FORCE Technology Test Report

TEST Reg. no. 19

Radio parameter test of FiGS 2.0 according to FCC specifications

Performed for FORCE Technology Norway AS

Project no.: 117-29452-3

2 November 2020

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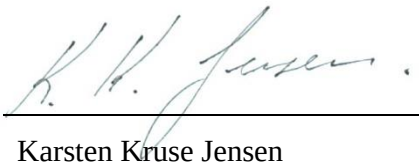
Title	Radio parameter test of FiGS 2.0 according to FCC specifications
Test object	FiGS 2.0
Project no.	117-29452-3
Test period	03 March 2020 to 03 September 2020
Client	FORCE Technology Norway AS Nye Vakås vei 32 1395 Hvalstad Norway Tel.: +47 64 00 35 00
Contact person	Jens Christofer Werenskiold E-mail: jew@force.no
Manufacturer	FORCE Technology Norway AS
Specifications	47 CFR Part 15, Subpart C (Specific rule part §15.249)
Results	The test object was found to be in compliance with the specifications
Test personnel	Peter Wolf Frandsen
Test site	FORCE Technology, Venlighedsvej 4, 2970 Hørsholm, Denmark

Date 2 November 2020

Project Manager

Peter Wolf Frandsen
Specialist EMC
FORCE Technology

Responsible



Karsten Kruse Jensen
Head of Department
FORCE Technology

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1. Summary of tests

Tests	Test methods	Rule Section	Results
Measurement of radiated emission / field strength of harmonics 30-1000 MHz	ANSI C63.10:2013	47 CFR Part 15.209 & 15.249	Passed
Measurement of radiated emission / field strength of harmonics 1-25 GHz	ANSI C63.10:2013	47 CFR Part 15.209 & 15.249	Passed
Measurement of 20 dB bandwidth	ANSI C63.10:2013	47 CFR Part 15.215(c)	Passed
Measurement of band edge compliance	ANSI C63.10:2013	47 CFR Part 15.209 & 15.249	Passed
Measurement of field strength of fundamental	ANSI C63.10:2013	47 CFR Part 15.249	Passed
Measurement of Conducted limits	ANSI C63.10:2013	47 CFR Part 15 C Subpart 15.207	Passed Note 1

Note 1: The test object contains no AC mains port. The measurement was performed on Auxiliary equipment 2.2.4 as a representable AC mains source.

The given result is based on a shared risk principle with respect to the measurement uncertainty.

Conclusion

The test object mentioned in this report meets the requirements of the standard stated below, with respect to the tests listed above.

- 47 CFR Part 15, Subpart C (Specific rule part §15.249)

The test results relate only to the objects tested.

2. Test object and auxiliary equipment

2.1 Test object

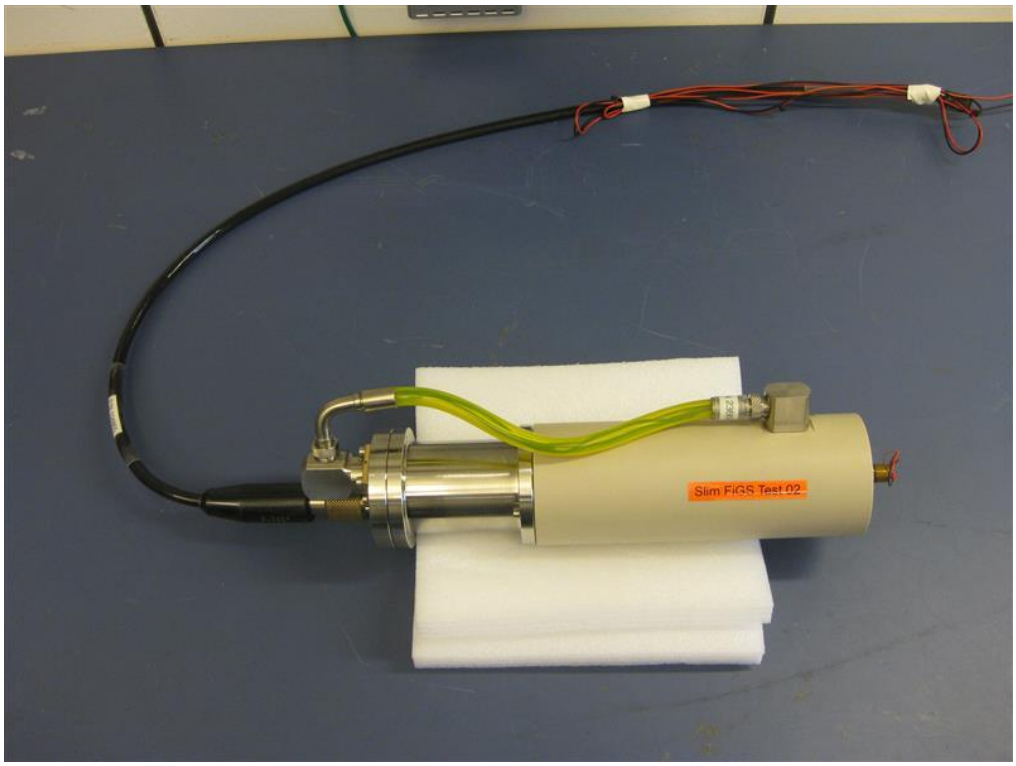


Photo 2.1.1 Test object without plastic enclosure and without its passive sensor head.

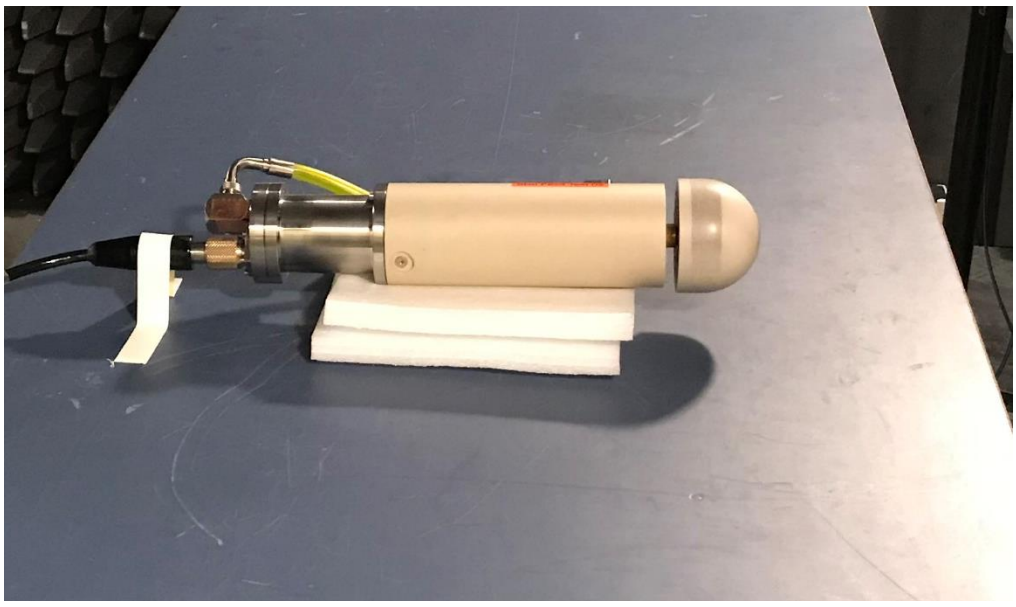


Photo 2.1.2 Test object without plastic enclosure.

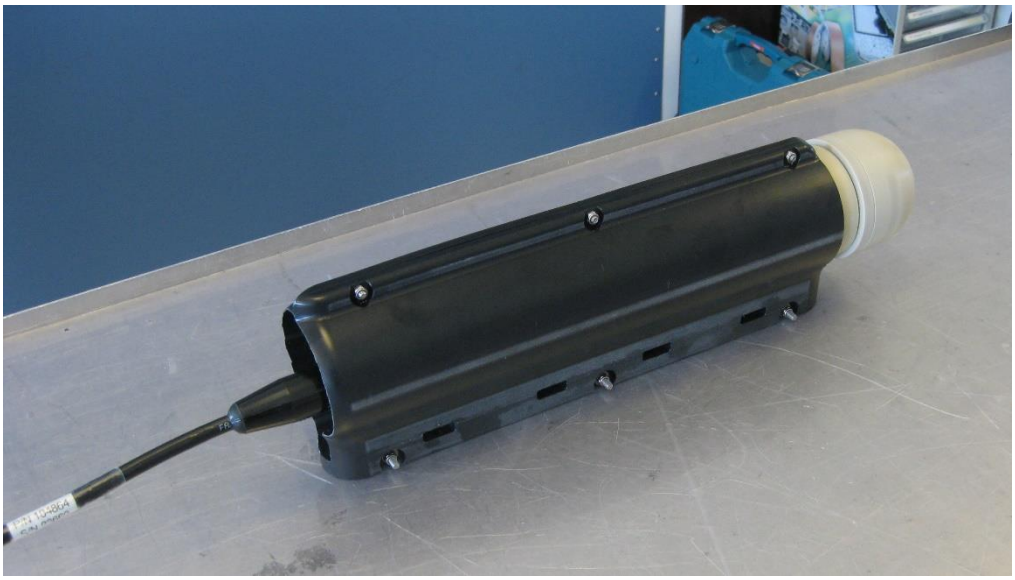


Photo 2.1.3 Test object with plastic enclosure.

Test object 2.1.1

Name of test object	Slim FiGS Test 02
Model / type	FiGS 2.0
Serial no.	EMC-01
FCC ID	2AX6V-FIGS2
Manufacturer	FORCE Technology Norway AS
Supply voltage	24 VDC/0.5A
Software version	Radio parameter test: “RegTestRadio”
Hardware version	Motor ctrl 04, Rotor ctrl 04. Rotor pwr 02, Master ctrl 04 Radio module 02, Hall Mezzanin 01, Power coil 01, Antenna Inverted F 1.1
Cycle time	Continually
Highest frequency generated or used	Radios: 2.45 GHz Master Controller: 110 MHz
Comment	Subsea CP inspection of flowlines, pipelines, jacket and similar structures. The plastic enclosure is a mounting bracket and a means of mechanical protection without any shielding properties.
Received	Date: 03 March 2020. Status: Test object sampled and provided by customer.

2.2 Auxiliary equipment

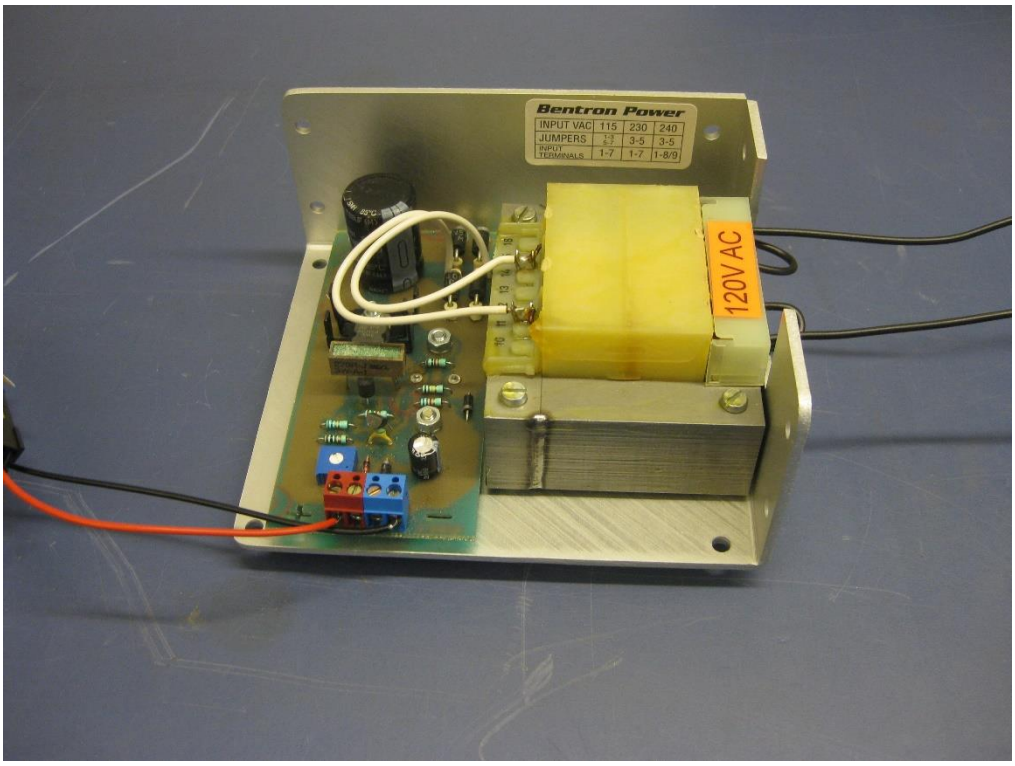


Photo 2.2.1 Auxiliary equipment.

Auxiliary equipment 2.2.1

Name of auxiliary equipment	Power supply
Model / type	S-24/2.4
Part no.	-
Serial no.	9748
FCC ID	-
Manufacturer	Bentron Power
Supply voltage	120 VAC 60 Hz
Highest frequency generated or used	-
Comment	Auxiliary equipment supplied by the client, who also has the responsibility for its correct function and set-up.

3. General test conditions

3.1 Test set-up during test

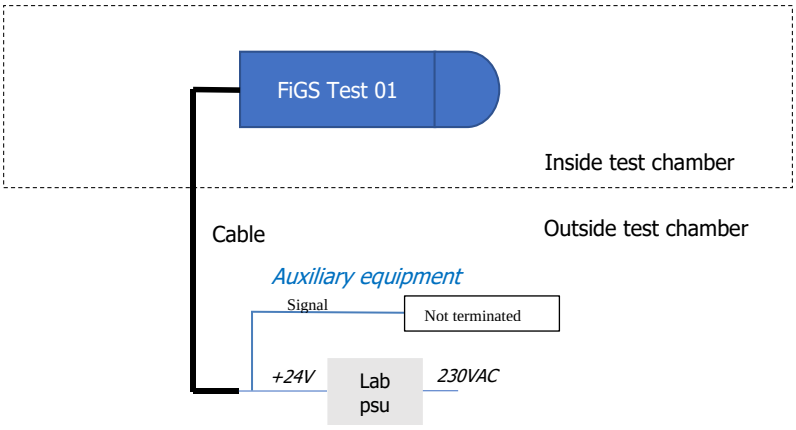


Figure 3.1.1 Block diagram of test object with cables and auxiliary equipment.

Port/Cable name	Cable type	Shielded cable	Unshielded cable	Max. length		
				< 3 m	< 30 m	≥ 30 m
Enclosure	N/A	-	-	-	-	-
Connecting cable	Power & signal	-	X	X	-	-

Table 1 Cable specifications.

3.1.1 Description of test set-up

During emission test with TX at 2450 MHz the test object runs with standard software, however, with a change so that the engine runs when power is connected (normally one would have to start it with a command).

3.1.2 Description and intended use of test object

FiGS 2.0 is a sensor for measurement of cathodic protection activity and corrosion for assets in sea water, such as pipelines, subsea structures and fixed installations.

The sensor is mounted on an underwater vehicle, such as a ROV, AUV or ROTV. The sensor is connected through the vehicle control systems, and sensor data is either transmitted topside to a control computer with logging software or stored locally on the vehicle.

Radio specifications:

2.4 GHz radio is incorporated by embedded design, using communication on 2.45 GHz with integral antennas.

Non-FHSS.

3.1.3 Test modes during emission tests

Normal operation and special SRD set-up. The radio is set to constant, maximum output power with modulation enabled at a selected channel. Radio parameter testing is done operating frequency 2450 MHz.

3.1.4 Nominal power consumption

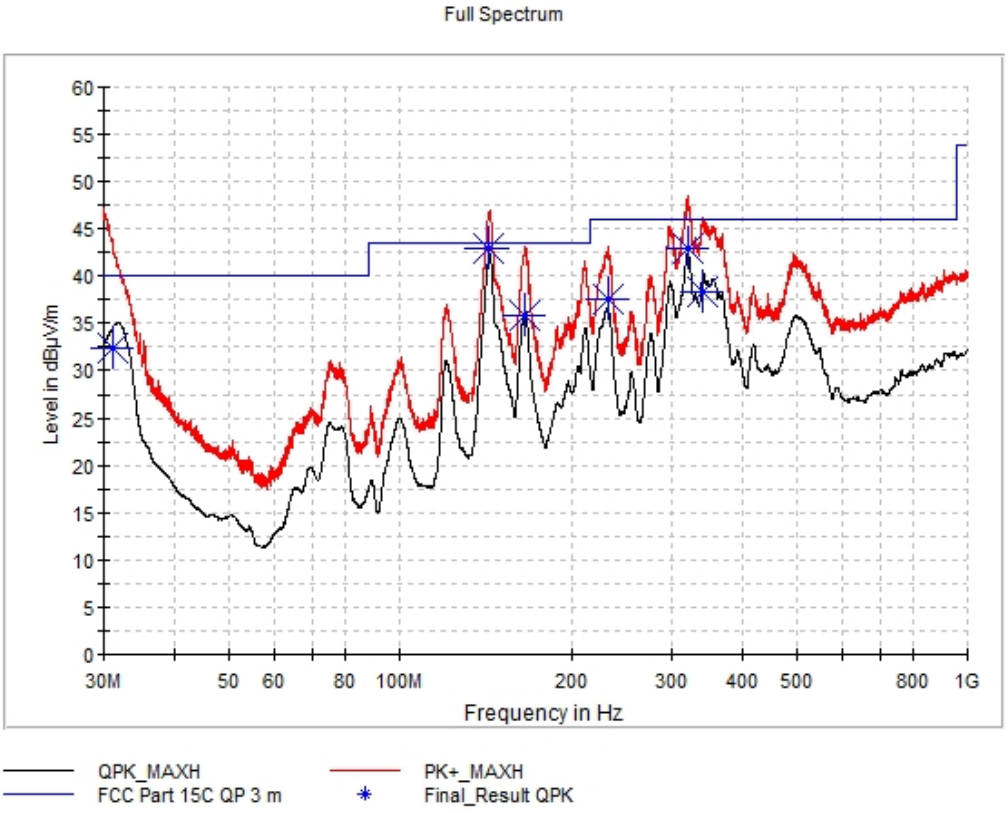
24 VDC, 0.5 A, 12 W.

4. Test results

4.1 Measurement of radiated emission (below 1 GHz)

Test object	Slim FiGS Test 02	Sheet	RE_Spur-1
Type	FiGS 2.0	Project no.	117-29452-3
Serial no.	EMC-01	Date	24 Mar. 2020
Client	FORCE Technology Norway AS	Initials	PWF
Specification	47 CFR Part 15, Subpart C (Specific rule part §15.249)	Frequency	30-1000 MHz

Test method Characteristics	ANSI C63.10:2013 Complete search, antenna distance 3 m	Temperature Humidity	18 °C 35 % RH
Detector	Peak and quasi peak	Bandwidth	120 kHz
Test equipm.	EMI room Hørsholm 49900 49154 49704 49590 49817 49807 29953 49999	Uncertainty	6.3 dB



Comments Continuous Tx - normal modulation.

Test object	Slim FiGS Test 02	Sheet	RE_Spur-2
Type	FiGS 2.0	Project no.	117-29452-3
Serial no.	EMC-01	Date	24 Mar. 2020
Client	FORCE Technology Norway AS	Initials	PWF
Specification	47 CFR Part 15, Subpart C (Specific rule part §15.249)	Frequency	30-1000 MHz

Test method Characteristics	ANSI C63.10:2013 Complete search, antenna distance 3 m	Temperature Humidity	18 °C 35 % RH
Detector	Quasi peak	Bandwidth	120 kHz
Test equipm.	EMI room Hørsholm 49900 49154 49704 49590 49817 49807 29953 49999	Uncertainty	6.3 dB

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
31.20	32.39	40.0	7.6	15000	181.0	V	4	27.2
142.92	42.96	43.5	0.5	15000	212.0	H	-4	20.4
165.18	35.81	43.5	7.7	15000	157.0	H	187	19.3
231.78	37.45	46.0	8.5	15000	103.0	V	113	20.6
320.46	42.86	46.0	3.1	15000	106.0	V	112	24.1
341.10	38.31	46.0	7.7	15000	104.0	V	187	24.9

Test result	The measured field strengths are below the limit
Test Port	Enclosure
Test frequency	2450 MHz
Test mode	Continuous Tx - normal modulation
Condition	Normal
Compliant	Yes
Comments	Final maximal measurements by variation of turntable azimuth, antenna height, and antenna polarisation. Test voltage: External power supply at 24 VDC.

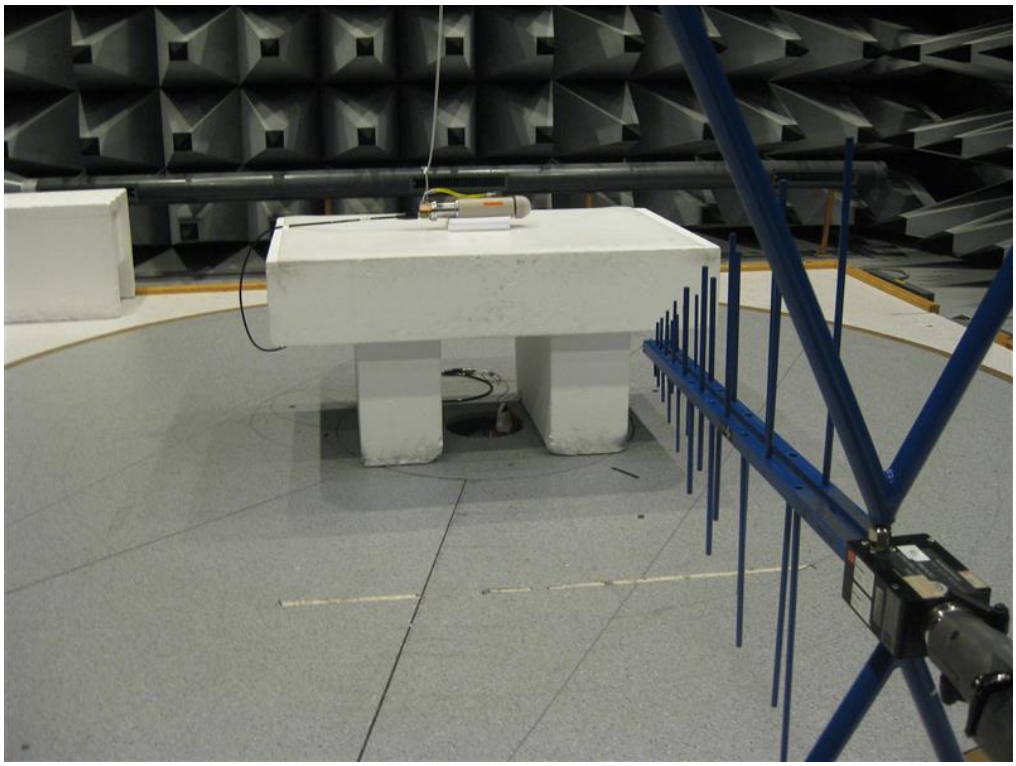


Photo 4.1.1 Test set-up regarding measurement of radiated emission (below 1 GHz).

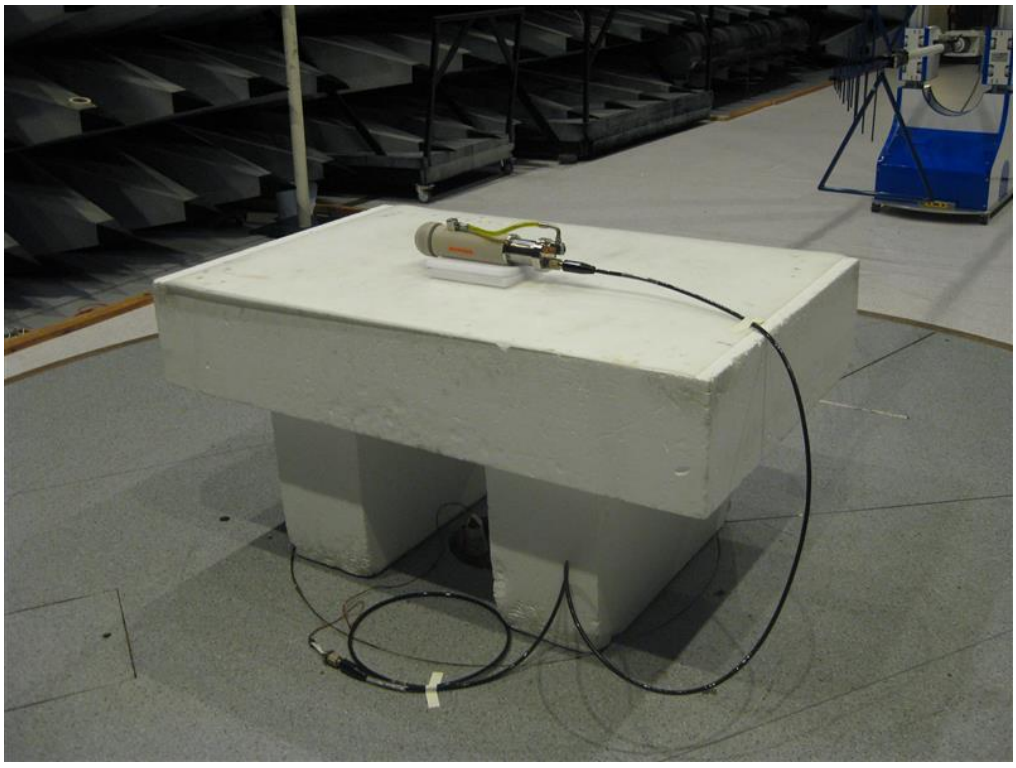
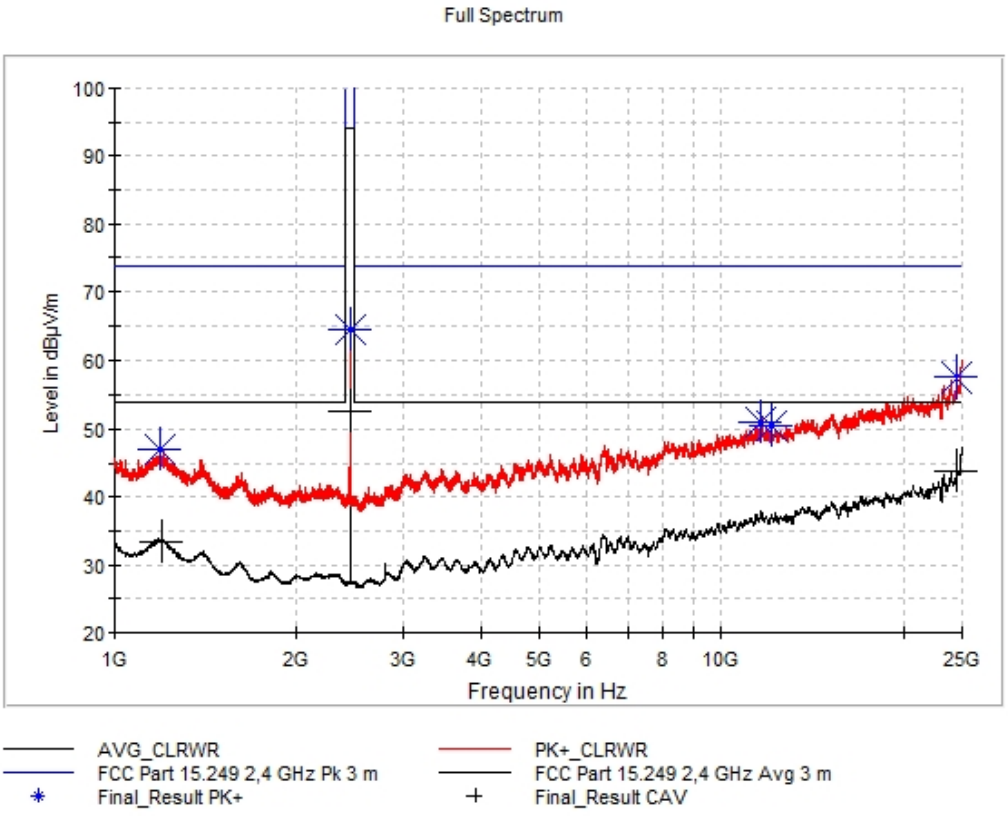


Photo 4.1.2 Test set-up regarding measurement of radiated emission (below 1 GHz).

4.2 Measurement of radiated emission (above 1 GHz)

Test object	Slim FiGS Test 02	Sheet	RE_Spur-3
Type	FiGS 2.0	Project no.	117-29452-3
Serial no.	EMC-01	Date	03 Mar. 2020
Client	FORCE Technology Norway AS	Initials	PWF
Specification	47 CFR Part 15, Subpart C (Specific rule part §15.249)	Frequency	1-25 GHz

Test method Characteristics	ANSI C63.10:2013 Complete search, antenna distance 3 m.	Temperature Humidity	19 °C 37 % RH
Detector	Peak and average	Bandwidth	1 MHz
Test equipm.	EMI room Hørsholm 49900 49624 49625 49822 49823 49869 49999	Uncertainty	4.9 dB



Comments Continuous Tx - normal modulation.

Test object	Slim FiGS Test 02	Sheet	RE_Spur-4
Type	FiGS 2.0	Project no.	117-29452-3
Serial no.	EMC-01	Date	03 Mar. 2020
Client	FORCE Technology Norway AS	Initials	PWF
Specification	47 CFR Part 15, Subpart C (Specific rule part §15.249)	Frequency	1-25 GHz

Test method Characteristics	ANSI C63.10:2013 Complete search, antenna distance 3 m	Temperature Humidity	19 °C 37 % RH
Detector	Peak and average	Bandwidth	1 MHz
Test equipm.	EMI room Hørsholm 49900 49624 49625 49822 49823 49869 49999	Uncertainty	4.9 dB

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Pol
1188.25	46.97	---	74.0	27.0	15000	250.0	114	-6.3	V
1197.50	---	33.41	54.0	20.6	15000	104.0	309	-6.2	V
2449.75	64.46	---	114.0	49.5	15000	155.0	50	-10.0	H
2450.00	---	52.74	94.0	41.3	15000	173.0	131	-10.0	H
11624.50	50.93	---	74.0	23.1	15000	100.0	86	-14.4	V
12086.75	50.59	---	74.0	23.4	15000	201.0	175	-14.7	H
24518.25	---	43.87	54.0	10.1	15000	100.0	18	0.1	V
24525.25	57.59	---	74.0	16.4	15000	100.0	29	0.1	H

Test result	The measured field strengths are below the limit
Test Port	Enclosure
Test frequency	2450 MHz
Test mode	Continuous Tx - normal modulation
Condition	Normal
Compliant	Yes
Comments	Final maximal measurements by variation of turntable azimuth, antenna height, and antenna polarisation. Test voltage: External power supply at 24 VDC.

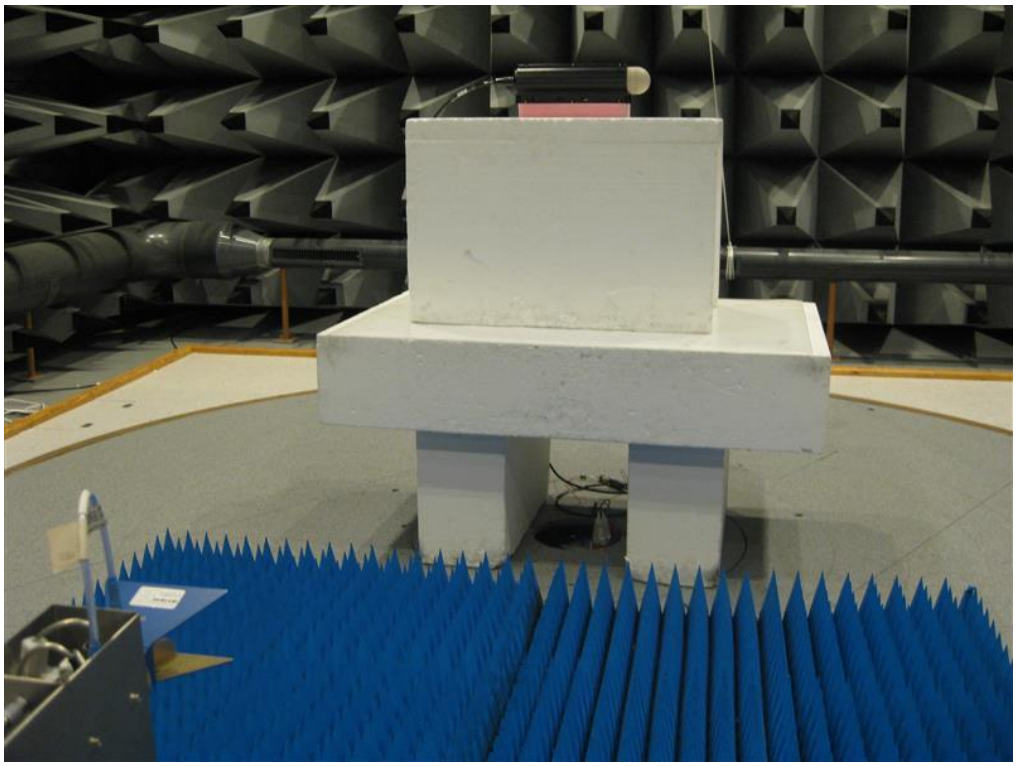


Photo 4.2.1 Test set-up regarding measurement of radiated emission (above 1 GHz).

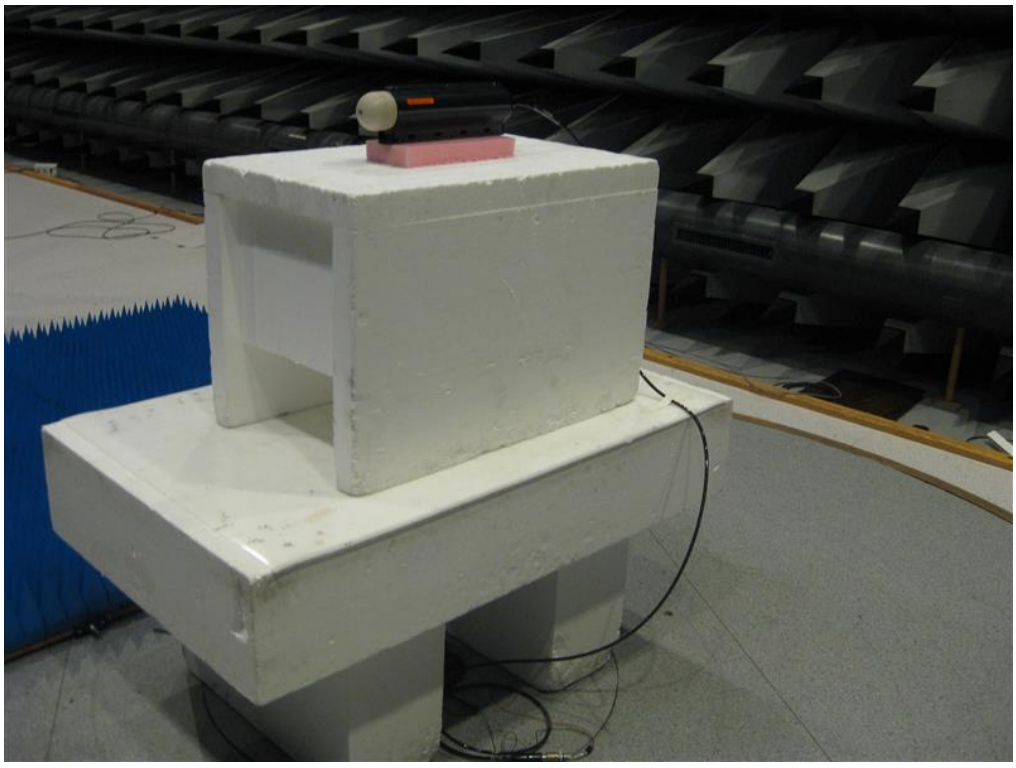
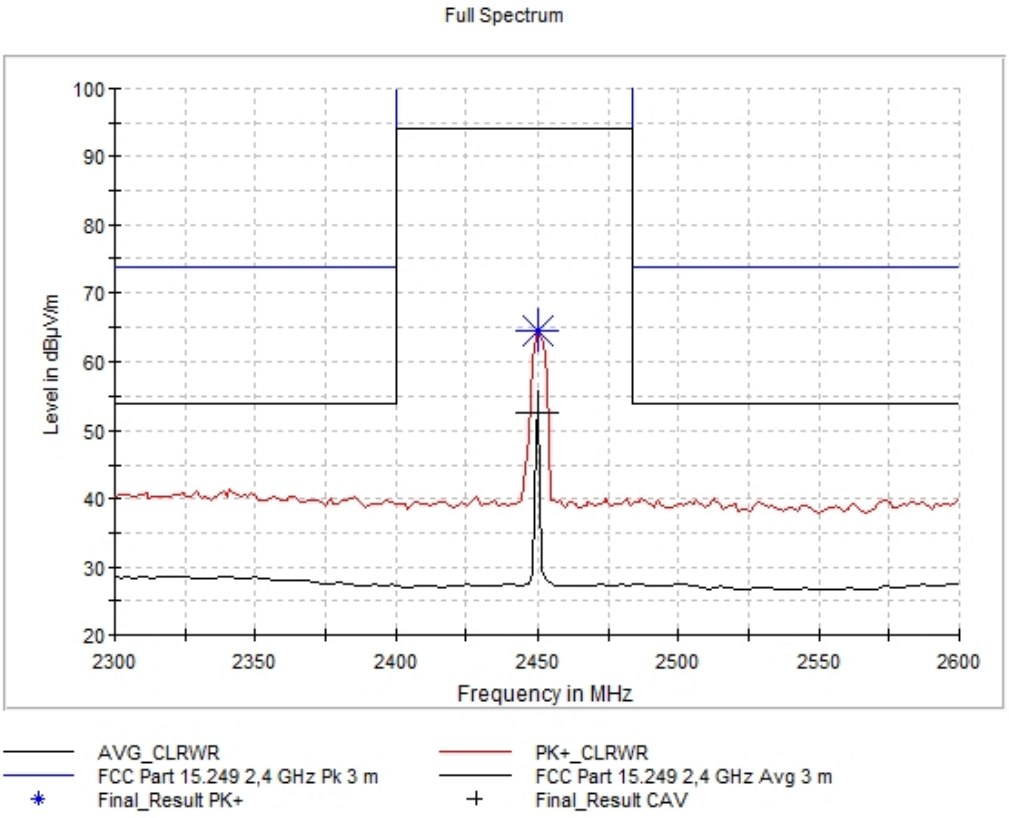


Photo 4.2.2 Test set-up regarding measurement of radiated emission (above 1 GHz).

4.3 Measurement of field strength of fundamental

Test object	Slim FiGS Test 02	Sheet	RE_Spur-5
Type	FiGS 2.0	Project no.	117-29452-3
Serial no.	EMC-01	Date	05 Mar. 2020
Client	FORCE Technology Norway AS	Initials	PWF
Specification	47 CFR Part 15, Subpart C (Specific rule part §15.249)	Frequency	1-25 GHz

Test method Characteristics	ANSI C63.10:2013 Complete search, antenna distance 3 m.	Temperature Humidity	19 °C 38 % RH
Detector	Peak and average	Bandwidth	1 MHz
Test equipm.	EMI room Hørsholm 49900 49624 49625 49822 49823 49869 49999	Uncertainty	4.9 dB



Comments Operating frequency: 2450 MHz.

Test object	Slim FiGS Test 02	Sheet	RE_Spur-6
Type	FiGS 2.0	Project no.	117-29452-3
Serial no.	EMC-01	Date	05 Mar. 2020
Client	FORCE Technology Norway AS	Initials	PWF
Specification	47 CFR Part 15, Subpart C (Specific rule part §15.249)	Frequency	1-25 GHz

Test method Characteristics	ANSI C63.10:2013 Complete search, antenna distance 3 m	Temperature Humidity	19 °C 38 % RH
Detector	Quasi peak	Bandwidth	1 MHz
Test equipm.	EMI room Hørsholm 49900 49624 49625 49822 49823 49869 49999	Uncertainty	4.9 dB

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2449.75	64.46	---	114.0	49.5	15000	155.0	H	50	-10.0
2450.00	---	52.74	94.0	41.3	15000	173.0	H	131	-10.0

Test result	The measured field strengths are below the limit
Test Port	Enclosure
Test frequency	2450 MHz
Test mode	Continuous Tx - normal modulation
Condition	Normal
Compliant	Yes
Comments	Final maximal measurements by variation of turntable azimuth, antenna height, and antenna polarisation. Test voltage: External power supply at 24 VDC.

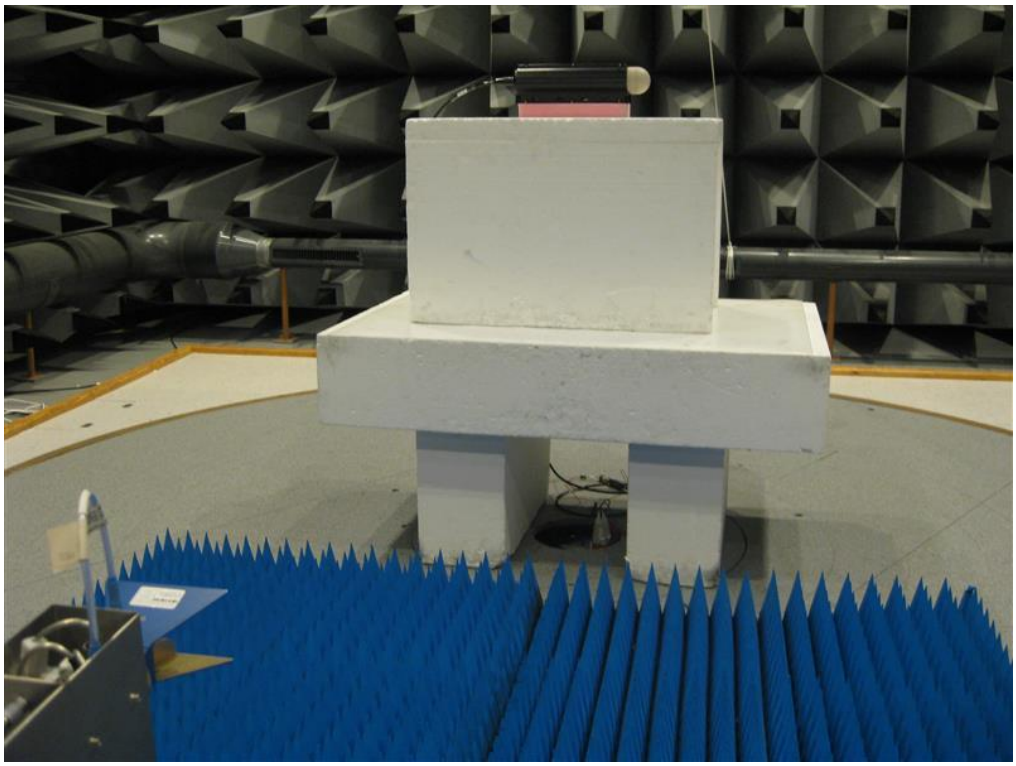
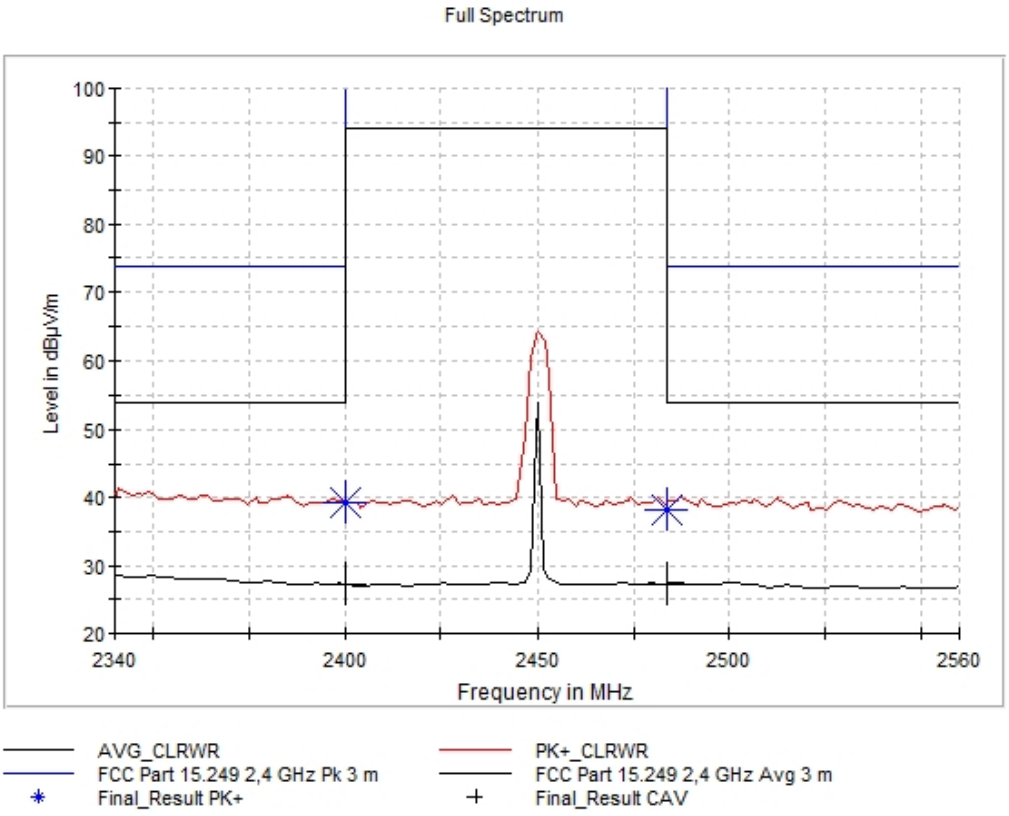


Photo 4.3.1 Test set-up regarding measurement of field strength of fundamental

4.4 Measurement of radiated band edge compliance

Test object	Slim FiGS Test 02	Sheet	RE_Spur-7
Type	FiGS 2.0	Project no.	117-29452-3
Serial no.	EMC-01	Date	05 Mar. 2020
Client	FORCE Technology Norway AS	Initials	PWF
Specification	47 CFR Part 15, Subpart C (Specific rule part §15.249)	Frequency	1-25 GHz

Test method Characteristics	ANSI C63.10:2013 Complete search, antenna distance 3 m.	Temperature Humidity	19 °C 38 % RH
Detector	Peak and average	Bandwidth	1 MHz
Test equipm.	EMI room Hørsholm 49900 49624 49625 49822 49823 49869 49999	Uncertainty	4.9 dB



Comments Operating frequency: 2450 MHz.

Test object	Slim FiGS Test 02	Sheet	RE_Spur-8
Type	FiGS 2.0	Project no.	117-29452-3
Serial no.	EMC-01	Date	05 Mar. 2020
Client	FORCE Technology Norway AS	Initials	PWF
Specification	47 CFR Part 15, Subpart C (Specific rule part §15.249)	Frequency	1-25 GHz

Test method Characteristics	ANSI C63.10:2013 Complete search, antenna distance 3 m	Temperature Humidity	19 °C 38 % RH
Detector	Quasi peak	Bandwidth	1 MHz
Test equipm.	EMI room Hørsholm 49900 49624 49625 49822 49823 49869 49999	Uncertainty	4.9 dB

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Height (cm)	Azimuth (deg)	Corr. (dB/m)	Pol
2400.00	**39.20**	**---**	**74.0**	**27.0**	**15000**	**250.0**	**114**	**-6.3**	**V**
2400.00	**---**	**27.12**	**54.0**	**20.9**	**15000**	**104.0**	**309**	**-6.2**	**V**
2483.50	**38.20**	**---**	**74.0**	**35.8**	**15000**	**155.0**	**50**	**-10.0**	**H**
2483.50	**---**	**27.34**	**54.0**	**26.7**	**15000**	**173.0**	**131**	**-10.0**	**H**

Test result	The measured band edge was below the limit
Test Port	Enclosure
Test frequency	2450 MHz
Test mode	Continuous Tx - normal modulation
Condition	Normal
Compliant	Yes
Comments	Final maximal measurements by variation of turntable azimuth, antenna height, and antenna polarisation. Test voltage: External power supply at 24 VDC.

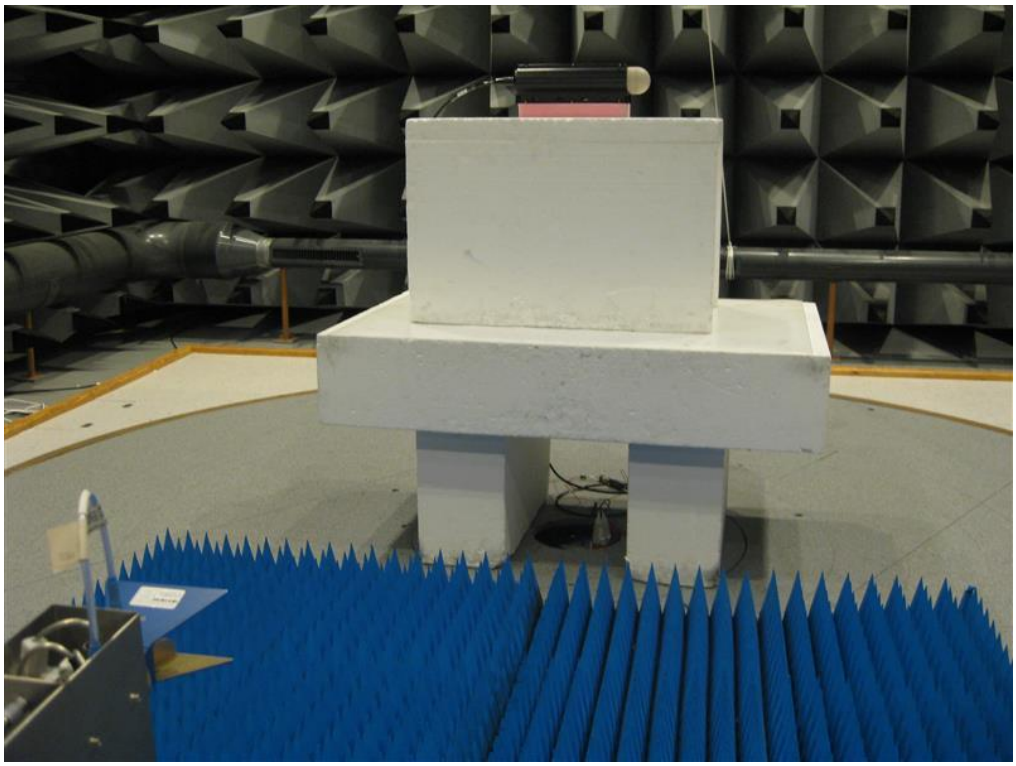
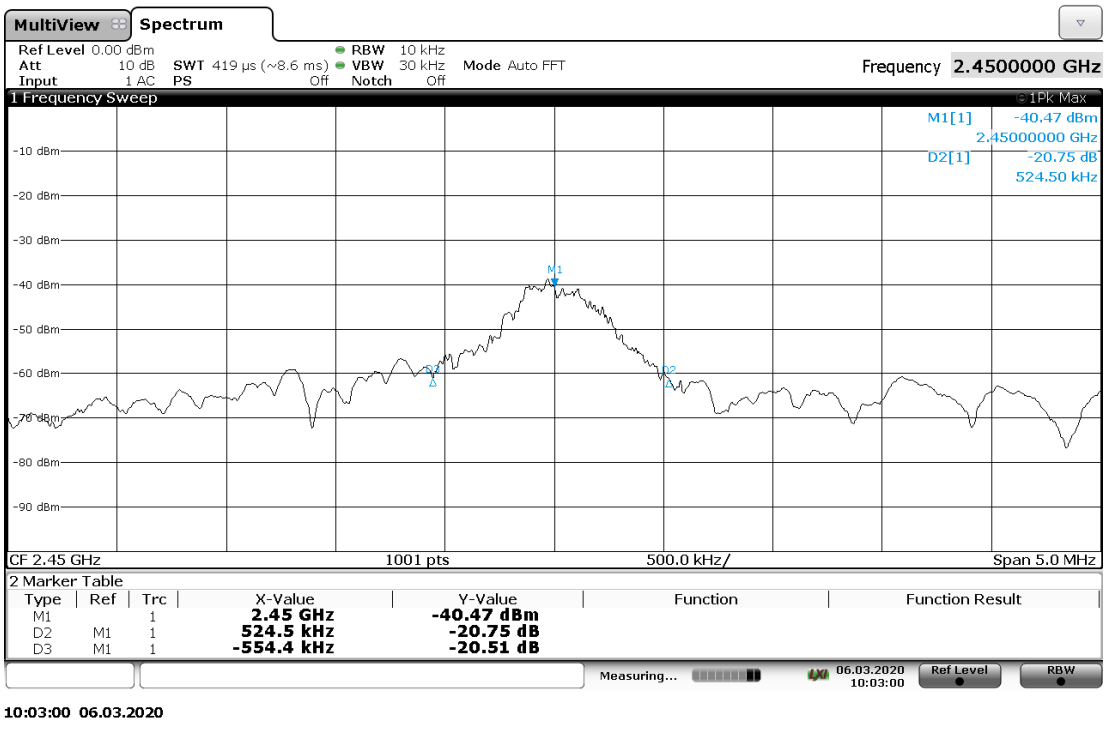


Photo 4.4.1 Test set-up regarding measurement of radiated band edge compliance

4.5 Measurement of 20 dB bandwidth

Test object	Slim FiGS Test 02	Sheet	PROF-1
Type	FiGS 2.0	Project no.	117-29452-3
Serial no.	EMC-01	Date	05 Mar. 2020
Client	FORCE Technology Norway AS	Initials	PWF
Specification	47 CFR Part 15, Subpart C (Specific rule part §15.249)		

Test method Characteristics	ANSI C63.10:2013 Test voltage: External power supply at 24 VDC	Temperature Humidity	19 °C 38 % RH
Test equipm.	EMI room Hørsholm 49900 49624 49625 49822 49823 49869 49999	Uncertainty	4.9 dB
SA Settings	RBW: 10 kHz VBW: 30 kHz SPAN: 5 MHz DET: Peak CF: Operating freq. Trace: Max. hold		



Comments Operating frequency: 2450 MHz.

Test object	Slim FiGS Test 02	Sheet	PROF-2
Type	FiGS 2.0	Project no.	117-29452-3
Serial no.	EMC-01	Date	05 Mar. 2020
Client	FORCE Technology Norway AS	Initials	PWF
Specification	47 CFR Part 15, Subpart C (Specific rule part §15.249)		

Test method Characteristics	ANSI C63.10:2013 Test voltage: External power supply at 24 VDC	Temperature Humidity	19 °C 38 % RH
Test equipm.	EMI room Hørsholm 49900 49624 49625 49822 49823 49869 49999	Uncertainty:	1.6 dB
SA Settings	RBW: 100 kHz VBW: 300 kHz SPAN: 5 MHz DET: Peak CF: Operating freq. Trace: Max. hold		

Operating frequency [MHz]	Low frequency [MHz]	High frequency [MHz]	Remarks
2450	2449.45	2450.53	-
Note 1:			

Operating frequency [MHz]	Measured [MHz]	Limit [MHz]	Remarks
Lowest frequency	2449.45	2400	Passed
Highest frequency	2450.53	2483.5	Passed

Band edge criteria	20 dB bandwidth
Test result	The measured 20 dBc bandwidth were within the limit
Test port	Enclosure
Test frequency	2450 MHz
Test mode	Continuous Tx - normal modulation
Condition	Normal
Compliant	Yes
Comments	Test voltage: External power supply at 24 VDC.

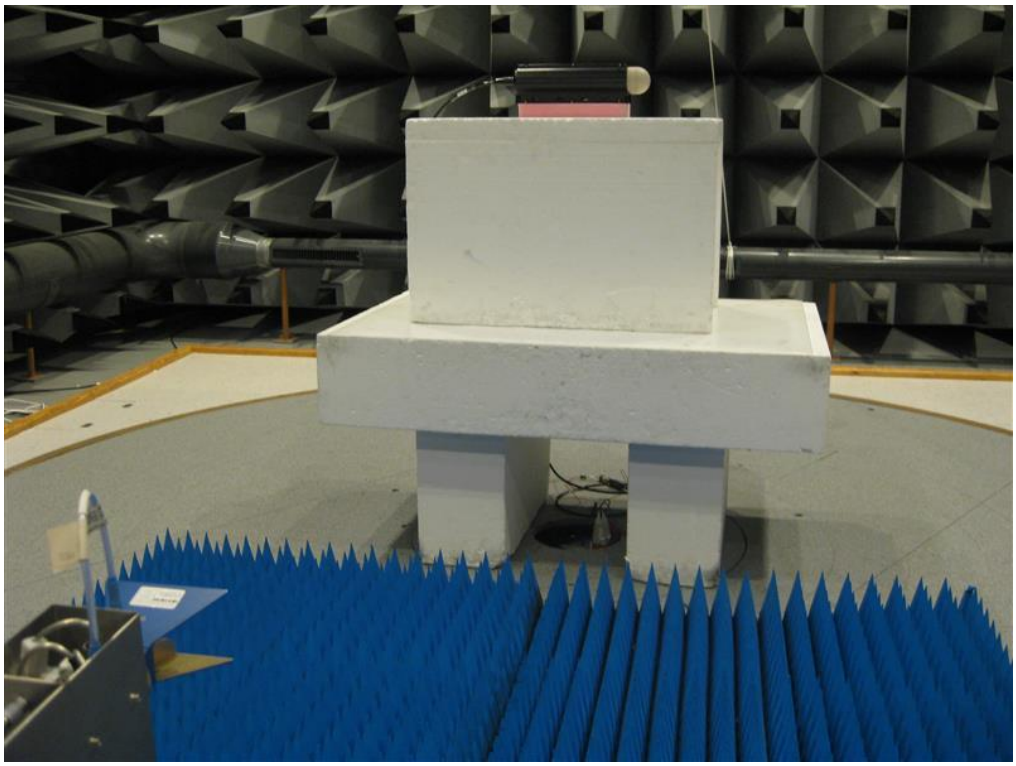
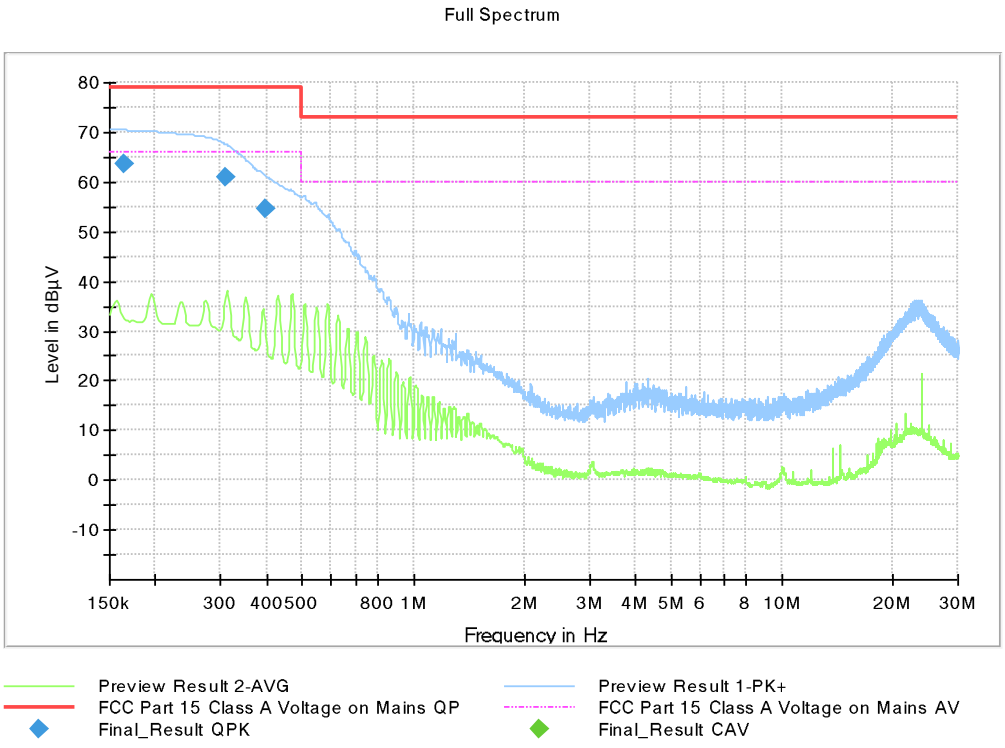


Photo 4.5.1 Test set-up regarding measurement of 20 dB bandwidth.

4.6 Measurement of radio frequency voltage on mains

Test object	Slim FiGS Test 02	Sheet	CE-1
Type	FiGS 2.0	Project no.	117-29452-3
Serial no.	EMC-01	Date	03 Sep. 2020
Client	FORCE Technology Norway AS	Initials	PWF
Specification	47 CFR Part 15, Subpart C (Specific rule part §15.249)	Frequency	0.15-30 MHz

Test method Characteristics	ANSI C63.4:2014 Artificial mains network: 50 Ω, 50 µH	Temperature Humidity	23 °C 44 % RH
Detector	Peak, quasi peak, and CISPR average	Bandwidth	9 kHz
Test equipm.	EMC room 1 Hørsholm 49600 49693 49421 49167 49995	Uncertainty	2.7 dB



Line under test Maximum of Line and Neutral.

Test object	Slim FiGS Test 02	Sheet	CE-2
Type	FiGS 2.0	Project no.	117-29452-3
Serial no.	EMC-01	Date	03 Sep. 2020
Client	FORCE Technology Norway AS	Initials	PWF
Specification	47 CFR Part 15, Subpart C (Specific rule part §15.249)	Frequency	0.15-30 MHz

Test method Characteristics	ANSI C63.4:2014 Artificial mains network: 50 Ω, 50 µH	Temperature Humidity	23 °C 44 % RH
Detector	Peak and CISPR average	Bandwidth	9 kHz
Test equipm.	EMC room 1 Hørsholm 49600 49693 49421 49167 49995	Uncertainty	2.7 dB

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.163500	63.64	79.00	15.36	5000.0	9.000	N	GND	9.9
0.309750	60.95	79.00	18.05	5000.0	9.000	N	GND	10.0
0.395250	54.49	79.00	24.51	5000.0	9.000	L1	GND	10.0

Line under test Maximum of Line and Neutral

Test result The measured voltages were below the limit

Test frequency 2450 MHz

Test mode Continuous Tx - normal modulation

Compliant Yes

Comments Mains voltage: 120 VAC.

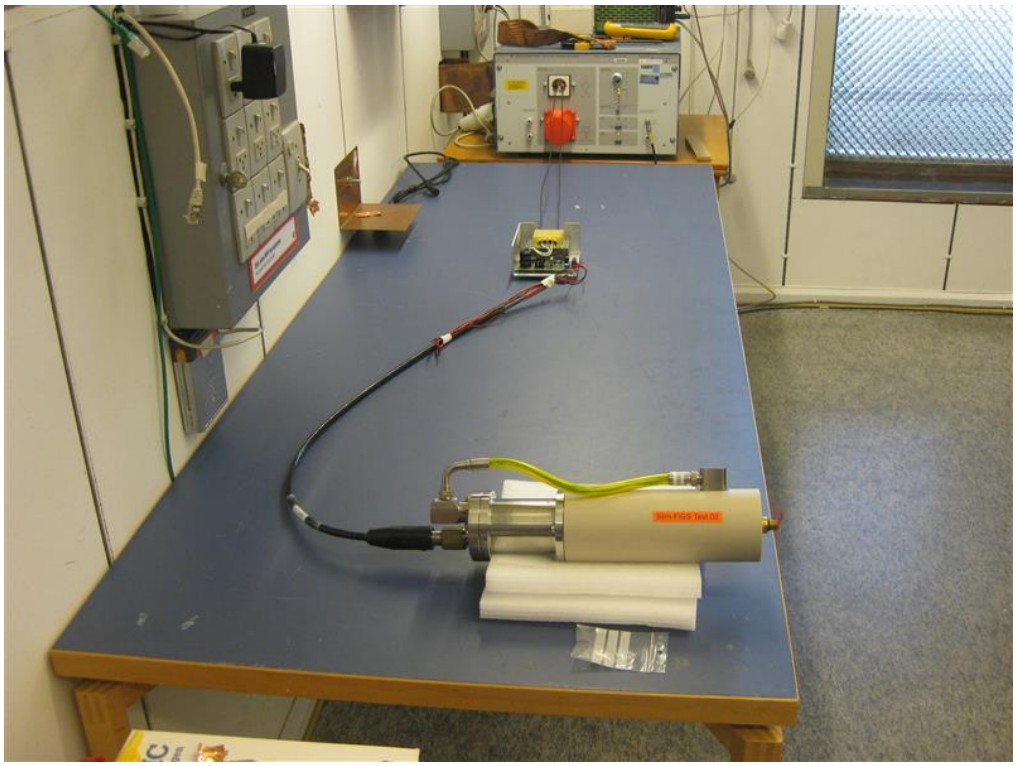


Photo 4.6.1 Test set-up regarding measurement of radio frequency voltage on mains.

5. National registrations and accreditations

5.1 DANAK Accreditation

Organization: Danish Accreditation and Metrology Fund - DANAK, see www.danak.dk and www.ilac.org

Registration Number: 19

Area Number: C

DANAK is part of ILAC (International Laboratory Accreditation Cooperation) including its MRA (Mutual Recognition Arrangement). The MRA includes the Australian NATA and Canadian SCC.

5.2 FCC Registrations

Organization: Federal Communications Commission, USA

Registration Number: 913950

Facilities: EMC room 2 Hørsholm (EMC-2)
EMC room 3 Hørsholm (EMC-3)
EMC room 4 Hørsholm (EMC-4)
EMI room Hørsholm (EMC-5)

5.3 VCCI Registrations

Organization: Voluntary Control Council for Interference by Information Technology, Japan

Member Number: 910

Facilities:

EMC room 3 Hørsholm (EMC-3):	C-12532 and T-11548
EMI room Hørsholm (EMC-5):	R-11180, C-10706 T-11550 and G-10470

5.4 IC Registrations

Organization: Industry Canada, Certification and Engineering Bureau

Registration Number: IC4187A-5

Facilities: EMI room Hørsholm (EMC-5)

6. List of instruments

No.	Category/Action	Manufacturer	Type no	Cal. date	Cal. exp.
29953	ANTENNA TOWER/TURNTABLE CONTROLLER	EMCO	2090	N/A	N/A
49154	Bilog Antenna	CHASE	CBL6111A	31-08-2018	31-08-2020
49167	ARTIFICIAL MAINS NETWORK	Rohde & Schwarz	ESH2-Z5	13-01-2020	13-01-2021
49421	IMPULSE VOLTAGE LIMITER (BNC)	Rohde & Schwarz	ESH3/Z2	14-01-2020	14-01-2021
49590	CABLE, LOW-LOSS uWAVE CABLE, N-N, 8.0 m "EMI"	SUHNER	SUCOFLEX 104 PB	25-10-2019	25-10-2020
49600	SPECTRUM ANALYZER / MEASUREMENT RECEIVER	Rohde & Schwarz	ESU40	09-01-2020	09-01-2021
49624	DUAL RIDGE HORN ANTENNA – 1GHZ-26GHZ (2GHZ-32GHZ)	SATIMO	SH2000	01-03-2018	01-03-2021
49625	SRD COAX SWITCH MATRIX USED IN 1GHZ TO 26GHZ SRD ANTENNASYSTEM	DELTA	COAX SWITCH MATRIX	02-03-2020	02-06-2021
49693	CABLE 5 m BNC-BNC	SUHNER	RG 223/U	02-12-2019	02-12-2020
49704	CABLE 3 m SMA-N	SUHNER	SUCOFLEX104	25-10-2019	25-10-2020
49807	ATTENUATOR, DC-12.4GHz, 6 dB	Huber & Suhner	6806.17A	09-04-2018	09-04-2020
49817	CABLE, LOW-LOSS uWAVE CABLE, N-N, 8.0 m "EMI"	SUHNER	SUCOFLEX 104 PB	25-10-2019	25-10-2020
49822	CABLE SF126 SMA-SMA 0.3 m	Huber & Suhner	SF126/11SMA/11 SMA 300	02-03-2020	02-06-2021
49823	CABLE SF126 SMA-SMA 7 m	Huber & Suhner	SF126/11SMA/11 SMA/7000	02-03-2020	02-06-2021
49869	CABLE 3 M PC3.5 MALE-FEMALE SUCOFLEX 126	Huber & Suhner		02-03-2020	02-06-2021
49900	SPECTRUM ANALYZER / MEASUREMENT RECEIVER	Rohde & Schwarz	ESW26	15-01-2020	15-01-2021
49995	EMC32-Software EMCroom 1	Rohde & Schwarz	Ver. 10.50.00	N/A	N/A
49999	EMC32-Software EMIroom	Rohde & Schwarz	Ver. 10.40.10	N/A	N/A