



Test report issued under the responsibility of:
EMITECH MONTPELLIER laboratory
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RADIO TEST REPORT

FCC 47 CFR PART 15: 2020
RSS-210

Company : **STID**
Address..... : 20 Parc d'activites des Pradeaux
13850 GREASQUE
FRANCE

Test item description. : **Tag Reader**
Trade Mark. : STid
Manufacturer..... : STid
Model/Type reference..... : SE8M complete configuration: ARCS-IM, ARCS-JM, ARCS-KM
Model. : ARC-AC4
FCC ID..... : OVNAC4
IC. : 10520A-ARCS
Ratings..... : 7Vdc-28Vdc

Testing Laboratory : **EMITECH MONTPELLIER laboratory**
Address..... : 145 rue de Massacan
34740 VENDARGUES
FRANCE

Report Reference No. : **RR410-20-102742-5A**
Test procedure. : FCC IC Certification
Diffusion..... : Mr SILVE
Applicant's name. : STID
Date of issue..... : May 26, 2022
Total number of pages..... : 49
Revision. : 0
Modified page(s)..... : Creation
Compiled by..... : Nicolas SOULAY
Approved by (+ signature). : Olivier HEYER (Laboratory Manager)

*Duplication of this test report is only permitted for an integral photographic facsimile. It includes the number of pages referenced here above.
This document is the result of testing a specimen or a sample of the product submitted. It does not imply an assessment of the conformity of
the whole manufactured products of the tested sample.*

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REVISION HISTORY:

Revision	Date	Modified pages	Modifications
0	February 18, 2022	/	Creation

1. GENERAL INFORMATION

This document submits the results of Radio tests performed on the equipment **Tag Reader SE8M complete configuration: ARCS-IM, ARCS-JM, ARCS-KM** (denominated hereafter E.U.T.: equipment under test) according to document(s) listed in §2 of this test report.

TESTING PROCEDURE AND TESTING LOCATION:					
Testing Location : EMITECH MONTPELLIER laboratory Address : 145 rue de Massacan 34740 VENDARGUES FRANCE Test procedure : FCC Certification Tested by : Nicolas SOULAY Test supervisor : David MONTAULON Date of receipt of test item : N/A Date (s) of performance of tests : February 10 to March 03 of 2021					
APPLICANT'S GENERAL INFORMATION:					
Company name : STID Company address : 20 Parc d'activites des Pradeaux 13850 GREASQUE FRANCE Person(s) present during the tests : No representative for company attended the tests. Responsible : Mr SILVE					
GENERAL REMARKS:					
The information in italics is declared by the manufacturer and is under his responsibility The test results presented in this report relate only to the object tested. The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report the decimal separator is point.					
POSSIBLE TEST CASE VERDICTS:					
Test case does not apply to the test object .: N/A Test case not performed : N/P Test object does meet the requirement : P (Pass) Test object does not meet the requirement : F (Fail)					
DEFINITIONS AND ABBREVIATIONS:					
E.U.T.	Equipement under test	AE	Ancillary equipment	Pk	Peak detector
RBW	Resolution bandwidth	VBW	Video bandwidth	QP	Quasi-peak detector
OATS	Open area test site	FAR	Full anechoic room	Av	Average detector
VP	Vertical Polarization	HP	Horizontal Polarization	RMS	Root Mean Square
RF	Radio frequency	NTR	Nothing to report	N/C	Not communicated

2. REFERENCE DOCUMENT(S)

NORMATIVE REFERENCES:

The following referenced documents are necessary for the application of the present test report.

FCC 47 CFR PART 15: 2020

Code of federal regulations. Title 47- Telecommunication Chapter 1- Federal Communication Commission. Part 15- Radio frequency devices Subpart B- Unintentional Radiators. Limits and methods of measurement of radio disturbance. Characteristic of information technology equipment.

RSS-210_Issue 10, December 2019

Licence-Exempt Radio Apparatus: Category I Equipment

RSS/CNR-Gen, Issue 5, March 2019

Exigences générales et information relatives à la certification du matériel de radiocommunication

FCC part 15.225

Operation within the bands 13.553-13.567MHz

FCC part 15.247

Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850MHz. (frequency hopping and digitally modulated)

ANSI C 63.10:2013

American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

ANSI C 63.4:2014

American National Standard for Methods of measurement of Radio-Noise from low-voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

KDB 447498 D01 v06

RF exposure procedures and equipment authorization policies for mobile and portable devices.

RSS-102 Issue 5 March 2015

Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

Although the product standard uses obsolete technical standards, the latest versions of standards achievable by the laboratory will be used for testing.

INFORMATIVE REFERENCES:

The following referenced documents are not necessary for the application of the present test report but they assist the user with regard to a particular subject area.

3. EQUIPMENT TECHNICAL DESCRIPTION

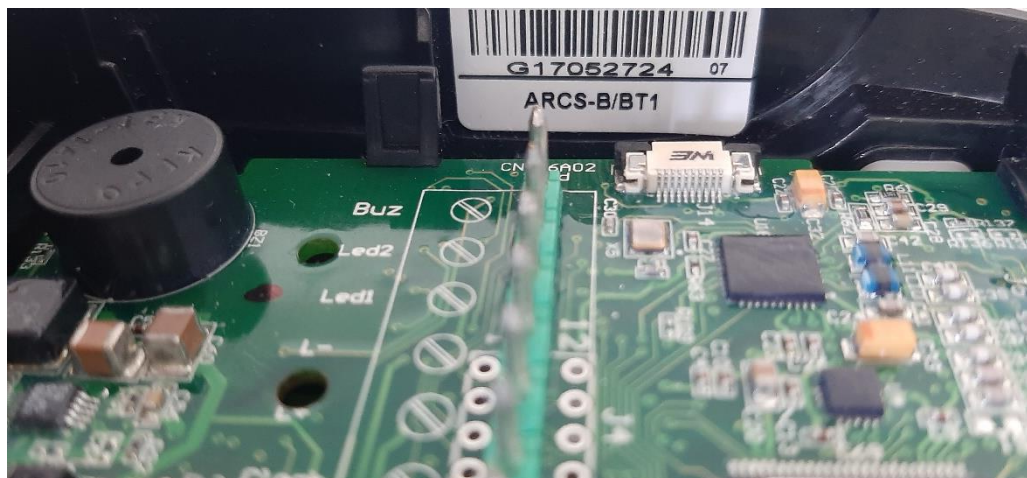
3.1. Test Conditions

Test item description. : Tag Reader
Model/Type reference..... : *SE8M complete configuration: ARCS-IM, ARCS-JM, ARCS-KM*
Trade Mark. : *STid*
Model. : ARC-AC4
FCC ID..... : OVNAC4
IC. : 10520A-ARCS
Serial number (S/N)..... : *G20310326*
Part number (P/N). : *Not communicated*
Software version. : *Not communicated*
Firmware version. : *SY275A*
Type of sample. : *Standard equipment*
Function(s)..... : *13.56 MHz, 125kHz readers and Bluetooth*
Manufacturer name. : *STid*
Address. : 20 Parc d'activites des Pradeaux
13850 GREASQUE
FRANCE

General product information:

N/A

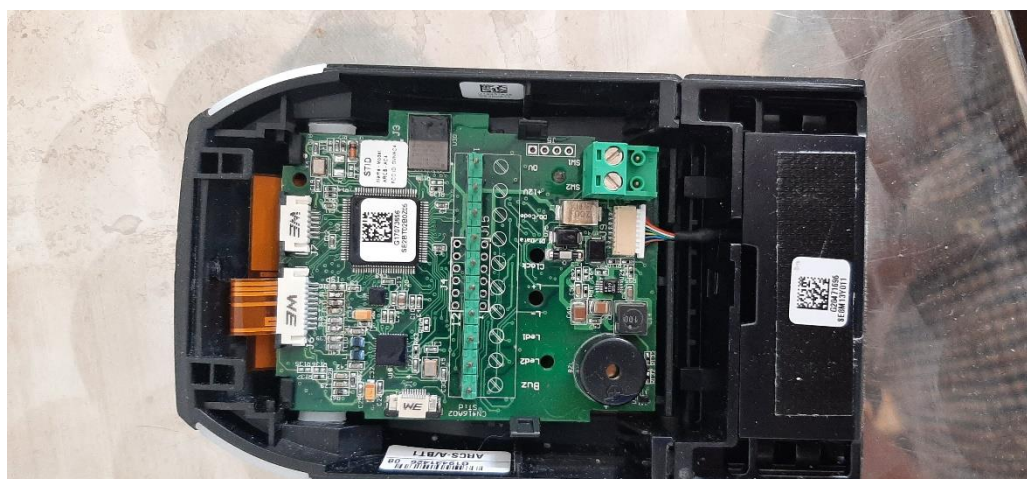
3.2.EUT Marking plate



3.3.EUT General view



3.4.EUT internal view



3.5.EUT Mechanical and Electrical Design

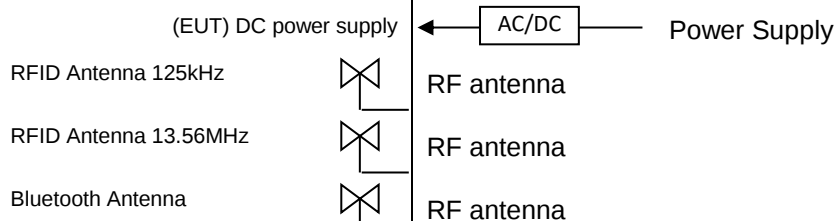
Power supply. : 12Vdc
Power supply range..... : 7Vdc-28Vdc
Power type..... : DC Power Supply
Power (W)..... : 3.12 max
Nominal current (A). : ARCS: 1M:0.19max-JM:0.22max-KM:0.26max
Dimensions (L x W x H) (m). : 0.15 x 0.08 x 0.025
Weight (kg). : 0.180
Temperature range (°C). : -20°C to +70°C
Ground bounding strap..... : No

Comments:

N/A

3.6.EUT Input/Output ports

SE8M complete configuration: ARC-IM, ARC-JM, ARC-KM & ARCS-IM, ARCS-JM, ARCS- KM



PORT	NAME	TYPE	LENGHT	CABLE TYPE	COMMENTS
0	Main frame	N/E	N/A	Plastic	
1	Power Supply	AC/DC		2P	
2	RF antenna	RF	N/A	N/A	
3	RF antenna	RF	N/A	N/A	
4	RF antenna	RF	N/A	N/A	

AC/DC : AC/DC Converter port AC: Alternative current port DC.....: Discontinuous current port
I/O: Input or Output port TP: Telecommunication port RF: Radio frequency port
N/E: Non Electrical port

3.7. EUT Radio Specifications

a) GENERAL INFORMATIONS	
According to manufacturer's declarations :	
EUT type.....	Transmitter
Technology	RFID & Bluetooth
Environmental profile.....	N/C
Temperature range.....	-20°C to +70°C
Antenna type	Integral
Antenna Gain.....	N/C
Comments:	
<i>EUT includes an RF module already certified, see appropriate tests report for full testing results.</i>	
b) TRANSMITTER PARAMETERS (Tx)	
Frequency bands.....	119kHz-140kHz 13.553MHz-13.567MHz 2400MHz-2483.5MHz
RF Power.....	N/C
Number of channels / Separation.....	N/C
Modulation type	RFID: AM
Duty cycle	N/C
Tested frequency.....	125kHz, 13.56MHz, 2402MHz, 2426MHz, 2480MHz
c) RECEIVER PARAMETERS (Rx)	
Frequency bands.....	N/A
Category/Class	N/A
Bandwidth.....	N/A

4. RESULT SUMMARY

TEST DESIGNATION	SEVERITY	VERDICT	BASIC STANDARDS / COMMENTS
INTENTIONAL RADIATORS			
Equipment authorization requirement		PASS	Transmitter part is subject to Certification procedure
Certified operating frequency range		N/A	
Antenna requirement		PASS	Dedicated integral antenna
External radio frequency power amplifiers and antenna modifications		N/A	
Restricted bands of operation		PASS	
Conducted limits		N/A	
Radiated emission limits; general requirements	Class B	PASS	
Tunnel radio systems		N/A	
Modular transmitters		N/A	
Cable locating equipment		N/A	
Cordless telephones		N/A	
Additional provisions to the general radiated emission limits		PASS	
Operation within the band 13.110-14.010 MHz.		PASS	
- Field strength in the band 13.553-13.567 MHz		PASS	
- Field strength in the band 13.410-13.553 MHz and 13.567-13.710 MHz		N/P	
- Field strength in the band 13.110-13.410 MHz and 13.710-14.010 MHz		N/P	
- Field strength outside the band 13.110-14.010 MHz		N/P	
- Frequency tolerance of the carrier signal		N/P	
- Radio frequency powered tag		N/A	EUT is an RFID reader
Operation within the band 902-928MHz, 2400-2483.5MHz and 5725-5850MHz			15.247
- Frequency hopping and digitally modulated		-	a)
- Frequency hopping system		PASS	a) (1)
- Digital modulation system		N/A	a) (2)
- Maximum peak radiated output power		-	b)
- For hopping system in the 2400-2483.5 MHz and 5725-5850 MHz bands		PASS	b) (1)
- For hopping system in the 902-928MHz band		N/A	b) (2)
- For system using digital modulation in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands		N/A	b) (3)
- Operation with directional antenna gains > 6 dBi		N/A	c)
- Out-of-band emissions		N/P	d)
- Power spectral density conducted		N/P	e)
- Hybrid system		N/P	f)
- Frequency hopping additional requirements		N/P	g)
- Frequency hopping intelligence		N/P	h)
- RF exposure compliance		N/P	i)

Sample subject to the test complies with the requirements of the reference document(s) listed in §2 of this test report and, where applicable, with deviation(s) specified in this document.

To declare, or not, the compliance with the specifications, it was not explicitly taken account of uncertainty associated with the results.

Opinion(s) and interpretation(s): N/A

5. MEASUREMENT UNCERTAINTY

PARAMETER	MAXIMAL EMITECH UNCERTAINTY	MINIMAL STANDARD UNCERTAINTY
Radio frequency	$\pm 1 \times 10^{-7}$	$\pm 1 \times 10^{-7}$
Radiated emission (magnetic field) 9kHz – 30MHz	± 3 dB	± 6 dB
Supply voltages	± 3 %	± 3 %
Temperature	± 1 °C	± 1 °C
Humidity	± 5 %	± 5 %
Radiated emission (electric field for FCC standard) 9kHz – 30MHz	± 2.7 dB	/
30MHz – 1GHz	± 5.0 dB	/
1GHz – 18GHz	± 5.6 dB	/
Conducted emission (Artificial Mains Network) 150kHz – 30MHz	± 3.4 dB	± 3.4 dB

For the calculation of expanded uncertainty, the confidence interval is 95 % (k=2).

6. TEST CONDITIONS AND RESULTS

6.1. Field strength at 125 kHz

Reference standard:	FCC Radio part 15.209 & RSS-210
Test method:	ANSI C63.10: 2013
Test description: EUT is set on an insulating support at 80cm. Measurements were then performed in a 10-meter Open Area Test Site that complies to CISPR 16. The EUT was rotated 360° in order to maximize radiated levels. Test antenna was oriented in 3 axes (0°, 45° and 90°). For portable equipments a research of maximum level is done on the 3 axes. Only the highest levels are recorded.	

TEST CASE	EUT MODE	SEVERITY	RESULT TAB.	VERDICT
ARCS-IM 125kHz (OATS)	Permanent emission mode	N/A	EMI5982	PASS
ARCS-JM 125kHz (OATS)	Permanent emission mode	N/A	EMI5983	PASS
ARCS-KM 125kHz (OATS)	Permanent emission mode	N/A	EMI5984	PASS

LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	15 to 35 °C	N/A
Relative Humidity	20 to 75 %	N/A
Atmospheric pressure	N/A	N/A
Test method deviation: N/A		
Supplementary information: N/A		

TEST EQUIPMENT USED					
CATEGORY	BRAND	TYPE	IDENTIFIER	CAL. DATE	CAL. DUE
Antenna	Rohde & Schwarz	HFH2-Z2	5825	24/04/2020	24/06/2022
Cable	Huber + Suhner	N-20m	8385	07/01/2021	07/03/2023
Mast controller	Heinrich Deisel	HD100	4036		
Multimeter	FLUKE	8808A	10382	28/09/2020	28/11/2021
Open area test site	EMITECH	Salinelles	3482	10/10/2017	10/12/2021
Receiver	Rohde & Schwarz	ESHS10	3371	27/04/2020	27/06/2021
Receiver	Rohde & Schwarz	FPL1003	16027	14/08/2020	14/10/2021

Blank cells = Permanent validity

FIELD STRENGTH - TABULATED RESULTS				
TEST CONDITION	FREQUENCY	Level at 10m (dBμA/m)	Level at 300m (μV/m)	Limit at 300m (μV/m)
ARCS-IM 125kHz (OATS)	125kHz	-11.144dBμA/m (Azimuth: 180°) (Antenna Pos: 0°)	0.12	19.2
ARCS-JM 125kHz (OATS)	125kHz	-10.644dBμA/m (Azimuth: 180°) (Antenna Pos: 0°)	0.12	19.2
ARCS-KM 125kHz (OATS)	125kHz	-10.444dBμA/m (Azimuth: 180°) (Antenna Pos: 0°)	0.13	19.2



TEST SETUP PHOTOS



TEST SETUP PHOTOS



6.2. Field strength in the band 13.553-13.567MHz

Reference standard:	FCC Radio part 15.225 a) & RSS-210
Test method:	ANSI C63.10: 2013
Test description: EUT is set on an insulating support at 80cm. Measurements were then performed in a 10-meter Open Area Test Site that complies to CISPR 16. The EUT was rotated 360° in order to maximize radiated levels. Test antenna was oriented in 3 axes (0°, 45° and 90°). For portable equipments a research of maximum level is done on the 3 axes. Only the highest levels are recorded.	

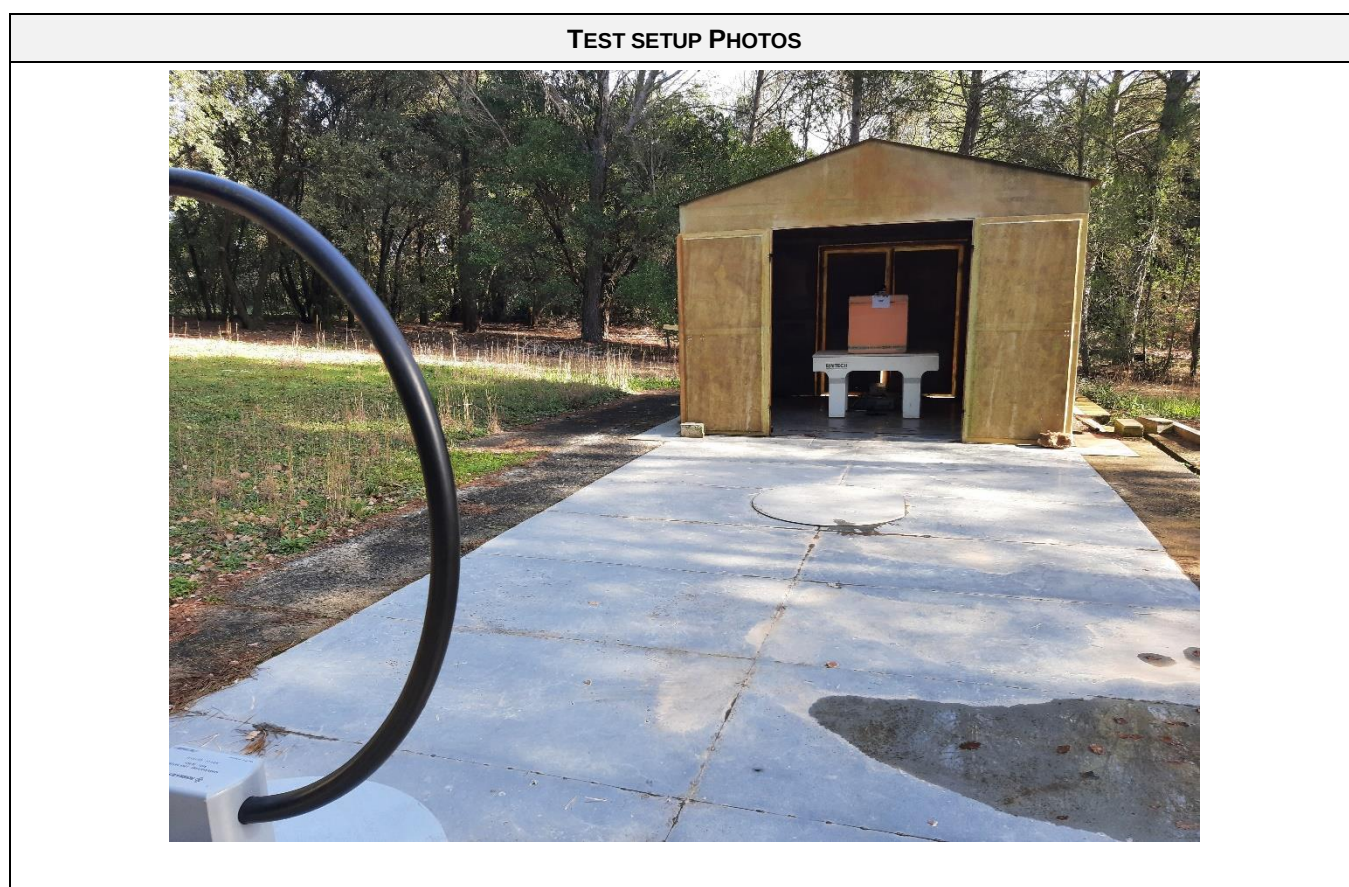
TEST CASE	EUT MODE	SEVERITY	RESULT TAB.	VERDICT
ARCS-IM 13.56MHz (OATS)	Permanent emission mode	15848µV/m at 30m	-	PASS
ARCS-JM 13.56MHz (OATS)	Permanent emission mode	15848µV/m at 30m	-	PASS
ARCS-KM 13.56MHz (OATS)	Permanent emission mode	15848µV/m at 30m	-	PASS

LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	15 to 35 °C	N/A
Relative Humidity	20 to 75 %	N/A
Atmospheric pressure	N/A	N/A
Test method deviation: N/A		
Supplementary information: N/A		

TEST EQUIPMENT USED					
CATEGORY	BRAND	TYPE	IDENTIFIER	CAL. DATE	CAL. DUE
Antenna	Rohde & Schwarz	HFH2-Z2	5825	24/04/2020	24/06/2022
Cable	Huber + Suhner	N-20m	8385	07/01/2021	07/03/2023
Mast controller	Heinrich Deisel	HD100	4036		
Multimeter	FLUKE	8808A	10382	28/09/2020	28/11/2021
Open area test site	EMITECH	Salinelles	3482	10/10/2017	10/12/2020
Receiver	Rohde & Schwarz	ESHS10	3371	27/04/2020	27/06/2021
Receiver	Rohde & Schwarz	FPL1003	16027	14/08/2020	14/10/2021

Blank cells = Permanent validity

FIELD STRENGTH - TABULATED RESULTS				
TEST CONDITION	FREQUENCY	Level at 10m (dBμA/m)	Level at 30m (μV/m)	Limit at 30m (μV/m)
ARCS-IM 13.56MHz (OATS)	13.56MHz	8.5744dBμA/m (Azimuth: 290°) (Antenna Pos: 90°)	112.07	15848
ARCS-JM 13.56MHz (OATS)	13.56MHz	4.3744dBμA/m (Azimuth: 270°) (Antenna Pos: 90°)	69.10	15848
ARCS-KM 13.56MHz (OATS)	13.56MHz	6.6744dBμA/m (Azimuth: 280°) (Antenna Pos: 90°)	90.05	15848



TEST SETUP PHOTOS



TEST SETUP PHOTOS



6.3. Maximum peak radiated power of the intentional radiator for hopping system in the 2400-2483.5 MHz band.

Reference standard:	FCC part 15.247 & RSS 247
Test method:	ANSI C63.10: 2013
General test setup: EUT is set on an insulating support at 150cm above the ground reference plane. Measurement are done on a normalized test site by the substitution method. The test antenna is oriented in the two polarizations (vertical and horizontal), and the product is rotated at 360° in the horizontal plane (See photo(s) for initial position of the EUT(0°)). If applicable the test antenna was raised and lowered through the specified range of height until a maximum signal level is detected. For portable equipments a research of maximum level is done on the 3 axes. Only the highest levels are recorded.	

TESTED CONFIGURATION	PARAMETER	SEVERITY	RESULT TAB.	VERDICT
EIRP ARCS-KM Low Channel	2.398GHz-2.406GHz	10mW	EMI4797	PASS
EIRP ARCS-KM Mid Channel	2.422GHz-2.43GHz	10mW	EMI4798	PASS
EIRP ARCS-KM High Channel	2.476GHz-2.484GHz	10mW	EMI4799	PASS
EIRP ARCS-JM Low Channel	2.398GHz-2.406GHz	10mW	EMI4801	PASS
EIRP ARCS-JM Mid Channel	2.422GHz-2.43GHz	10mW	EMI4802	PASS
EIRP ARCS-JM High Channel	2.476GHz-2.484GHz	10mW	EMI4803	PASS
EIRP ARCS-IM Low Channel	2.398GHz-2.406GHz	10mW	EMI4805	PASS
EIRP ARCS-IM Mid Channel	2.422GHz-2.43GHz	10mW	EMI4806	PASS
EIRP ARCS-IM High Channel	2.476GHz-2.484GHz	10mW	EMI4807	PASS

LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	15 to 35 °C	See Graph(es)
Relative Humidity	20 to 75 %	See Graph(es)
Atmospheric pressure	N/A	See Graph(es)
Test method deviation: N/A		
Supplementary information: N/A		

TEST EQUIPMENT USED					
CATEGORY	BRAND	TYPE	IDENTIFIER	CAL. DATE	CAL. DUE
Antenna	ETS-Lindgren	3117	5456	24/07/2019	24/09/2022
Antenna	ETS-Lindgren	3117	8387	24/07/2019	24/09/2022
Attenuator	EMITECH	SUB.V1-H	14780	04/05/2020	04/07/2021
Attenuator	EMITECH	SUB.V1-V	14781	04/05/2020	04/07/2021
Attenuator	EMITECH	SUB.V2-H	14495	13/01/2021	13/03/2022
Attenuator	EMITECH	SUB.V2-V	14496	13/01/2021	13/03/2022
Cable	SUCOFLEX	N-3m	14379	25/06/2019	25/08/2021
Cable	SUCOFLEX	N-5,5m	14381	25/06/2019	25/08/2021
Cable	Huber + Suhner	SF102K	16041	28/02/2019	28/04/2021

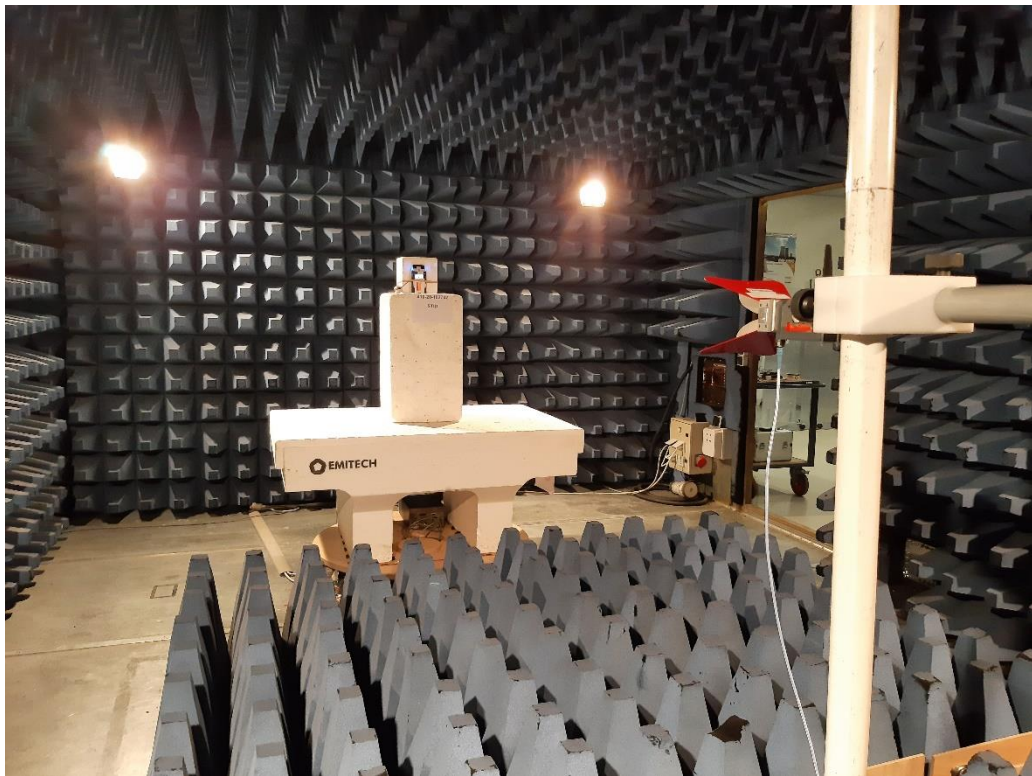
CATEGORY	BRAND	TYPE	IDENTIFIER	CAL. DATE	CAL. DUE
Receiver	Rohde & Schwarz	FSW43	14830	29/07/2020	29/09/2021
Shielded enclosure	RAY PROOF	C.V1	1123	16/06/2018	16/08/2021
Shielded enclosure	RAY PROOF	C.V2	1423	04/10/2019	04/12/2022
Software	Nexio		0000		
Thermohygrometer	Testo	608-H1	7561	25/01/2019	25/03/2021
Thermohygrometer	Testo	608-H1	7562	25/01/2019	25/03/2021
Thermohygrometer	Bioblock Scientific	Météostar	0963	25/01/2019	25/03/2021
Turntable	INN-CO	CO3000 & DS1200S	11571		
Turntable	Heinrich Deisel	D4420	4038		

BAT-EMC software version: V3.18.0.26

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PEAK RADIATED POWER - TABULATED RESULTS			
EIRP ARCS-KM			
Frequency (MHz)	Polarization	P _{eirp} (dBm)	Limit (dBm)
2402.165	Horizontal	-3.81	30
2426.006	Horizontal	-4.9	30
2480.022	Horizontal	-5.58	30
2402.156	Vertical	-4.18	30
2426.266	Vertical	-4.09	30
2479.897	Vertical	-8.47	30
EIRP ARCS-JM			
Frequency (MHz)	Polarization	P _{eirp} (dBm)	Limit (dBm)
2402.314	Horizontal	-3.93	30
2426.259	Horizontal	-2.98	30
2479.735	Horizontal	-2.71	30
2402.229	Vertical	-6.15	30
2425.752	Vertical	-8.16	30
2479.828	Vertical	-4.65	30
EIRP ARCS-IM			
Frequency (MHz)	Polarization	P _{eirp} (dBm)	Limit (dBm)
2402.220	Horizontal	-5.48	30
2426.220	Horizontal	-4.76	30
2479.678	Horizontal	-6.14	30
2402.168	Vertical	-2.83	30
2426.053	Vertical	-4.1	30
2479.786	Vertical	-5.98	30

TEST SETUP PHOTOS



TEST SETUP PHOTOS



6.4. Radiated emissions limits

Reference standard:	FCC part 15 Radio part 15.209 & CNR-Gen
Test method:	ANCI C63.10: 2013
General test setup: For $f < 30\text{MHz}$, EUT is set on an insulating support at 80cm above the ground reference plane. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter in a semi-anechoic chamber. The EUT was rotated 360° in order to maximize radiated levels. Test antenna was oriented in 3 axes (0°, 45° and 90°). Final measurements (quasi-peak) were then performed in a 10-meter Open Area Test Site that complies to CISPR 16 in the same measurement conditions. For $f > 30\text{MHz}$, EUT is set on an insulating support at 80cm above the ground reference plane (150cm for $f > 1\text{GHz}$). Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (quasi-peak or average) were then performed in a semi-anechoic chamber or Open Area Test Site that complies to CISPR 16. The EUT was rotated 360° about its azimuth and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated, where applicable. For portable equipments a research of maximum level is done on the 3 axes. Only the highest levels are recorded.	

TESTED CONFIGURATION	PARAMETER	SEVERITY	RESULT TAB.	VERDICT
ARCS-IM / 0°	9kHz-30MHz	15.209	EMI4828	PASS
ARCS-IM / 45°	9kHz-30MHz	15.209	EMI4829	PASS
ARCS-IM / 90°	9kHz-30MHz	15.209	EMI4830	PASS
ARCS-JM / 0°	9kHz-30MHz	15.209	EMI4836	PASS
ARCS-JM / 45°	9kHz-30MHz	15.209	EMI4837	PASS
ARCS-JM / 90°	9kHz-30MHz	15.209	EMI4838	PASS
ARCS-KM / 0°	9kHz-30MHz	15.209	EMI4844	PASS
ARCS-KM / 45°	9kHz-30MHz	15.209	EMI4845	PASS
ARCS-KM / 90°	9kHz-30MHz	15.209	EMI4846	PASS
30MHz-1GHz / ARCS-IM	30MHz-1GHz	15.209	EMI4793	PASS
30MHz-1GHz / ARCS-KM	30MHz-1GHz	15.209	EMI4794	PASS
30MHz-1GHz / ARCS-JM	30MHz-1GHz	15.209	EMI4795	PASS
>1GHz / ARCS-KM	1GHz-12.75GHz	15.209	EMI4813	PASS
>1GHz / ARCS-JM	1GHz-12.75GHz	15.209	EMI4814	PASS
>1GHz / ARCS-IM	1GHz-12.75GHz	15.209	EMI4815	PASS

LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	15 to 35 °C	See Graph(es)
Relative Humidity	20 to 75 %	See Graph(es)
Atmospheric pressure	N/A	See Graph(es)
Test method deviation: N/A		
Supplementary information: From 9 kHz to 30MHz: limit indicated on the curves is calculated with 40 dB/decade extrapolation factor and 51.5 dB conversion factor. From 30MHz to 1GHz Quasi peak limit provided is the limit given in §15.209. Above 1GHz average limit in restricted bands §15.205 is 54dBμV/m. Otherwise, the limit is 20dB under carrier emission level at 3m without averaging.		

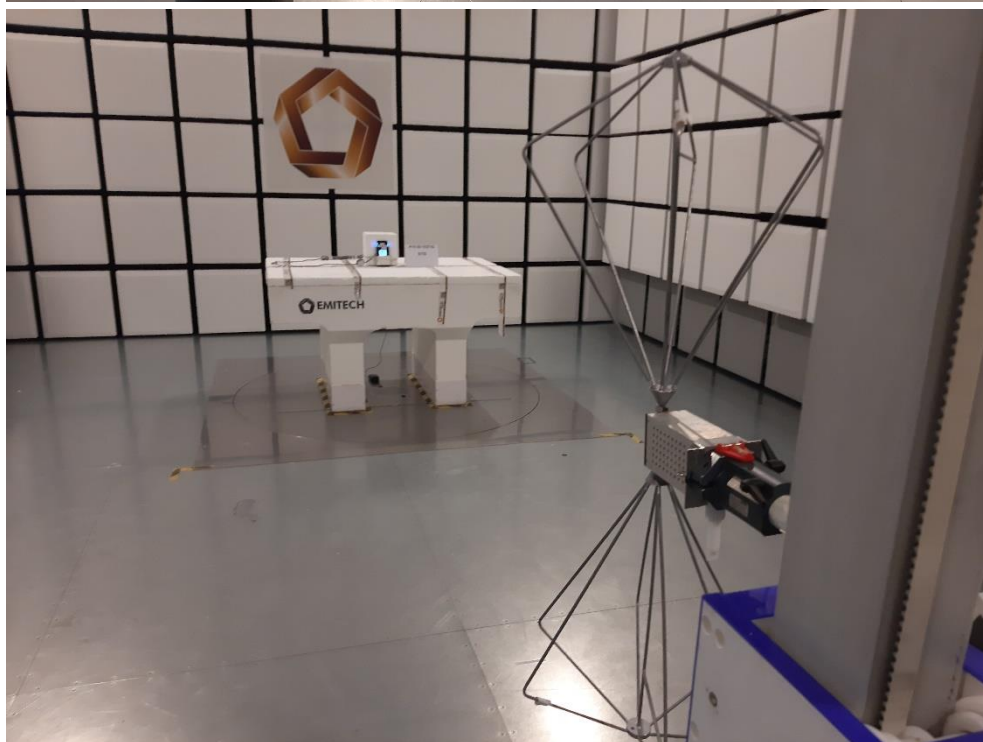
TEST EQUIPMENT USED					
CATEGORY	BRAND	TYPE	IDENTIFIER	CAL. DATE	CAL. DUE
Antenna	ETS-Lindgren	3117	5456	24/07/2019	24/09/2022
Antenna	Electro Metrics	BIA-30HF	0824	13/06/2018	13/08/2021
Antenna	Rohde & Schwarz	HFH2-Z2	5825	24/04/2020	24/06/2022
Antenna	Rohde & Schwarz	HL223	1137	13/06/2018	13/08/2021
Antenna	Rohde & Schwarz	HL223	3126	13/06/2018	13/08/2021
Cable	MegaPhase	F135N1N28	16664	25/10/2019	25/12/2021
Cable	MegaPhase	F135N1N28	16666	25/10/2019	25/12/2021
Cable	SUCOFLEX	N-3m	14378	25/06/2019	25/08/2021
Cable	SUCOFLEX	N-3m	14379	25/06/2019	25/08/2021
Cable	MegaPhase	N-3m	14852	30/10/2018	30/06/2021
Cable	SUCOFLEX	N-6,5m	14380	25/07/2019	25/09/2021
Cable	MegaPhase	N-8m	15813	14/01/2021	14/03/2023
Cable	MegaPhase	RG214N1N139	16658	23/10/2019	23/12/2021
Cable	Huber + Suhner	SF102K	16041	28/02/2019	28/04/2021
Cable	MegaPhase	TM18-N1N1-118	12841	14/08/2020	14/10/2022
Filter	Micro-Tronics	HPM 15162	10273	12/01/2019	12/03/2022
Filter	Micro-Tronics	HPM18865	12843	09/06/2018	09/08/2021
Preamplifier	Techniwave	APS16-0087	14040	02/12/2020	02/02/2022
Preamplifier	Mini-circuit	ZFL-1000LN	1119	11/08/2020	11/10/2021
Receiver	Rohde & Schwarz	ESI	9704	03/03/2020	03/05/2021
Receiver	Rohde & Schwarz	FSW43	14830	29/07/2020	29/09/2021
Shielded enclosure	RAY PROOF	C.V2	1423	04/10/2019	04/12/2022
Shielded enclosure	COMTEST	SAC 3m	14494	02/10/2019	02/12/2022
Software	Nexio		0000		
Thermohygrometer	Testo	608-H2	12269	07/05/2020	07/07/2022
Thermohygrometer	Bioblock Scientific	Météostar	0963	25/01/2019	25/03/2021
Turntable	INN-CO	CO3000 & DS1200S	11571		

BAT-EMC software version: V3.18.0.26

Blank cells = Permanent validity

TRANSMITTER RADIATED SPURIOUS EMISSIONS - TABULATED RESULTS			
ARCS-IM			
Frequency (MHz)	Antenna Position	Level	Limit
23.897	0°	-13.477 dBμA/m	18.04 dBμA/m
27.151	0°	6.26 dBμA/m	18.04 dBμA/m
23.897	45°	-6.088 dBμA/m	18.04 dBμA/m
27.151	45°	3.955 dBμA/m	18.04 dBμA/m
23.897	90°	-5.575 dBμA/m	18.04 dBμA/m
27.151	90°	6.828 dBμA/m	18.04 dBμA/m
30	Horizontal	23.107 dBμV/m	40 dBμV/m
40.562	Horizontal	25.924 dBμV/m	40 dBμV/m
283.410	Horizontal	36.244 dBμV/m	46 dBμV/m
30	Vertical	31.828 dBμV/m	40 dBμV/m
40.626	Vertical	35.351 dBμV/m	40 dBμV/m
51.783	Vertical	31.339 dBμV/m	40 dBμV/m
ARCS-JM			
Frequency (MHz)	Antenna Position	Level	Limit
27.151	0°	-9.065 dBμA/m	18.04 dBμA/m
27.151	45°	-8.999 dBμA/m	18.04 dBμA/m
27.151	90°	-9.059 dBμA/m	18.04 dBμA/m
30.340	Horizontal	28.34 dBμV/m	40 dBμV/m
302.612	Horizontal	36.05 dBμV/m	46 dBμV/m
434.029	Horizontal	35.42 dBμV/m	46 dBμV/m
33.060	Vertical	30.06 dBμV/m	40 dBμV/m
52.124	Vertical	31.23 dBμV/m	40 dBμV/m
434.029	Vertical	35.56 dBμV/m	46 dBμV/m
ARCS-KM			
Frequency (MHz)	Antenna Position	Level	Limit
24.410	0°	-11.462 dBμA/m	18.04 dBμA/m
27.151	0°	0.081 dBμA/m	18.04 dBμA/m
24.419	45°	-8.926 dBμA/m	18.04 dBμA/m
27.151	45°	0.211 dBμA/m	18.04 dBμA/m
24.419	90°	-6.921 dBμA/m	18.04 dBμA/m
27.151	90°	0.571 dBμA/m	18.04 dBμA/m
30.446	Horizontal	24.861 dBμV/m	40 dBμV/m
95.075	Horizontal	27.936 dBμV/m	43.5 dBμV/m
288.211	Horizontal	34.870 dBμV/m	46 dBμV/m
30.446	Vertical	39.873 dBμV/m	40 dBμV/m
40.562	Vertical	34.657 dBμV/m	40 dBμV/m
52.124	Vertical	32.199 dBμV/m	40 dBμV/m

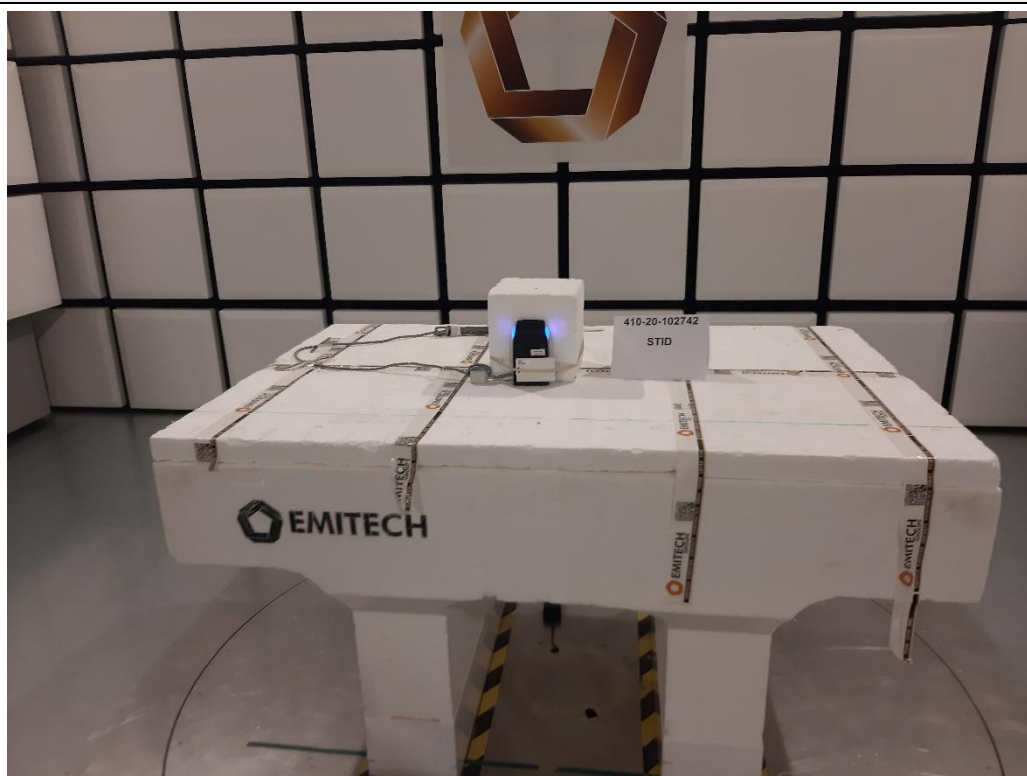
TEST SETUP PHOTOS



TEST SETUP PHOTOS



TEST SETUP PHOTOS F<1GHZ



TEST SETUP PHOTOS F<1GHz

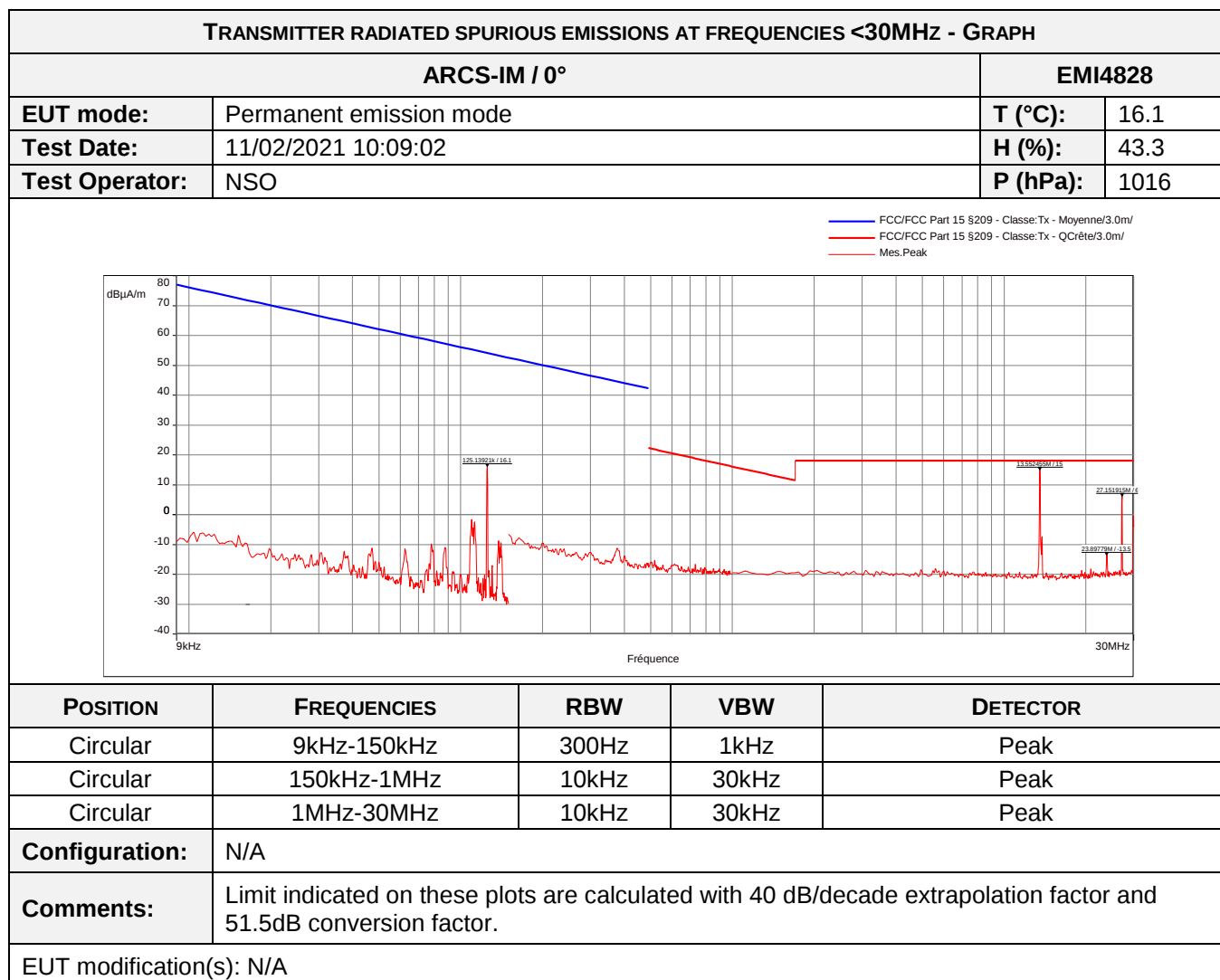


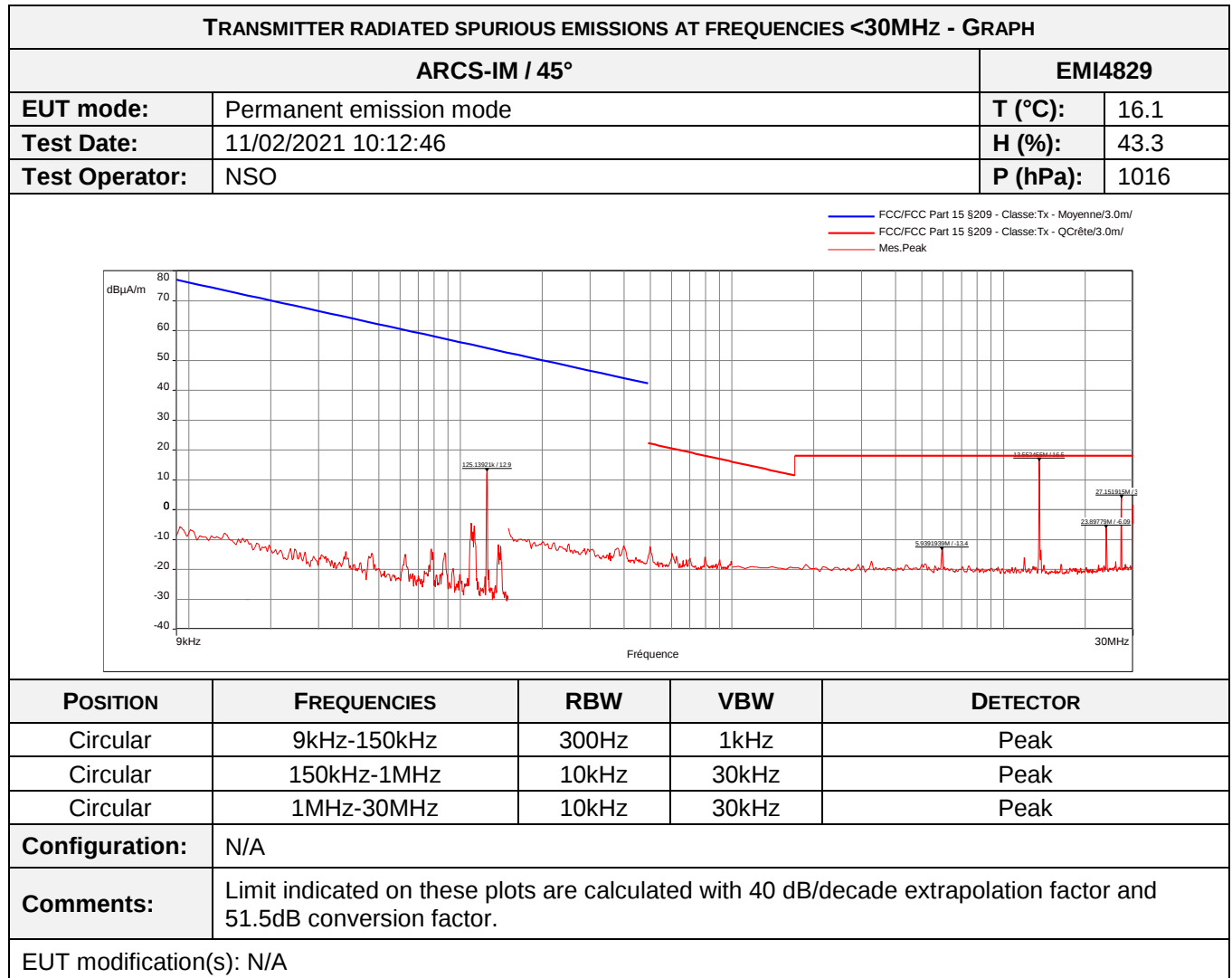
TEST SETUP PHOTOS F>1GHZ

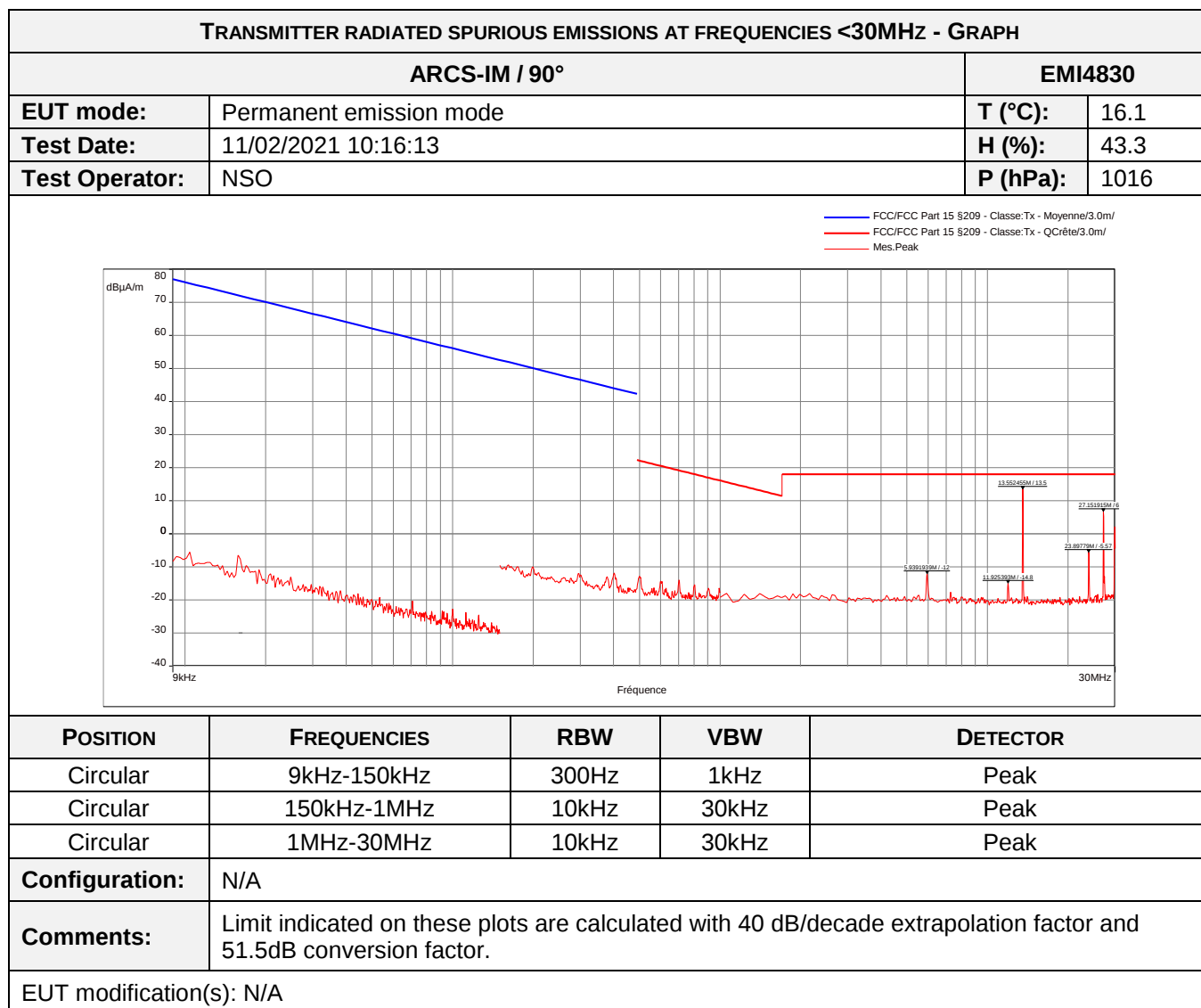


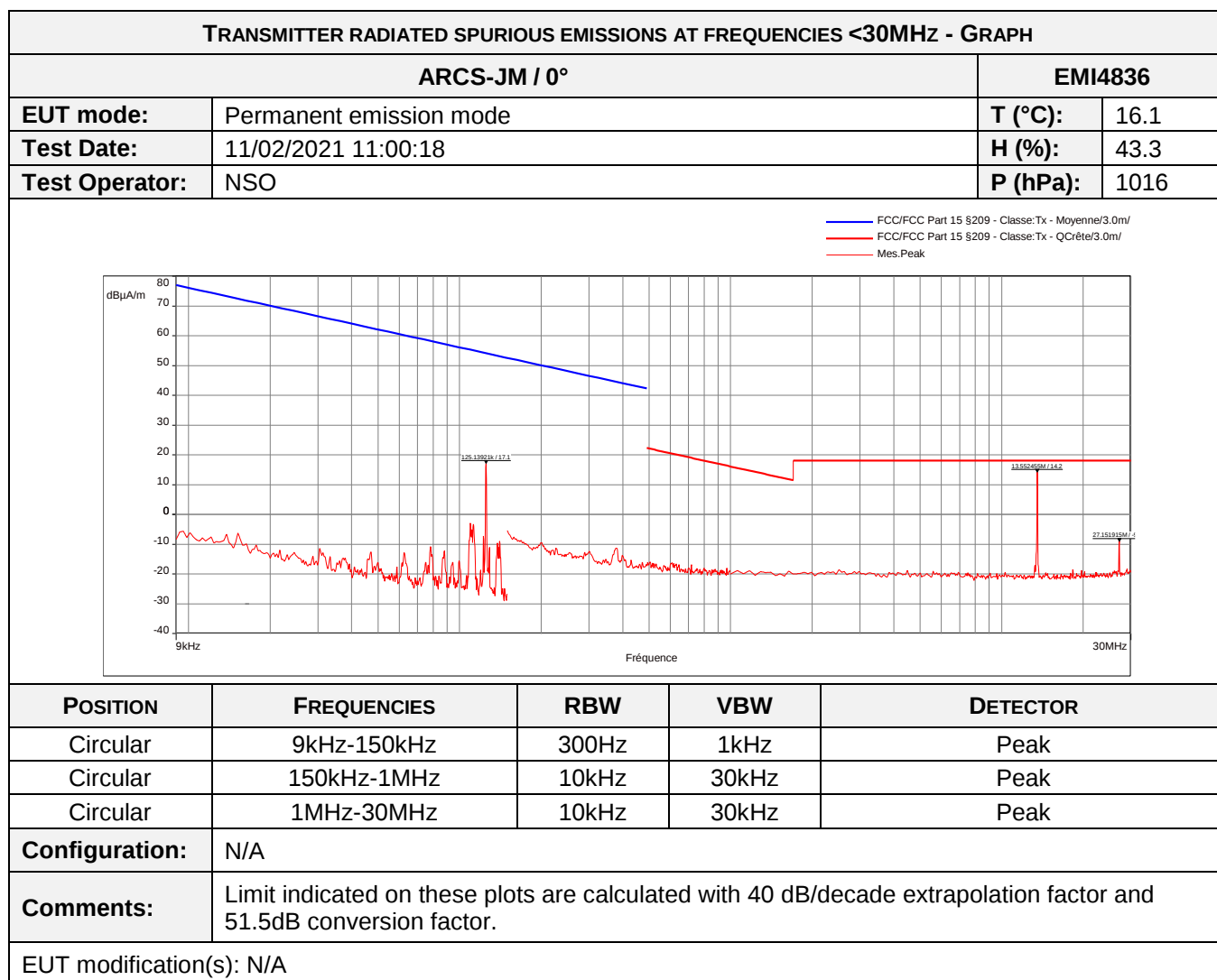
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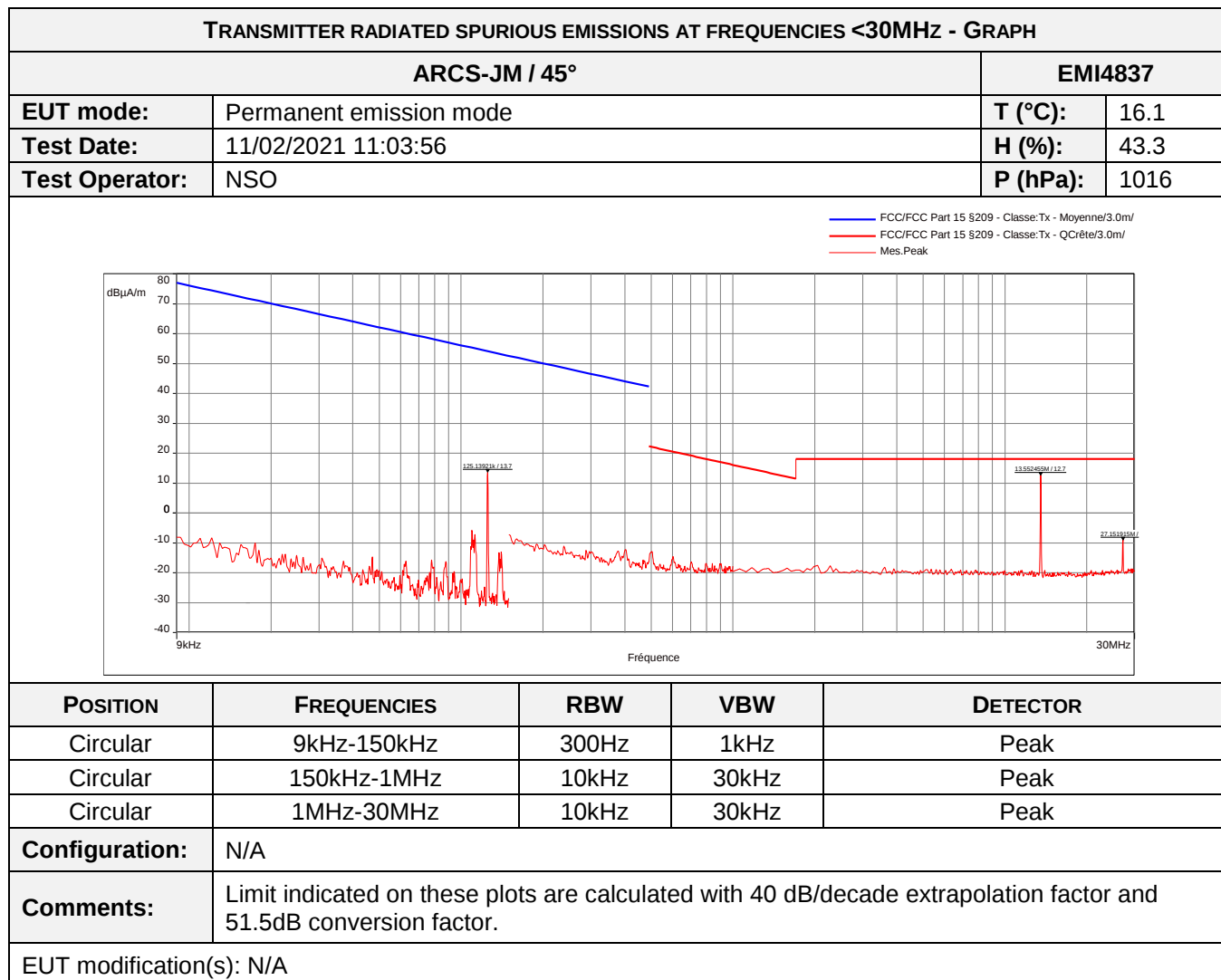


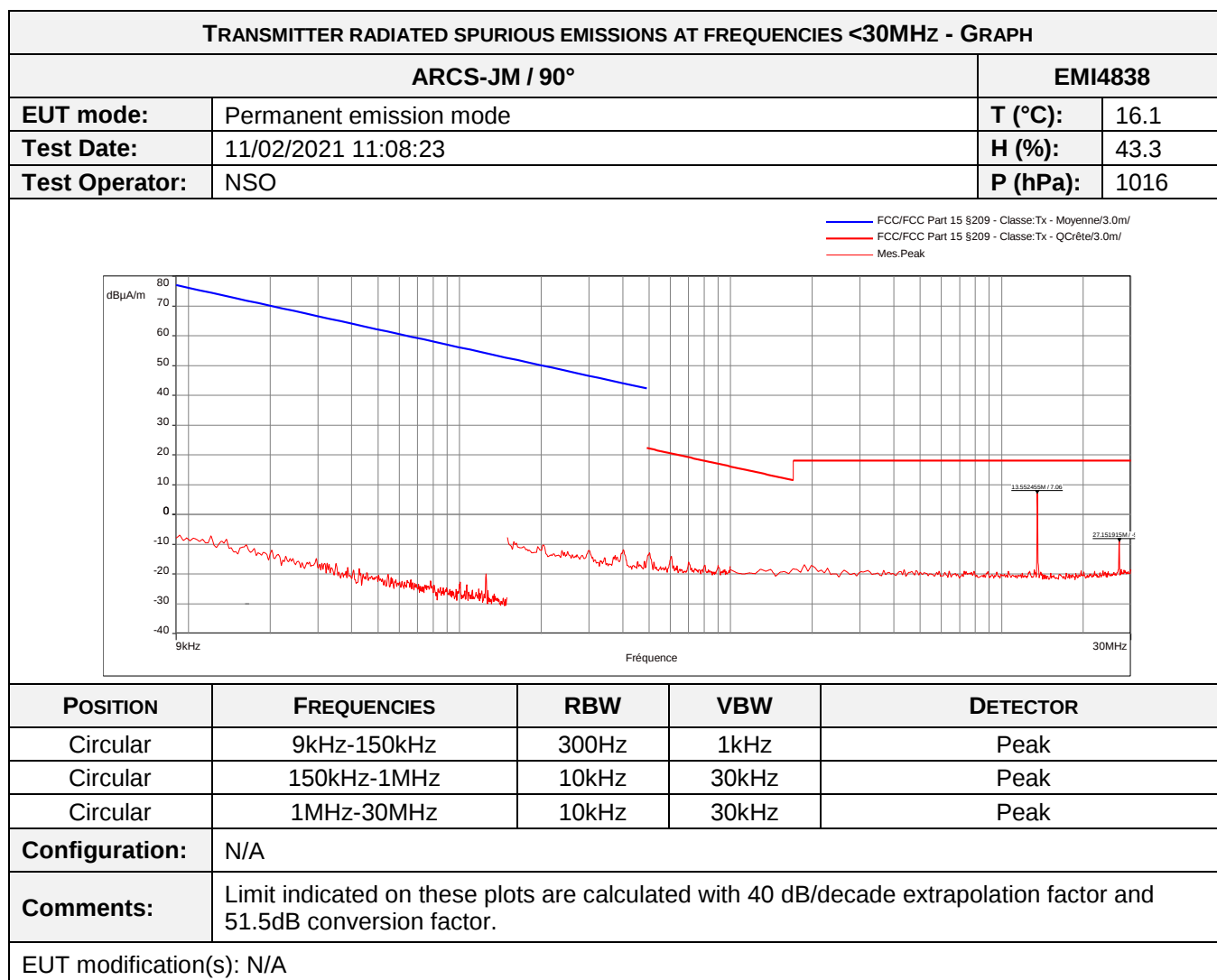


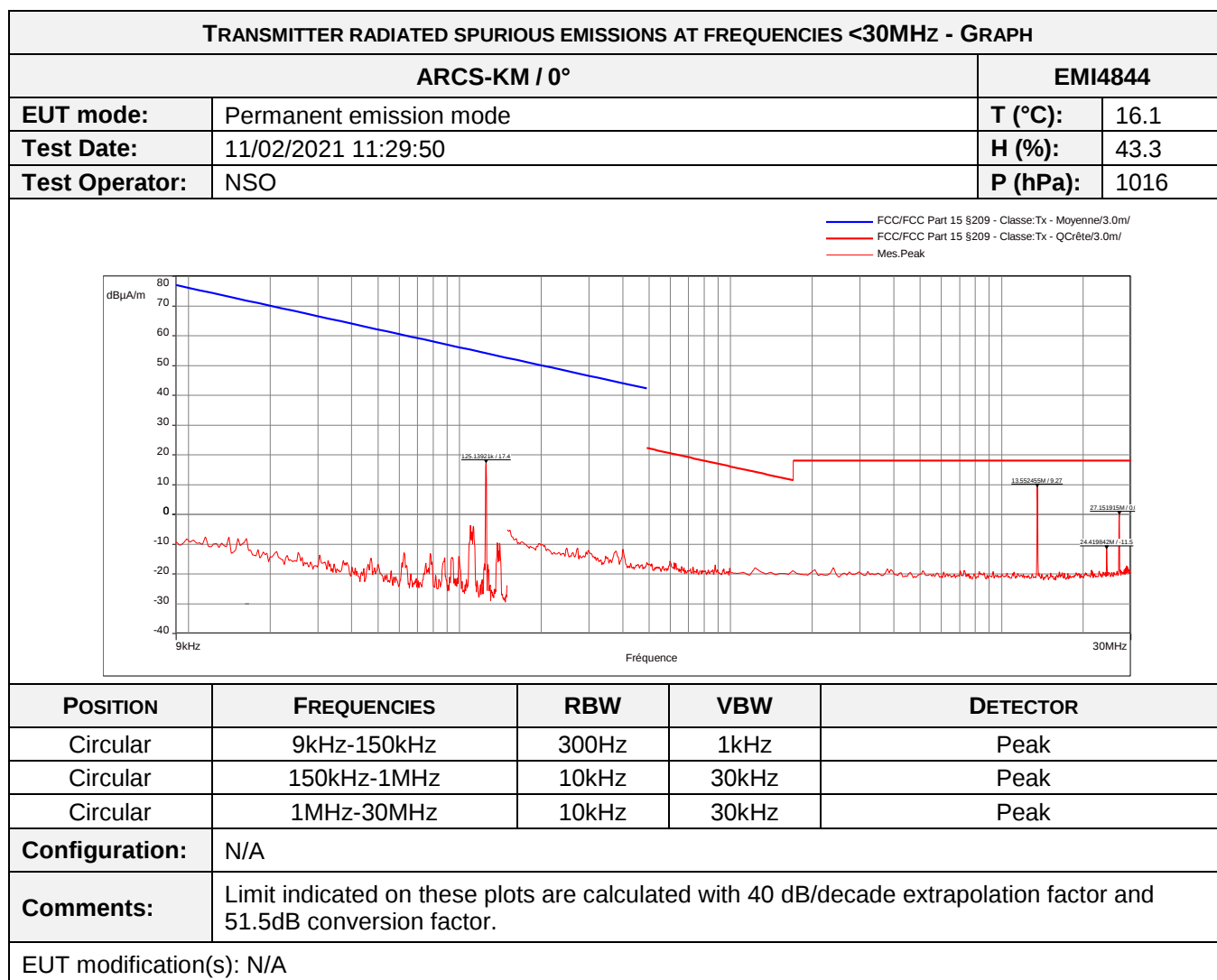


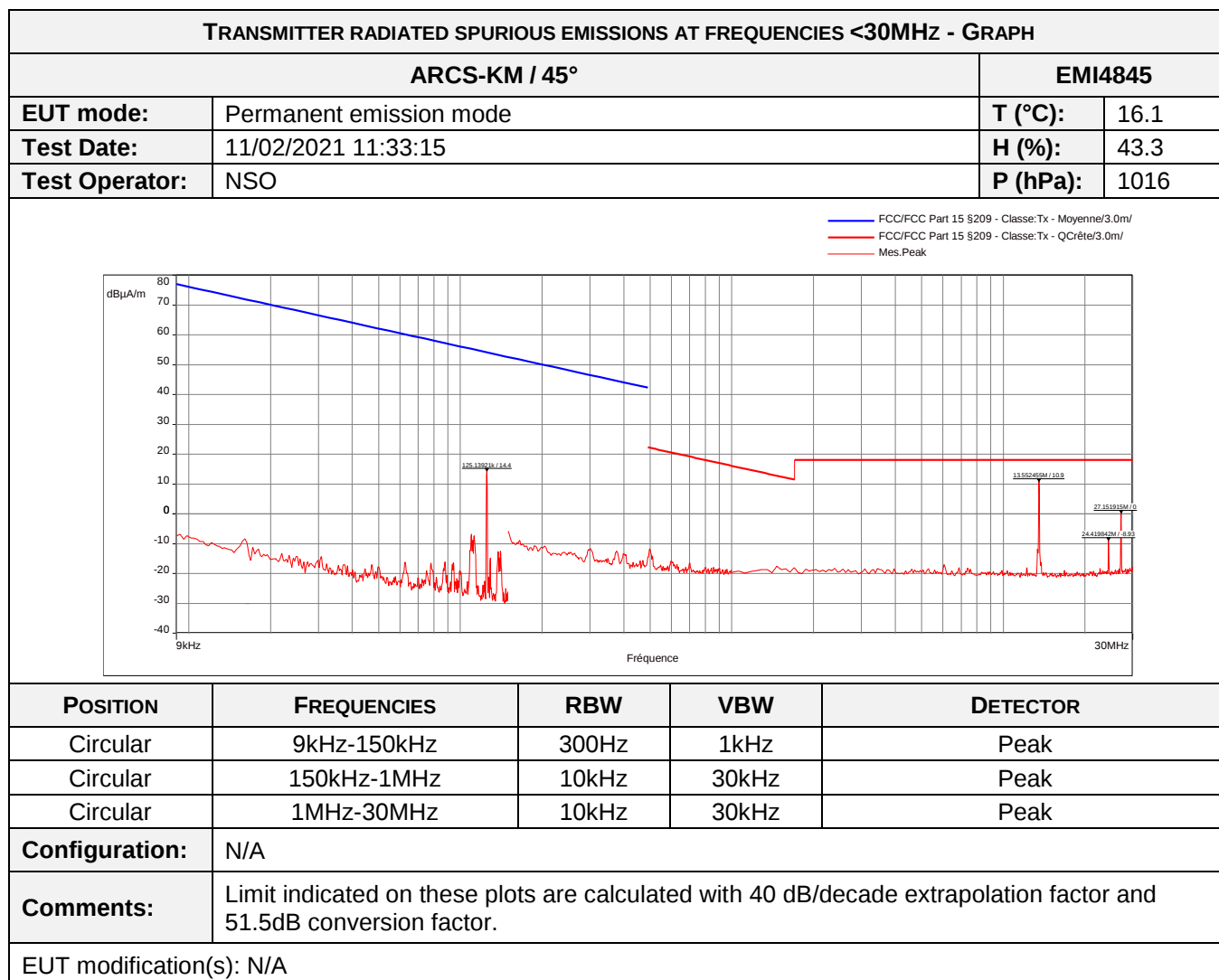


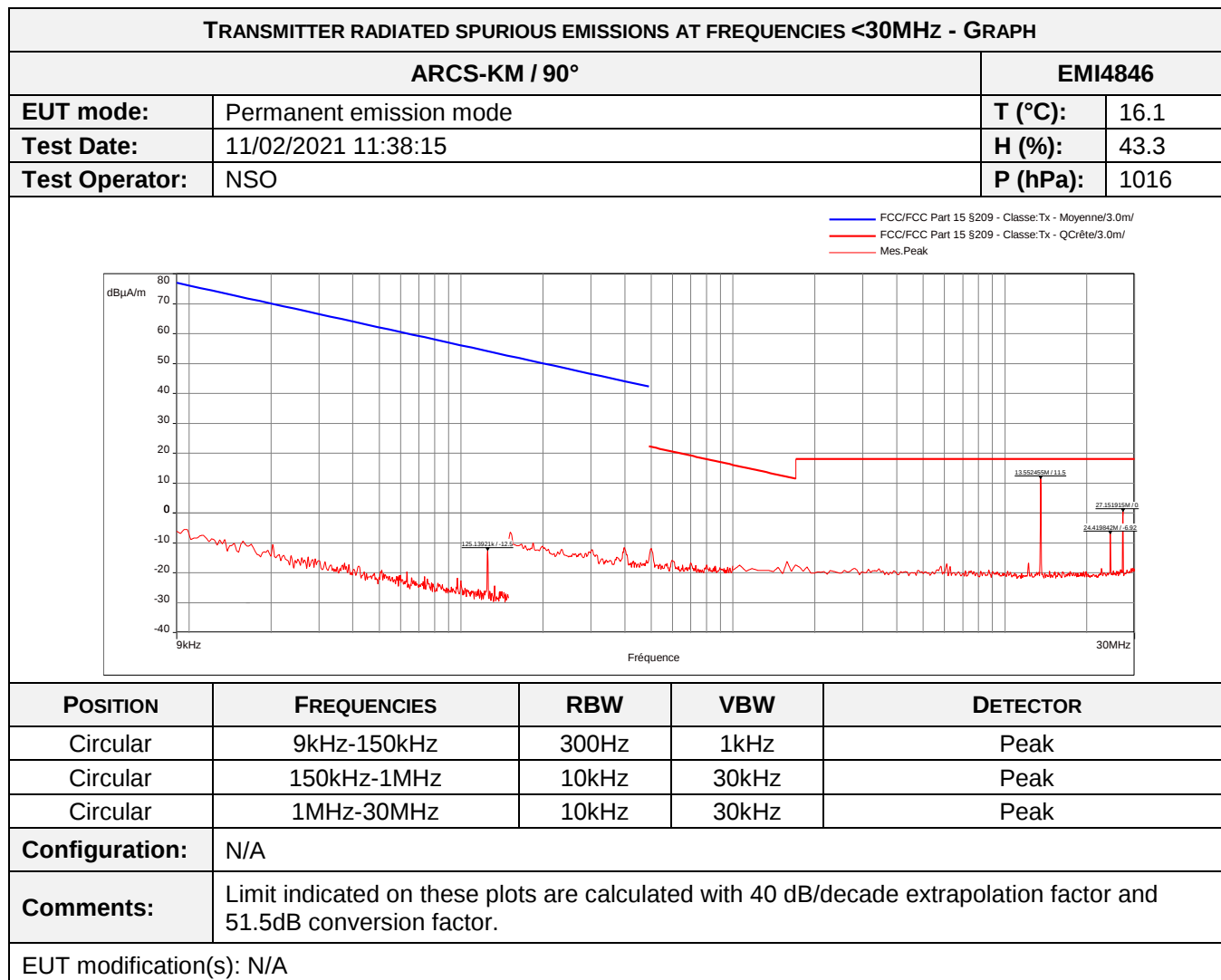


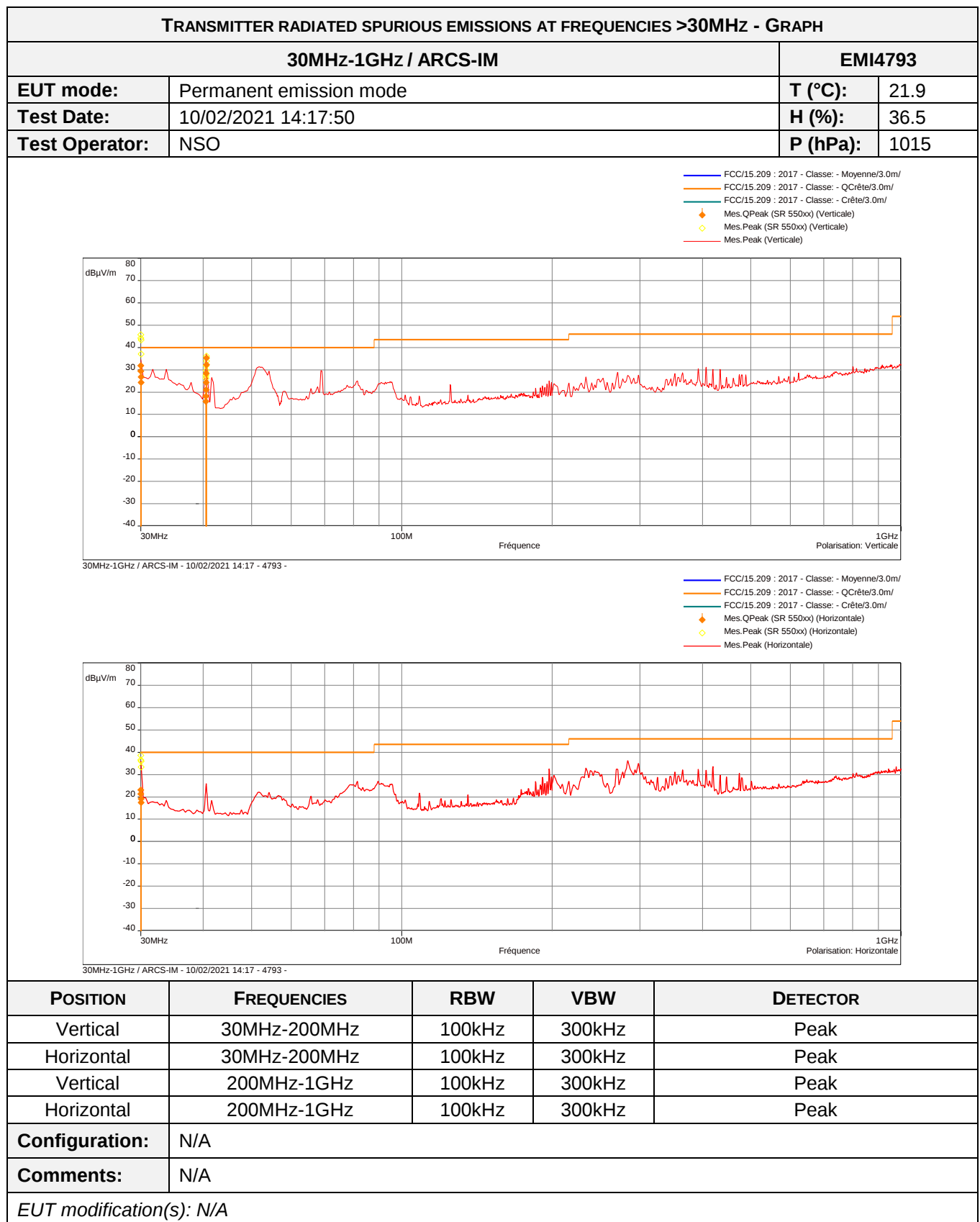


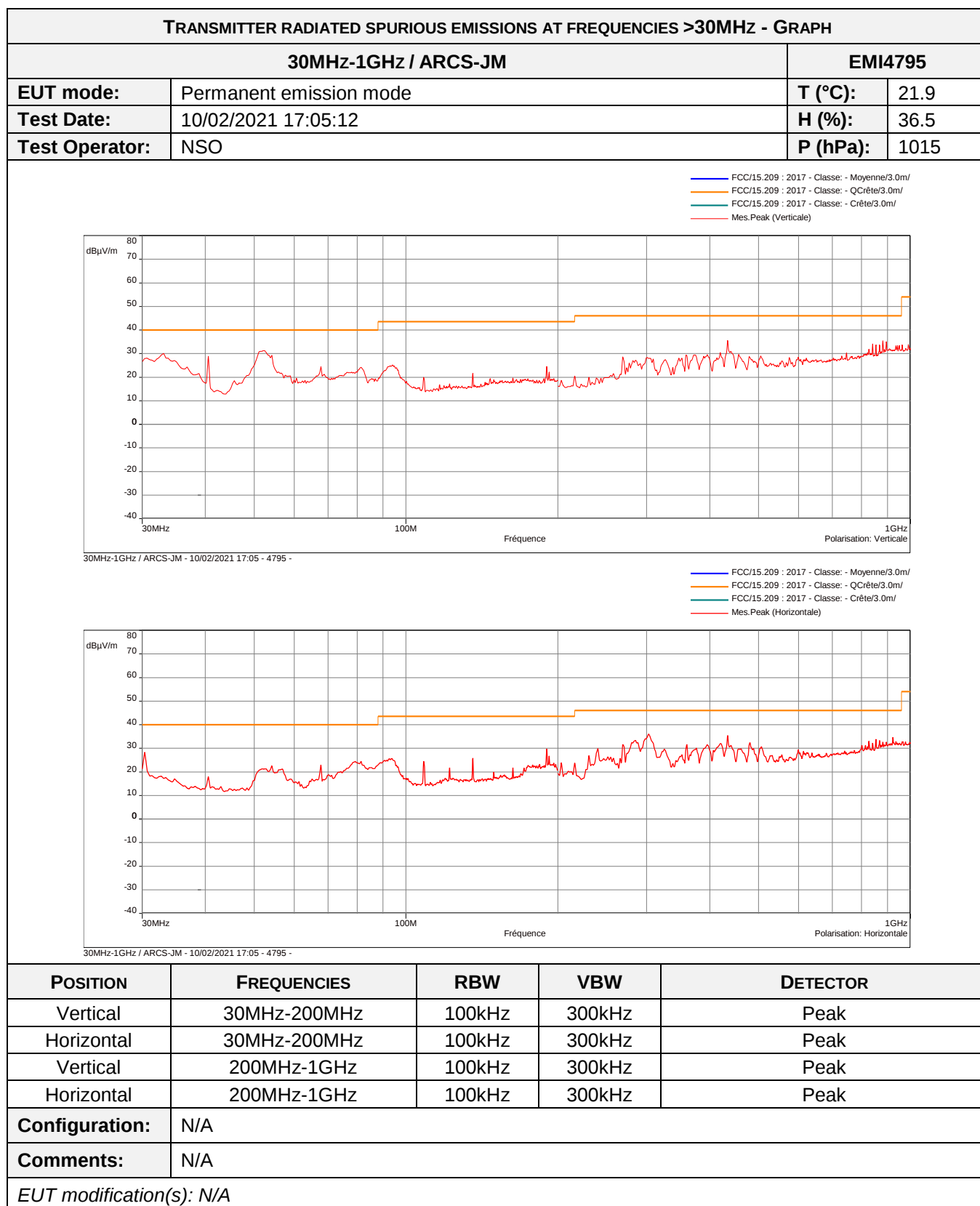


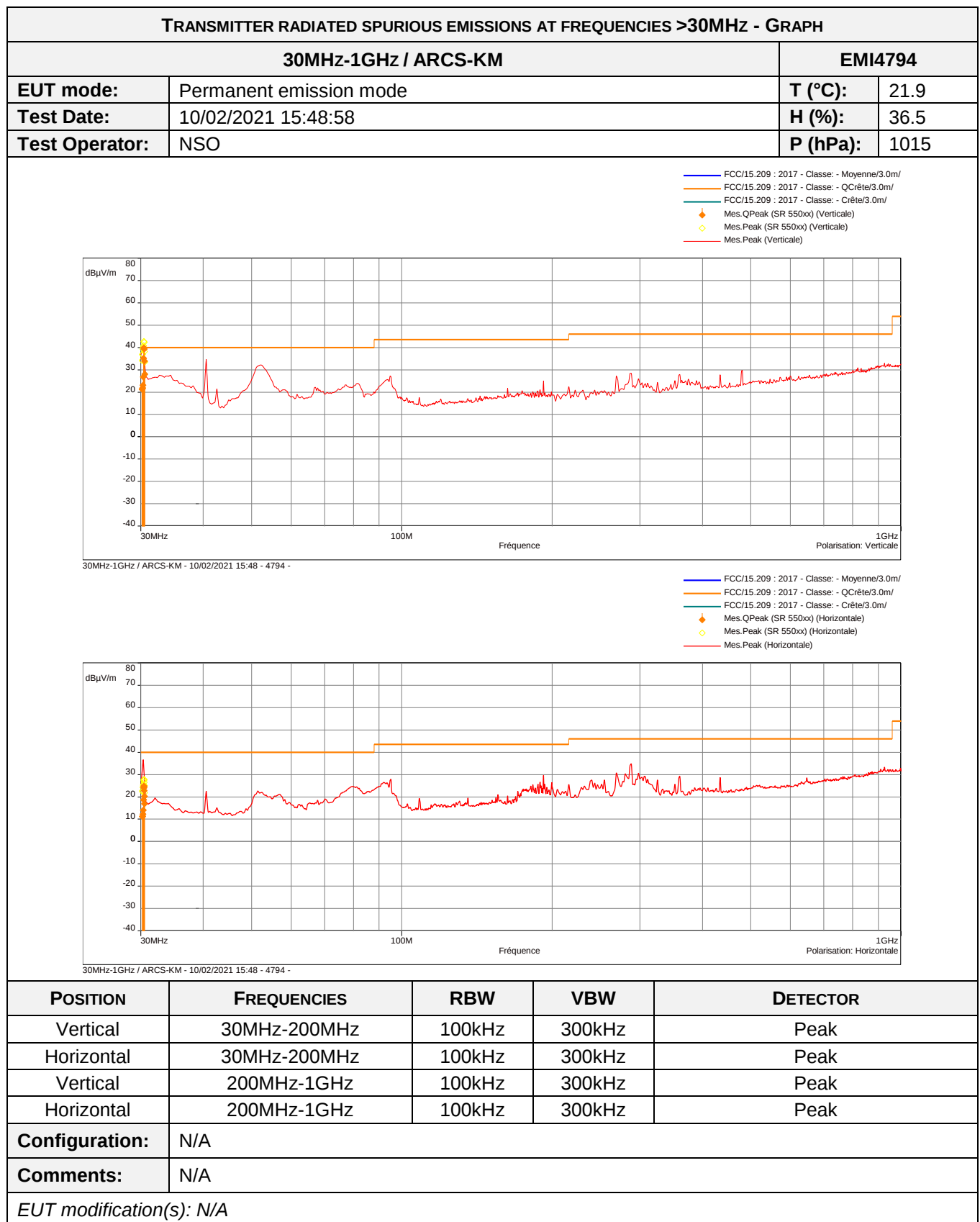


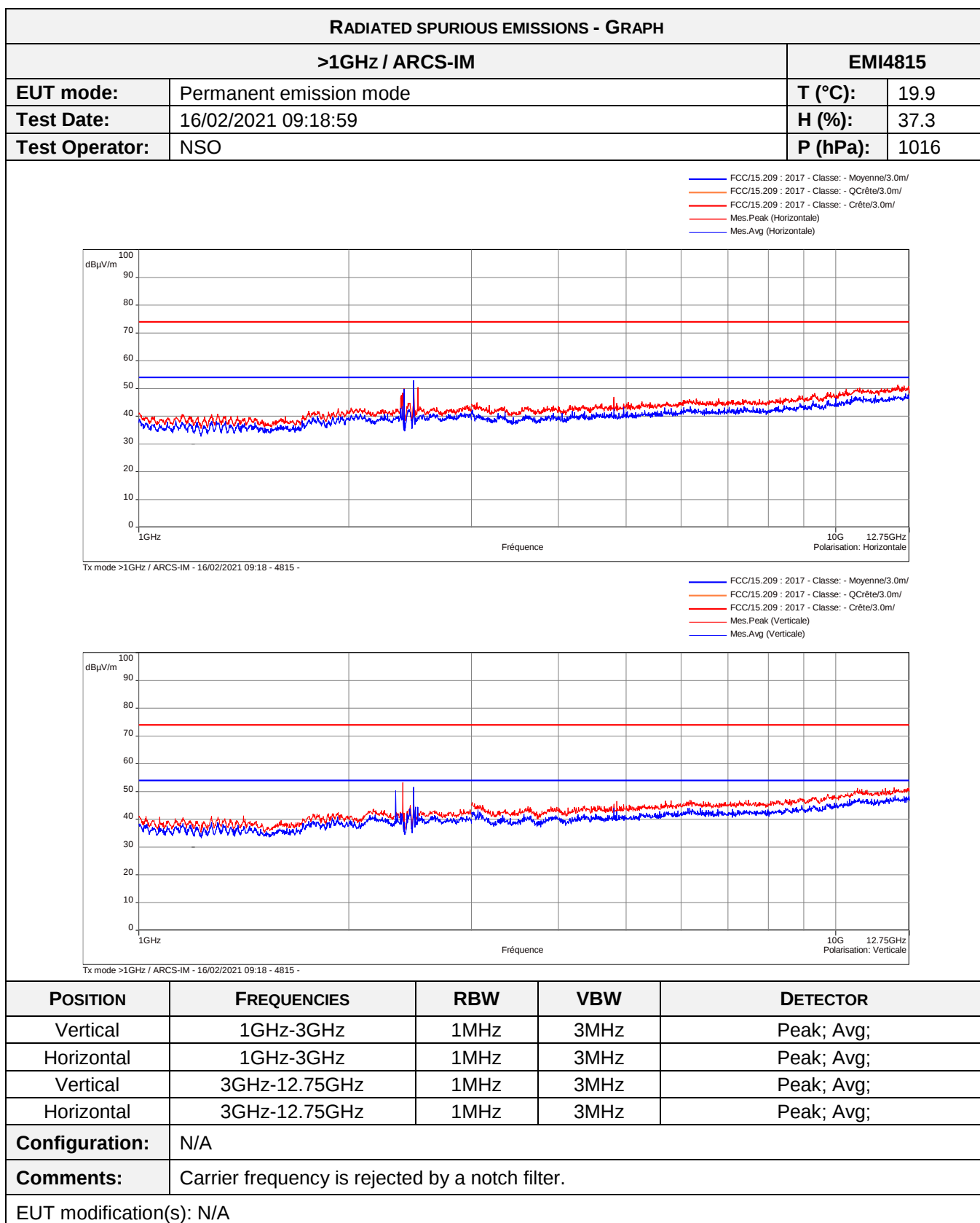


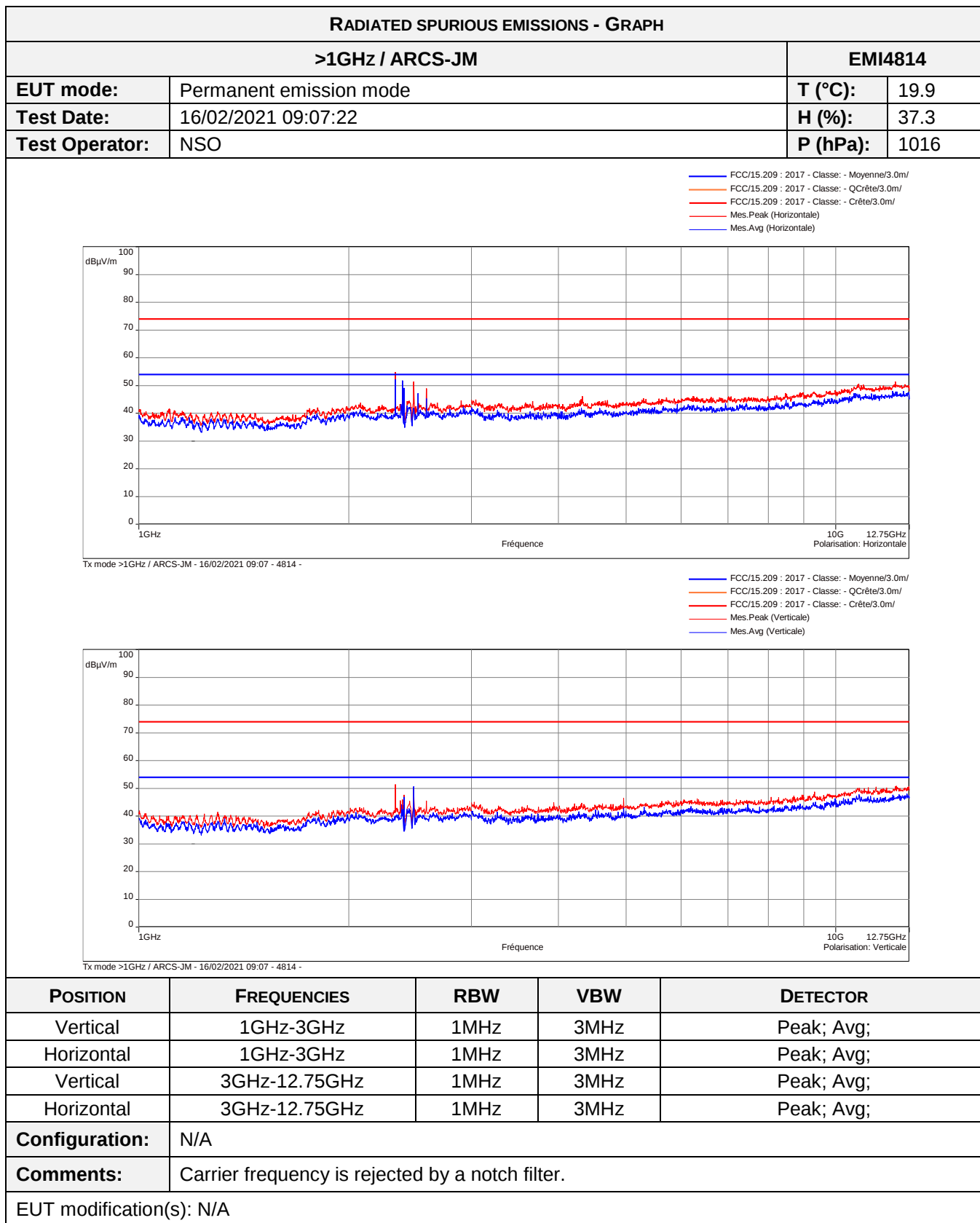


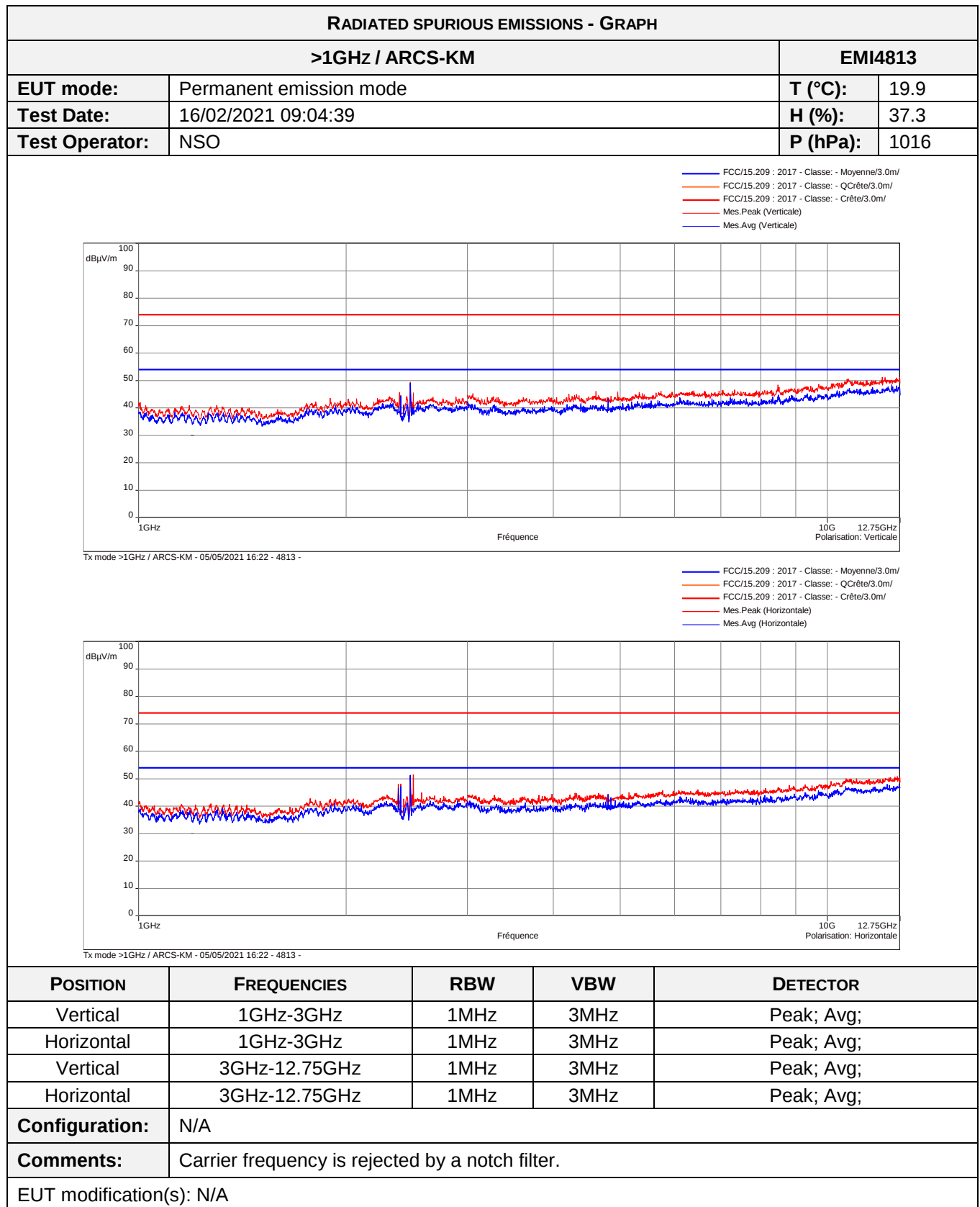












7. RF EXPOSURE

Reference document:	KDB 447498 D01 v06 and RSS 102 issue 5
Calculation method:	KDB 447498 D01 v06 §4.3.1
General test setup: Test set up and measurement levels come from §6 of this document.	

In accordance with RSS-102, Issue 5, Section 2.5.1 and KDB 447498 D01 v06 §4.3.1.c) and §4.3.1.a) for a distance < 5mm:

TEST CONDITION	FREQUENCY	Level	EIRP Level (mW) Calculation : see below	EIRP Limit (mW)	
				RSS 102	KDB
ARCS-KM	125kHz	0.13 µV/m at 300m	0.05x10 ⁻⁶	71	950
ARCS-IM	13.56MHz	112.07 µV/m at 30m	0.4x10 ⁻³	71	480
ARCS-JM	2479.73 MHz	-2.71 dBm	0.53	4	9.52

From ANSI C63.10 Annexe G.2 to convert V/m to W :

$$EIRP = (E \times d)^2/30$$

where

E = electric field strength in V/m

D = measurement distance in m

EIRP = radiated power in W

End of test report