBm -51 dBm -50 dBm -51 dBm -51 dBm -50 dBm -51 dBm -51 dBm		M1[1]	-1.90 2.4800140
Dectrum Offset 20 dB SWT 20 dB SWT 3k View SWT Bm Image: SWT J dBm	1.1 ms VBW 300 kHz Mode Sweep M1[1] M1[1] Image: Sweet state	-3.66 dBm 2.4019910 GHz	Spectrum Ref Level 11.10 dBm Offse 0 dBm 20 dB SWT 0 dBm	1 ms • VBW 300 kHz	M1[1]	2.4800140
20 20 SWT 2k View	1.1 ms • VBW 300 kHz Mode Sweep	-3.66 dBm 2.4019910 GHz	Spectrum Ref Level 11.10 dBm Offse 0 dBm 20 dB SWT 0 dBm	1 ms • VBW 300 kHz	M1[1]	2.4800140

Date:16NOV 2018 14:19:51

Date: 16.NOV 2018 14:27:24



Ref Leve Att 1Pk View										Spectrun	n								
	el 11.10 dBr 20 d			RBW 100 kHz /BW 300 kHz		Sween				Ref Leve Att	1 11.10 dBr 20 d		1.10 dB 👄 100 ms 👄			Sween			
					mode	04000				01Pk View			100		ie noue	011000			
					M	1[1]			-61.78 dBm .50630 GHz						M	1[1]		-	-61.73 dBn 5.9770 GH
0 dBm										0 dBm							-		
-10 dBm—										-10 dBm									
-20 dBm—										-20 dBm					-				
-30 dBm—	D1 -23.430) dBm								-30 dBm	D1 -23.43	0 dBm							
-40 dBm—										-40 dBm									
-50 dBm—										-50 dBm									
60 dBm—						munderhun				-60 dBm	1. مىرىلىرىلىرىلىر	w		the has a server	and the second second	-	y where he	Mushall	munu
-70 dBm—	www.www.ww	und have and	an a	- meneral dates	metrestand	aller of the	an management	wander	den en hann	-70 dBm		hour and a second	undradelance	de acorditación				~ ~ ~	
-80 dBm—										-80 dBm									
Start 2.49 Marker	9 GHZ			691 j	ots			Sti	op 5.0 GHz	Start 5.0 (Marker	iHZ			69.	l pts			stop) 15.0 GHz
Type R	ef Trc	X-valu	e 63 GHz	Y-value -61.78 dBr	Func	tion	Func	tion Resul	t	Type Re	f Trc	X-val	ue .977 GHz	Y-value -61.73 d	Func	tion	Fund	tion Result	
M1	1 1	2.00		01.70 001				4.46	16.11.2018	M1	7			01.75 0				4.40	16.11.2018
Spectrui Ref Leve Att 1Pk View	el 11.10 dBr 20 d			BW 100 kHz /BW 300 kHz	Mode					<u>!</u>									
					M	1[1]			-62.96 dBm .5.0000 GHz										
0 dBm																			
-10 dBm—																			
-20 dBm—	D1 -23.430) dBm																	
-30 dBm—																			
-40 dBm—																			
-50 dBm—																			
-60 dBm-	and manual and a server	whenthere	mutu	un block and	on freeder	Musedune	or the section of the	remember	munhund										
-60 dBm																			
-70 dBm—																			
-70 dBm— -80 dBm— Start 15.(0 GHz			691 (ots			Sto	p 25.0 GHz										
-70 dBm— -80 dBm— Start 15.(Marker Type R	ef Trc	X-valu		Y-value	Func	tion	Func	Sto tion Resul											
-70 dBm— -80 dBm— <u>Start 15.(</u> Marker			9 .0 GHz		Func	tion	Func												

9.8. CONCLUSION

Band edge measurement performed on the sample of the product **OPEN2500 POE/BT/RS232**, SN: **1816300112**, in configuration and description presented in this test report, show levels below the FCC CFR 47 Part 15 and RSS-247 limits.



10. OCCUPIED BANDWIDTH

10.1. ENVIRONMENTAL CONDITIONS

Date of test	:	November 19, 2018
Test performed by	:	Majid MOURZAGH
Atmospheric pressure (hPa)	:	999
Relative humidity (%)	:	39
Ambient temperature (°C)	:	20

10.2. EQUIPMENT CONFIGURATION

Packet type: 1-DH5 / 2-DH5 / 3-DH5 worst case presented Hopping sequence: □ ON ☑ OFF

10.3. SETUP

☑ Conducted measurement:

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.

Offset: Attenuator+cable 10.3dB

□ Radiated measurement:

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.

Measurement Procedure:

1. RBW used in the range of 1% to 5% of the anticipated emission bandwidth

- 2. Set the video bandwidth (VBW) \ge 3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.
- 7. OBW 99% function of spectrum analyzer used

10.4. TEST EQUIPMENT LIST

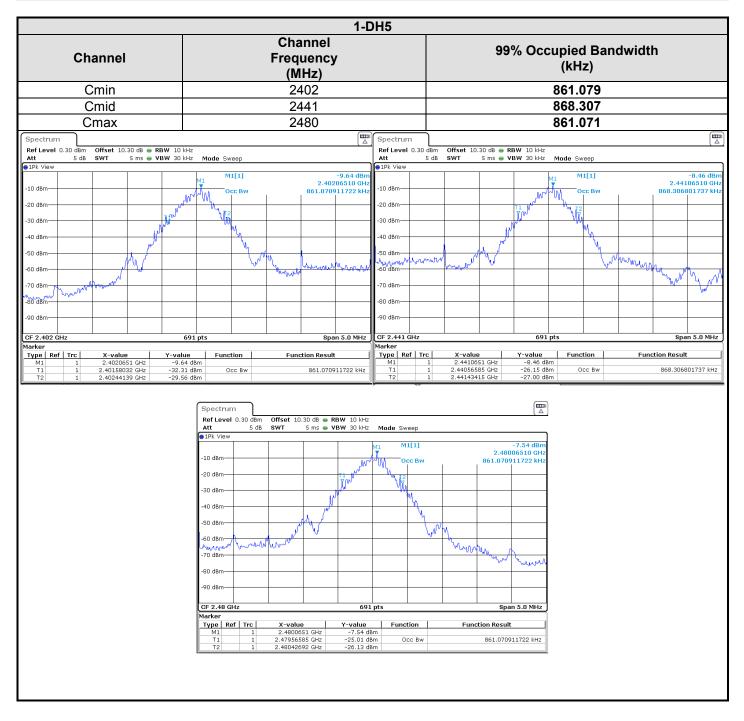
DESCRIPTION	MANUFACTURER	MODEL	N° LCIE	Cal_Date	Cal_Due
Cable SMA	-	18G	A5329373	12/17	12/18
Cable SMA	-	6GHz	A5329635	02/18	02/19
Cable SMA 60cm	STORMFLEX	18GHz	A5329688	02/18	02/19
Spectrum analyzer	ROHDE & SCHWARZ	FSV 30	A4060051	03/18	03/19
Antenna		SMA	C2040219	-	-
Full Anechoic Room	SIEPEL	-	D3044024	-	-
Thermo-hygrometer (PM1/2/3)	o-hygrometer (PM1/2/3) KIMO		B4206022	10/18	10/20
Attenuator 10dB	AEROFLEX	-	A7122269	12/17	12/18

10.5. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

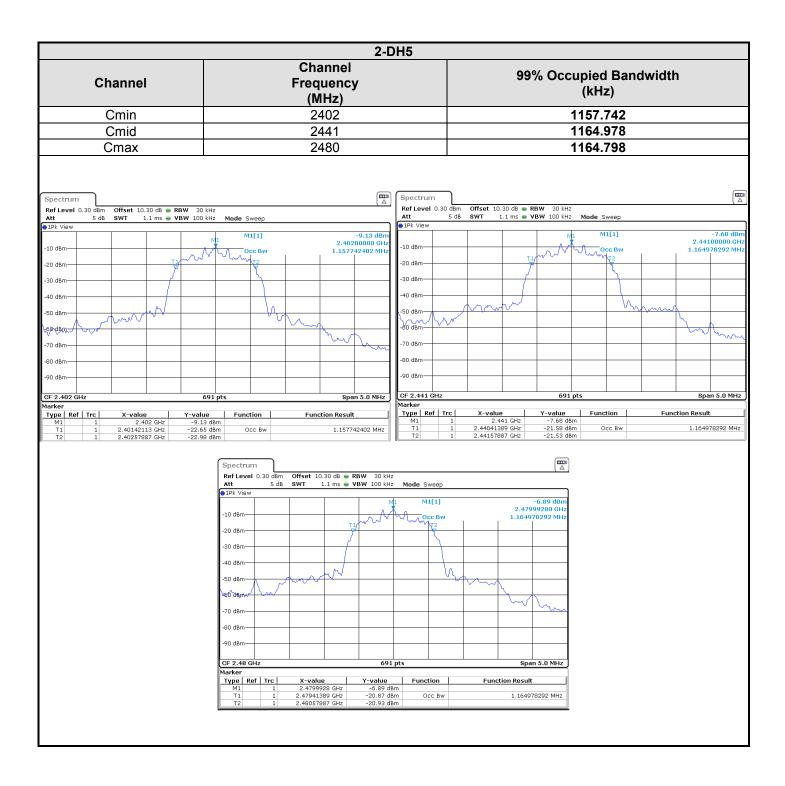
 \square None \square Divergence:



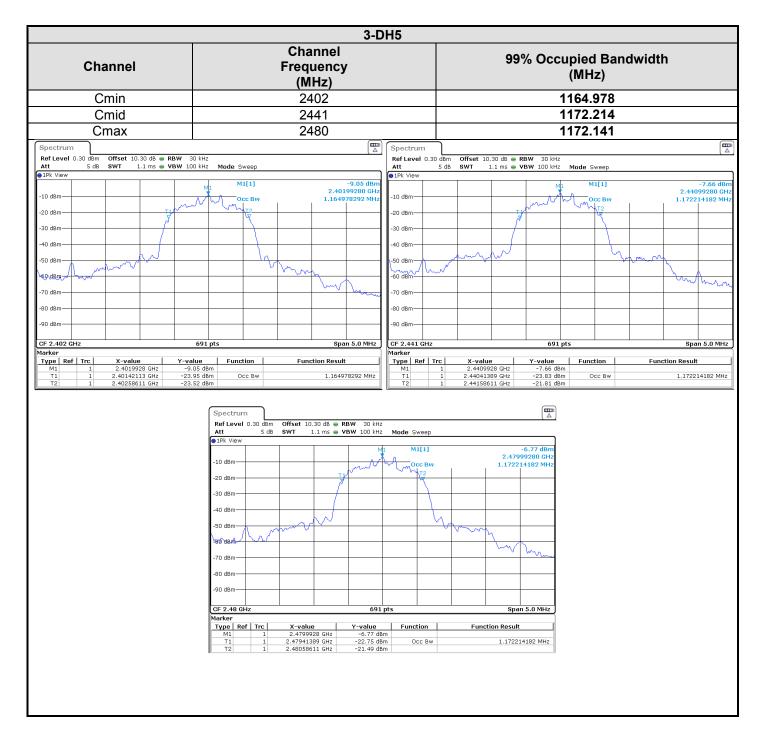
10.6. EST SEQUENCE AND RESULTS











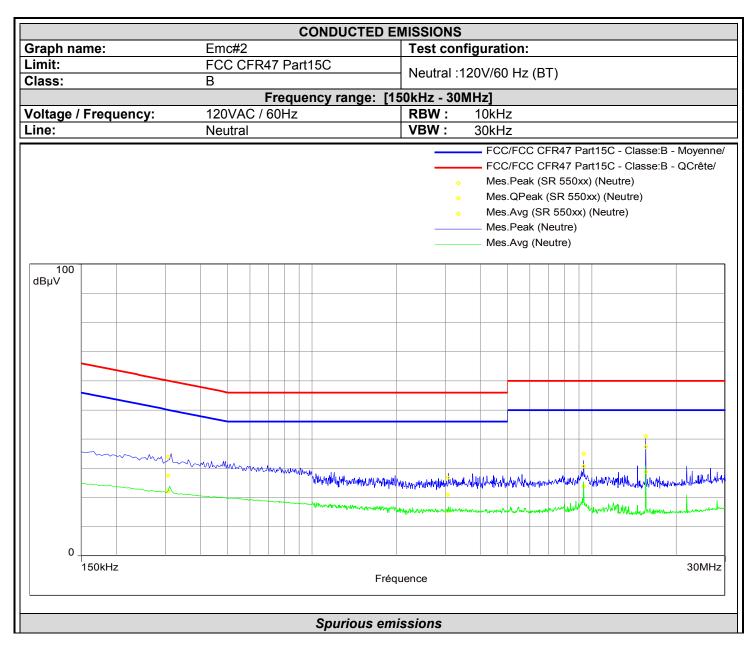


11. ANNEX 1 (GRAPHS)

	CONDUCTED EI	MISSIONS						
Graph name:	Emc#1	Test confi	iguration:					
_imit:	FCC CFR47 Part15C	Line :120\//60 Hz (BT)						
Class:	В	Line :120V/60 Hz (BT)						
	Frequency range: [1							
/oltage / Frequency:	120VAC / 60Hz	RBW :	10kHz					
.ine:	Phase	VBW :	30kHz					
			FCC/FCC CFR47 Part15C - Classe:B - I	Moyenne				
			- FCC/FCC CFR47 Part15C - Classe:B - 0	QCrête/				
			Mes.Peak (SR 550xx) (Phase 1)					
			Mes.QPeak (SR 550xx) (Phase 1)					
			Mes.Avg (SR 550xx) (Phase 1)					
			— Mes.Peak (Phase 1)					
			Mes.Avg (Phase 1)					
100		1						
dBµV								
			• • • • • • • • • • • • • • • • • • •					
• • • •								
· · · · · · · · · · · · · · · · · · ·	mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm							
	Hat Mary har row will paper with the	here we have been have	and hard the hard and the source of the state of the second the source of the second the second the second the	million				
	Man son Department of the way of the	wanterstand	mansal Mundan and Marine Marine Marine and Mar					
0 150kHz				30MHz				
IJUNIZ	Fréq	uence		50101172				
	Spurious em	issions						

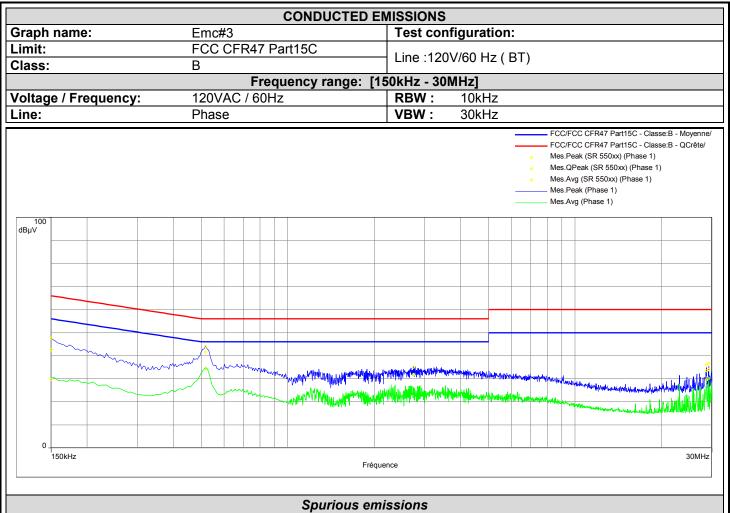
Frequenc y (MHz)	Mes.Peak (dBµV)	Mes.QPe ak (dBµV)	LimQP (dBµV)	Mes.QPe ak-LimQP (dB)	Mes.Avg (dBµV)	LimAvg (dBµV)	Mes.Avg- LimAvg (dB)	Line	Correctio n (dB)
0.310	35.0	29.3	60.0	-30.6	23.7	50.0	-26.3	Phase 1	19.5
1.120	29.0	23.0	56.0	-33.0	17.2	46.0	-28.8	Phase 1	19.5
4.804	27.3	21.3	56.0	-34.7	15.3	46.0	-30.7	Phase 1	19.8
9.348	35.9	31.6	60.0	-28.4	24.8	50.0	-25.2	Phase 1	20.2
15.576	41.2	37.9	60.0	-22.1	29.1	50.0	-20.9	Phase 1	20.6





Frequenc y (MHz)	Mes.Peak (dBµV)	Mes.QPe ak (dBµV)	LimQP (dBµV)	Mes.QPe ak-LimQP (dB)	Mes.Avg (dBµV)	LimAvg (dBµV)	Mes.Avg- LimAvg (dB)	Line	Correctio n (dB)
0.306	33.9	27.6	60.1	-32.5	22.1	50.1	-27.9	Neutre	19.4
3.064	26.8	21.0	56.0	-35.0	15.3	46.0	-30.7	Neutre	19.7
9.344	35.1	30.8	60.0	-29.2	23.9	50.0	-26.1	Neutre	20.2
15.568	41.0	37.4	60.0	-22.6	28.7	50.0	-21.3	Neutre	20.6

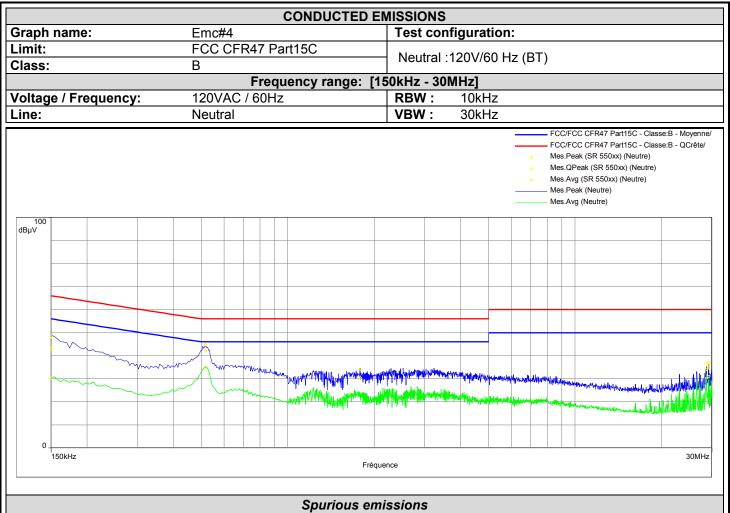




Spurious	emissions	
	(E)	Ì

					SR 550XX (5))				
Fréquence	SB	Mes.Peak	Mes.QPeak	LimQP	Mes.QPeak-	Mes.Avg	LimAvg	Mes.Avg-		Correction
(MHz)		(dBµV)	(dBµV)	(dBµV)	LimQP (dB)	(dBµV)	(dBµV)	LimAvg	Position	(dB)
								(dB)		
0.15	1	47.50	42.67	66.00	-23.33	29.74	56.00	-26.26	Phase 1	19.40
0.518	1	44.00	41.59	56.00	-14.41	34.52	46.00	-11.48	Phase 1	19.54
2.74	2	35.11	31.87	56.00	-24.13	23.75	46.00	-22.25	Phase 1	19.68
28.684	2	36.08	33.42	60.00	-26.58	29.56	50.00	-20.44	Phase 1	21.36
29.236	2	36.79	34.03	60.00	-25.97	30.17	50.00	-19.83	Phase 1	21.39





OD EEO(nr (E))

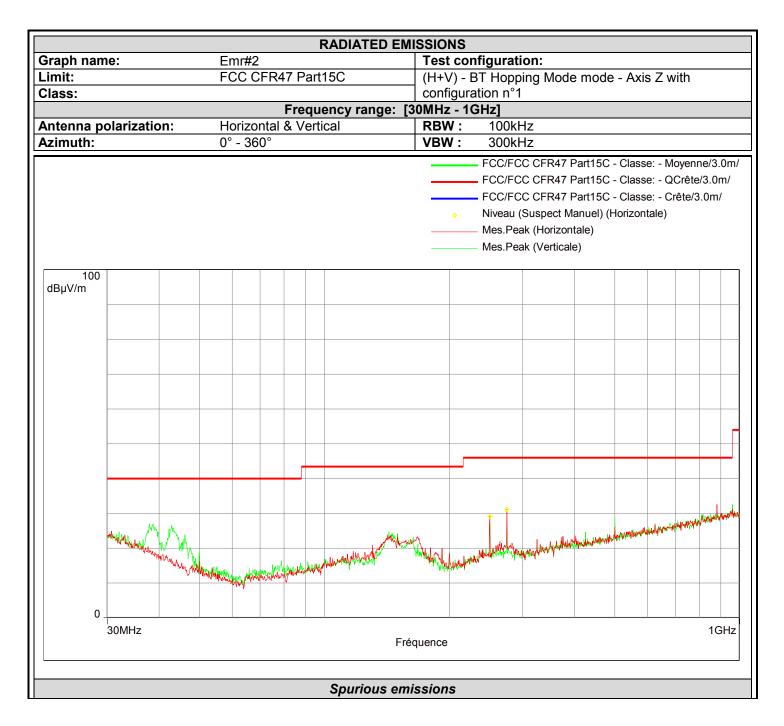
SR 550xx (5)									
Fréquence	Mes.Peak	Mes.QPeak	LimQP	Mes.QPeak-	Mes.Avg	LimAvg	Mes.Avg-		Correction
(MHz)	(dBµV)	(dBµV)	(dBµV)	LimQP (dB)	(dBµV)	(dBµV)	LimAvg	Position	(dB)
							(dB)		
0.15	48.20	42.97	66.00	-23.03	30.22	56.00	-25.78	Neutre	19.40
0.518	44.86	42.14	56.00	-13.86	35.00	46.00	-11.00	Neutre	19.54
1.784	34.24	30.51	56.00	-25.49	22.90	46.00	-23.10	Neutre	19.60
28.684	36.57	34.14	60.00	-25.86	30.34	50.00	-19.66	Neutre	21.36
29.236	36.95	34.76	60.00	-25.24	30.92	50.00	-19.08	Neutre	21.39



	RADIATED	EMISSIONS		
Graph name:				
.imit: FCC CFR47 Part15C (H+V) - BT Hopping Mode mode - Axis XY v				
Class:	configuration n°1			
	Frequency range	e: [30MHz - 1GHz]		
Antenna polarization:	Horizontal & Vertical	RBW : 100kHz		
Azimuth:	0° - 360°	VBW : 300kHz		
		 FCC/FCC CFR47 Part15C - Classe: - Moyenne/3.0m FCC/FCC CFR47 Part15C - Classe: - QCrête/3.0m/ FCC/FCC CFR47 Part15C - Classe: - Crête/3.0m/ Niveau (Suspect Manuel) (Horizontale) Niveau (Suspect Manuel) (Verticale) Mes.Peak (Horizontale) Mes.Peak (Verticale) 		
100 dBµV/m				
HAM HANNA THE MAN	When the part of the second se	anti in the second		
30MHz		1GHz Fréquence		
	Sourious	emissions		

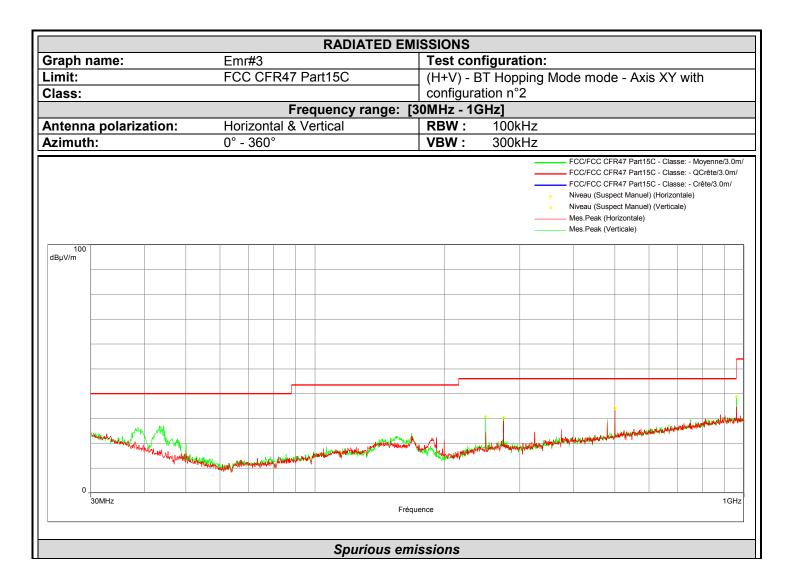
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
500.000	34.0	Horizontal
500.000	33.6	Vertical





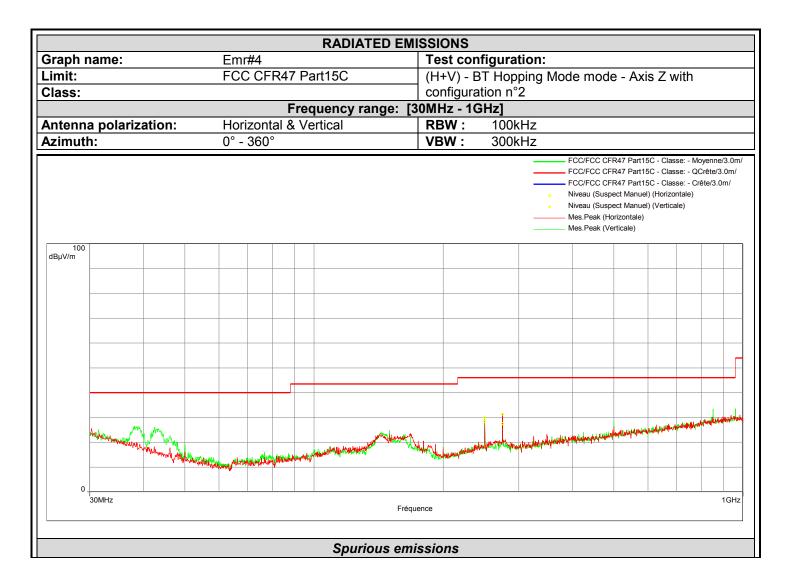
Frequency (MHz)	Peak Level (dBµV/m)	Polarization
250.000	29.1	Horizontal
275.000	31.2	Horizontal





Frequency (MHz)	Peak Level (dBµV/m)	Polarization
500.000	34.3	Horizontal
250.000	30.7	Vertical
275.000	30.4	Vertical
500.000	34.0	Vertical
960.000	38.7	Vertical





Frequency (MHz)	Peak Level (dBµV/m)	Polarization
250.000	28.3	Horizontal
275.000	31.3	Horizontal
250.000	30.0	Vertical
275.000	27.5	Vertical



12. 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 Measurement of conducted disturbances in voltage on the power port	3.51 dB	3.6 dB
Mesure des perturbations conduites en tension sur le réseau de télécommunication Measurement of conducted disturbances in voltage on the telecommunication port.	3.26 dB	A l'étude / Under consid.
Mesure des perturbations discontinues conduites en tension Measurement of discontinuous conducted disturbances in voltage	3.45 dB	3.6 dB
Mesure des perturbations conduites en courant Measurement of conducted disturbances in current	3.09 dB	A l'étude / Under consid.
Mesure du champ électrique rayonné sur le site en espace libre de Moirans Measurement of radiated electric field on the Moirans open area test site	5.20 dB	6.3 dB

Les valeurs d'incertitudes calculées du laboratoire étant inférieures aux valeurs d'incertitudes limites établies par la norme, la conformité de l'échantillon est établie directement par les niveaux limites applicables. / The uncertainty values calculated by the laboratory are lower than limit uncertainty values defined by the standard. The conformity of the sample is directly established by the applicable limits values.