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LP-009

Test report

Number: T251-0155/19 **Project file:** C20190043
Date: 2019-02-26
Pages: 90

Product: RF transmitter for Anemometer

Type reference: WS 010-2, WSD 011-2

Ratings: 3,6 V Li-SOCl₂ battery (AA)
Protection class: III

Trademark: NAVIS

Applicant: Navis elektronika, podjetje za elektroniko d.o.o.
Poljska cesta 11, SI-1241 Kamnik, Slovenia

Manufacturer: Navis elektronika, podjetje za elektroniko d.o.o.
Poljska cesta 11, SI-1241 Kamnik, Slovenia

Place of manufacture: Navis elektronika, podjetje za elektroniko d.o.o.
Poljska cesta 11, SI-1241 Kamnik, Slovenia

Summary of testing

Testing method: 47 CFR Part 15, Subpart C

Testing location: SIQ Ljubljana, Trpinčeva ulica 37 A, SI-1000 Ljubljana, Slovenia
Rev. 1: SIQ Ljubljana, Mašera-Spasićeva ulica 10, SI-1000 Ljubljana, Slovenia

Remarks: Date of receipt of test items: 2017-01-03; Rev. 1: 2019-01-14
Number of items tested: 5; Rev. 1: 2
Date of performance of tests: 2017-01-03 - 2017-01-13, 2017-03-21
Rev. 1: 2019-01-15 – 2019-01-16

The test results presented in this report relate only to the items tested.

The product complies with the requirements of the testing methods.

This product complies with the requirements of the testing method.

Approved by: Marian Mak

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Tested by: Andrej Škof

Approved by: Marjan Mak

The report shall not be reproduced except in full.

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1 GENERAL

History sheet			
Date	Report No.	Change	Revision
2017-03-21	T251-0042/17	Initial Test Report issued.	--
2019-02-26	T251-0155/19	Update of initial test report due to the following changes: Changed has been made on printed circuit board in the sense of added battery holder on printed circuit board. Printed circuit board has been prolonged for that reason. Electronic part of PCB is unchanged - components layout is same. Minor design change has also been made on sensor wind vane. After review, the following test was repeated: Radiated spurious emission Changes in report are marked Rev. 1.	1.0

Environmental conditions:

Ambient temperature: 15°C to 35°C

Relative humidity: 30% to 60%

Atmospheric pressure: 860 mbar to 1060 mbar

1.1 Equipment under test

RF transmitter for Anemometer

Type: **WSD 011-2**

NOTE: Difference between WS 010-2 and WSD 011-2 is in angle measurement. WSD 011-2 include's additional electrical circuit with angle sensor, added wind vane and different mounting holder for wind sensor. Since WS 010-2 has identical RF circuitry it is also covered by this test report.

Tested SIQ sample number: S20170016

Rev. 1: S20190434, S20190436

1.2 General product information

Serial number:	Prototype
Supply voltage:	3.6 V Li-SOCl2 battery (AA)
Transmitter, Receiver, Transceiver, Simplex, Duplex	Transmitter
Rated RF output power:	< 1 W peak conducted power
Modulation type:	2G FSK
Operating frequency:	908.4 MHz – 915.8 MHz
Channel separation:	150 kHz
Number of channels:	50
Antenna type:	Internal
FCC ID:	2AK8G-NAVIS-WS01

2 TEST SUMMARY

STANDARD	Tested		Sample	
	yes	no	pass	not pass
FCC 47 CFR Part 15, Subpart C, §15.247 Note: All tests were conducted using ANSI C63.10-2013	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Test	Conclusion
§15.203 Antenna requirements	PASS
§15.207 Conducted emission	N/A
§15.247 (a) (1) 20 dB Bandwidth	PASS
§15.247 (a) (1) Time of Occupancy (Dwell Time)	PASS
§15.247 (a) (1) Number of Hopping Frequencies	PASS
§15.247 (a) (1) Carrier Frequency Separation	PASS
§15.247 (a) (1) Pseudorandom Frequency Hopping Sequence and Equal Hopping Frequency Use	PASS
§15.247 (b) Peak Power Output	PASS
§15.247 (d) Spurious RF Conducted Emissions	N/A
§15.247 Radiated Spurious Emissions	PASS
§15.247 (i) RF Exposure Compliance Requirements	PASS

2.1 Operating voltages/frequencies used for testing

Test	Operating conditions
§15.203 Antenna requirements	/
§15.207 Conducted emission	/
§15.247 (a) (1) 20 dB Bandwidth	3.6 Vdc
§15.247 (a) (1) Time of Occupancy (Dwell Time)	3.6 Vdc
§15.247 (a) (1) Number of Hopping Frequencies	3.6 Vdc
§15.247 (a) (1) Carrier Frequency Separation	3.6 Vdc
§15.247 (b) Peak Power Output	PASS
§15.247 (d) Spurious RF Conducted Emissions	N/A
§15.247 Radiated Spurious Emissions	3.6 Vdc
§15.247 (i) RF Exposure Compliance Requirements	/

3 EMISSION TESTS (Intentional Radiators)

3.1 §15.203 Antenna requirements

Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Conclusion:

PASS; EUT has an Integral antenna.

3.2 §15.207 Conducted emission

Not applicable due to EUT is battery operated.

3.3 §15.247 (a) (1) 20 dB Bandwidth

Requirement

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

Test procedure:

As per Clause 6.9.2 from ANSI C63.10-2013 and FCC/DA-00-705

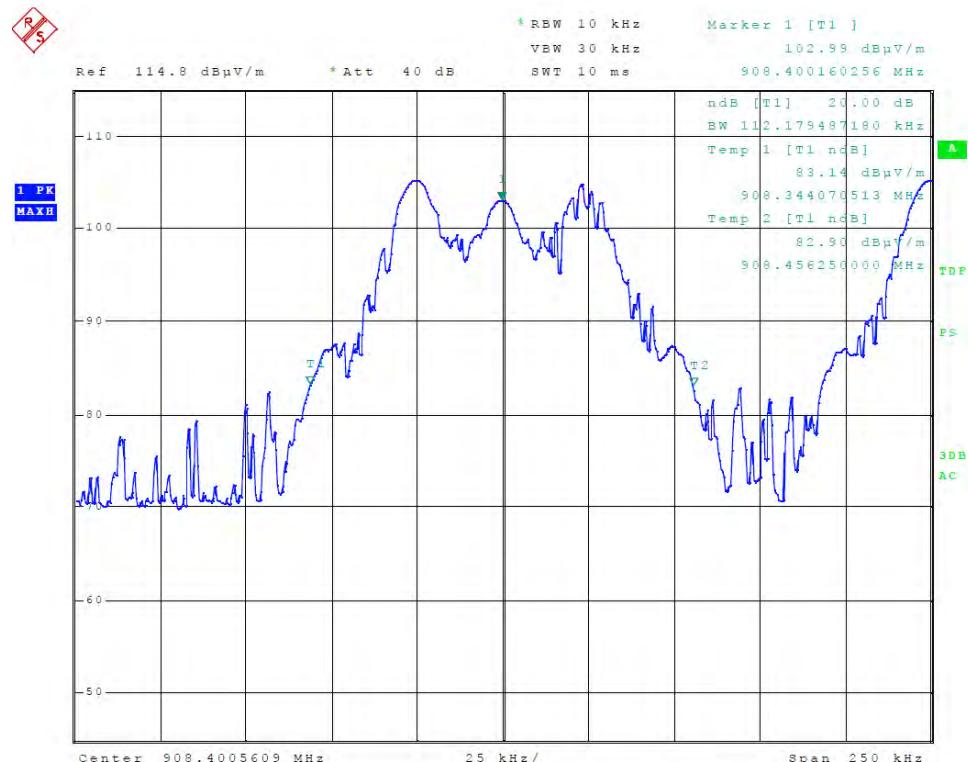
Test results

03.Jan 17 13:31

Meas Type	OCCUPIED CHANNEL BANDWIDTH
Equipment under Test	WSD 011-2
Manufacturer	NAVIS ELEKTRONIKA D.O.O.
OP Condition	CH1
Operator	Andrej Skof
Test Spec	
VERTICAL 100 cm, 0 deg	

Sweep Settings Screen A

Center Frequency	908.400561 MHz	Ref Level	114.800 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	250.000000 kHz	Ref Position	100.000 %
Start Frequency	908.275561 MHz	Level Range	70.000 dB
Stop Frequency	908.525561 MHz	RF Att	40.000 dB
RBW	10.000000 kHz	X-Axis	LIN
VBW	30.000000 kHz	Y-Axis	LOG
Sweep Time	10.00 ms		

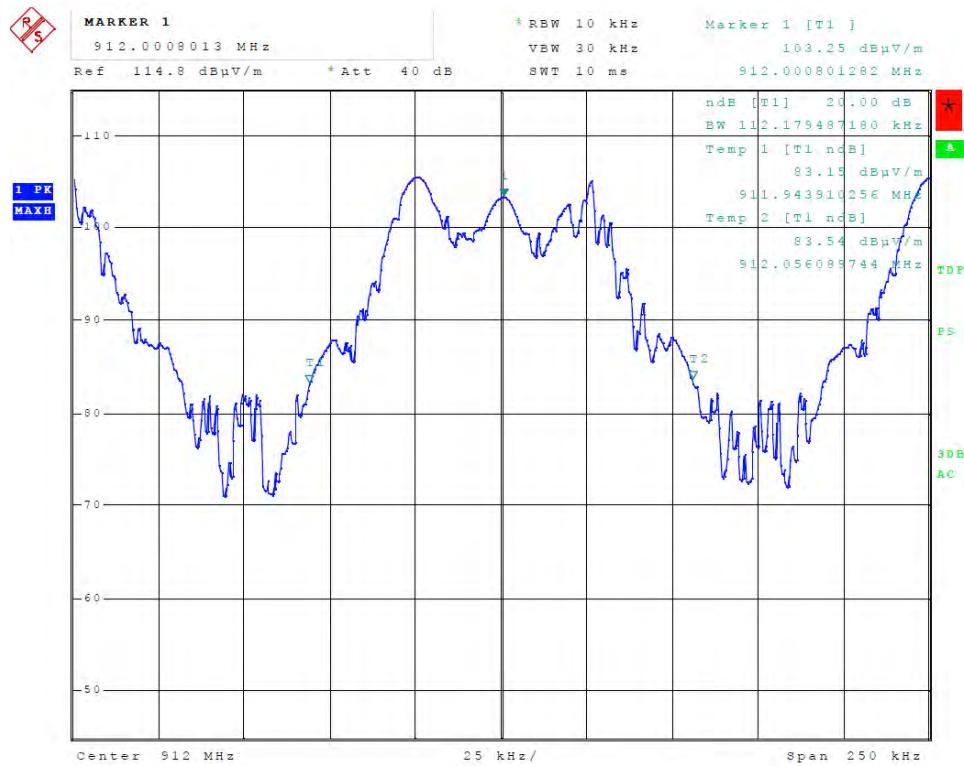


03.Jan 17 13:25

Meas Type OCCUPIED CHANNEL BANDWIDTH
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition CH25
Operator Andrej Skof
Test Spec
VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

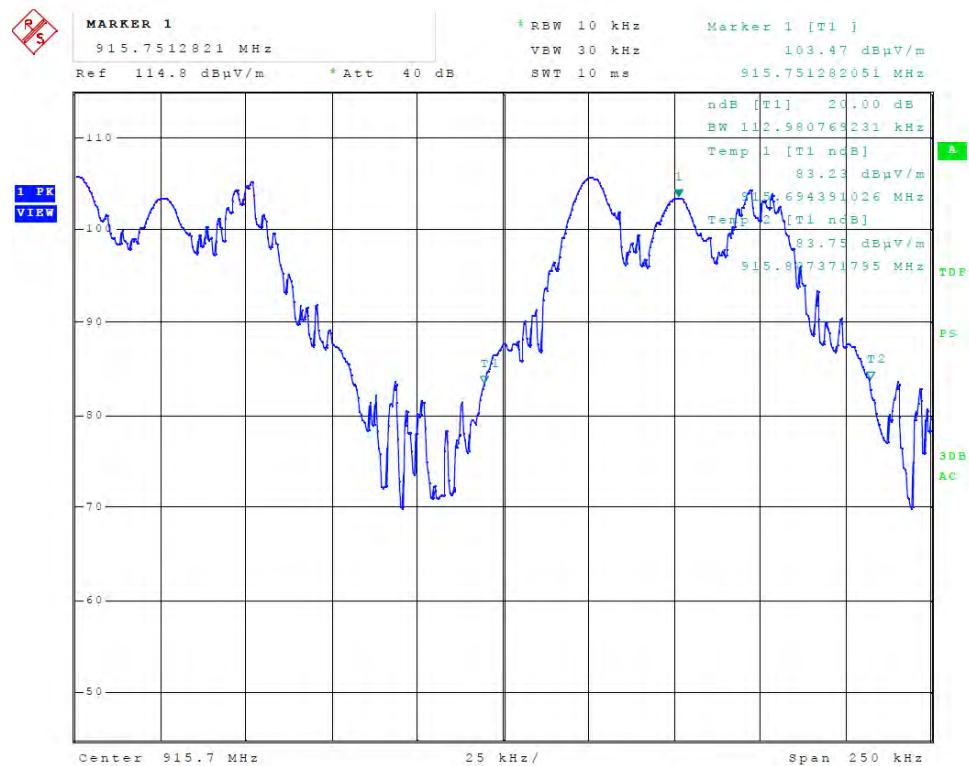
Center Frequency	912.000000 MHz	Ref Level	114.800 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	250.000000 kHz	Ref Position	100.000 %
Start Frequency	911.875000 MHz	Level Range	70.000 dB
Stop Frequency	912.125000 MHz	RF Att	40.000 dB
RBW	10.000000 kHz	X-Axis	LIN
VBW	30.000000 kHz	Y-Axis	LOG
Sweep Time	10.00 ms		



Meas Type OCCUPIED CHANNEL BANDWIDTH
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition CH50
Operator Andrej Skof
Test Spec
 VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	915.700000 MHz	Ref Level	114.800 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	250.000000 kHz	Ref Position	100.000 %
Start Frequency	915.575000 MHz	Level Range	70.000 dB
Stop Frequency	915.825000 MHz	RF Att	40.000 dB
RBW	10.000000 kHz	X-Axis	LIN
VBW	30.000000 kHz	Y-Axis	LOG
Sweep Time	10.00 ms		



Tabulated test results

Frequency (MHz)	Occupied bandwidth (kHz)	Limit (kHz)	Conclusion
908.4 (CH1)	112	250	PASS
912.0 (CH25)	112	250	PASS
915.8 (CH50)	113	250	PASS

3.4 §15.247 (a) (1) Time of Occupancy (Dwell Time)

Requirement

If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

Test procedure:

As per Clause 7.8.4 from ANSI C63.10-2013 and FCC/DA-00-705

Test results

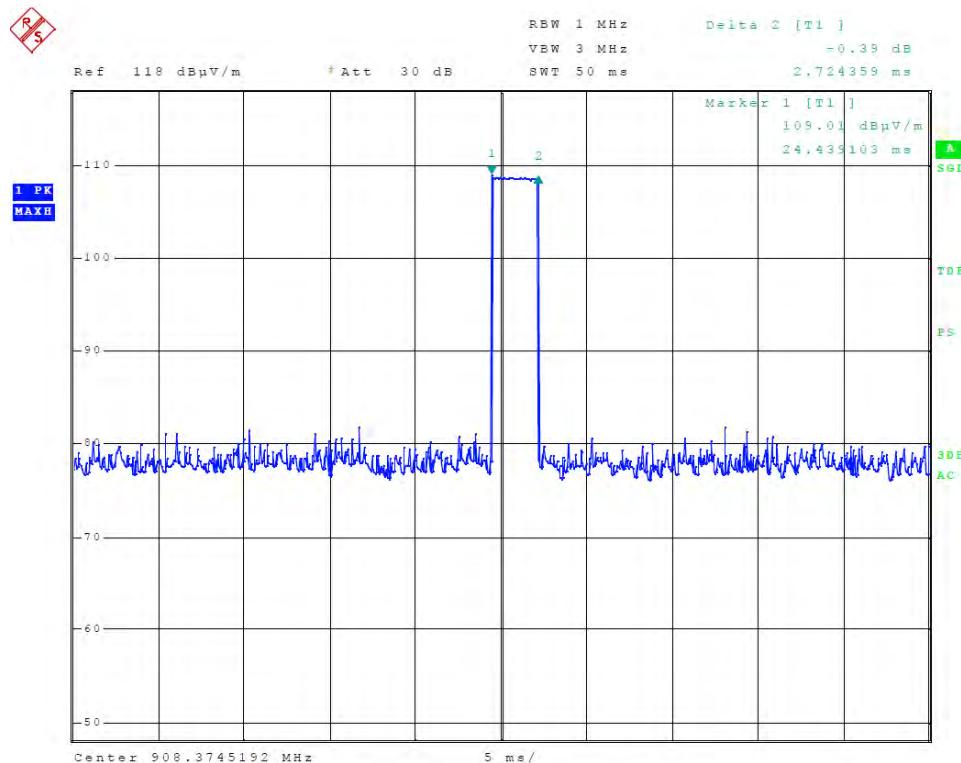
05.Jan 17 07:18

Meas Type DWELL TIME
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition CH1
Operator Andrej Skof

Test Spec
VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	908.374519 MHz	Ref Level	118.000 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	0.000000 Hz	Ref Position	100.000 %
Start Frequency	908.374519 MHz	Level Range	70.000 dB
Stop Frequency	908.374519 MHz	RF Att	30.000 dB
RBW	1.000000 MHz	X-Axis	LIN
VBW	3.000000 MHz	Y-Axis	LOG
Sweep Time	50.00 ms		

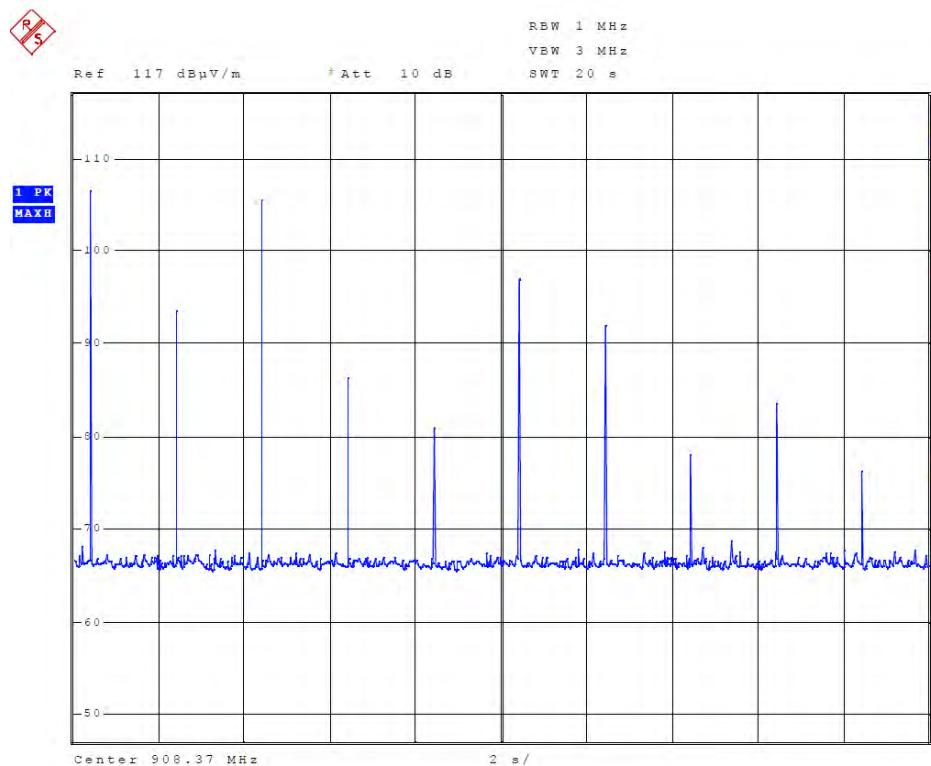


05.Jan 17 07:33

Meas Type NUMBER OF PULSES
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition CH1
Operator Andrej Skof
Test Spec
 VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	908.370000 MHz	Ref Level	117.000 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	0.000000 Hz	Ref Position	100.000 %
Start Frequency	908.370000 MHz	Level Range	70.000 dB
Stop Frequency	908.370000 MHz	RF Att	10.000 dB
RBW	1.000000 MHz	X-Axis	LIN
VBW	3.000000 MHz	Y-Axis	LOG
Sweep Time	20.00 s		

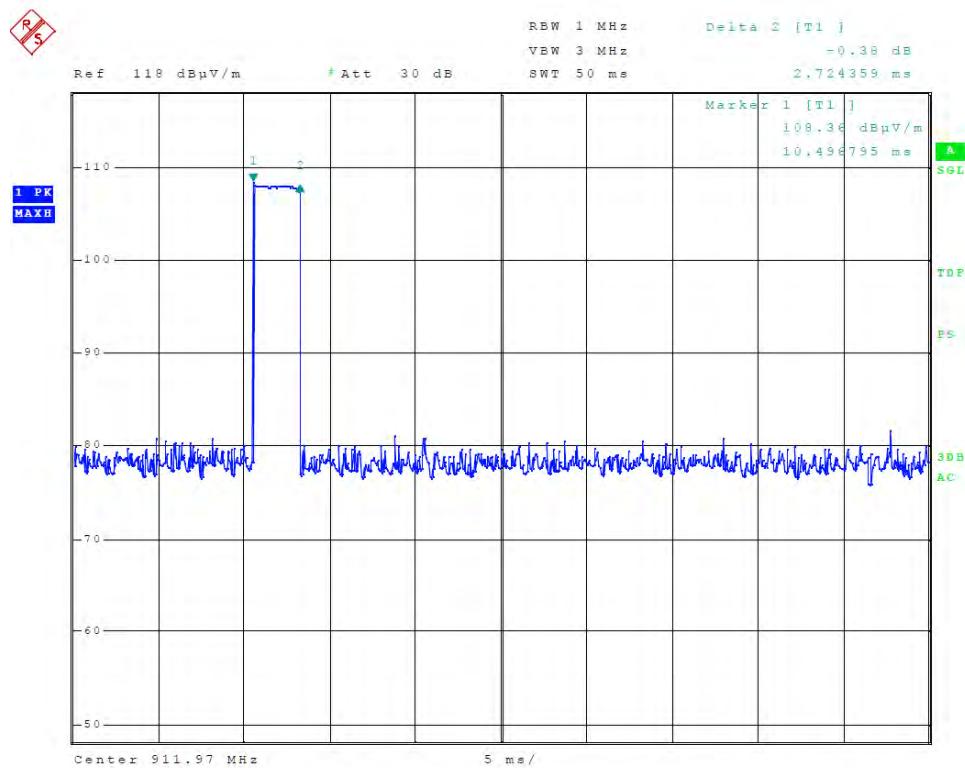


05.Jan 17 07:22

Meas Type DWELL TIME
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition CH25
Operator Andrej Skof
Test Spec
VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	911.970000 MHz	Ref Level	118.000 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	0.000000 Hz	Ref Position	100.000 %
Start Frequency	911.970000 MHz	Level Range	70.000 dB
Stop Frequency	911.970000 MHz	RF Att	30.000 dB
RBW	1.000000 MHz		
VBW	3.000000 MHz	X-Axis	LIN
Sweep Time	50.00 ms	Y-Axis	LOG

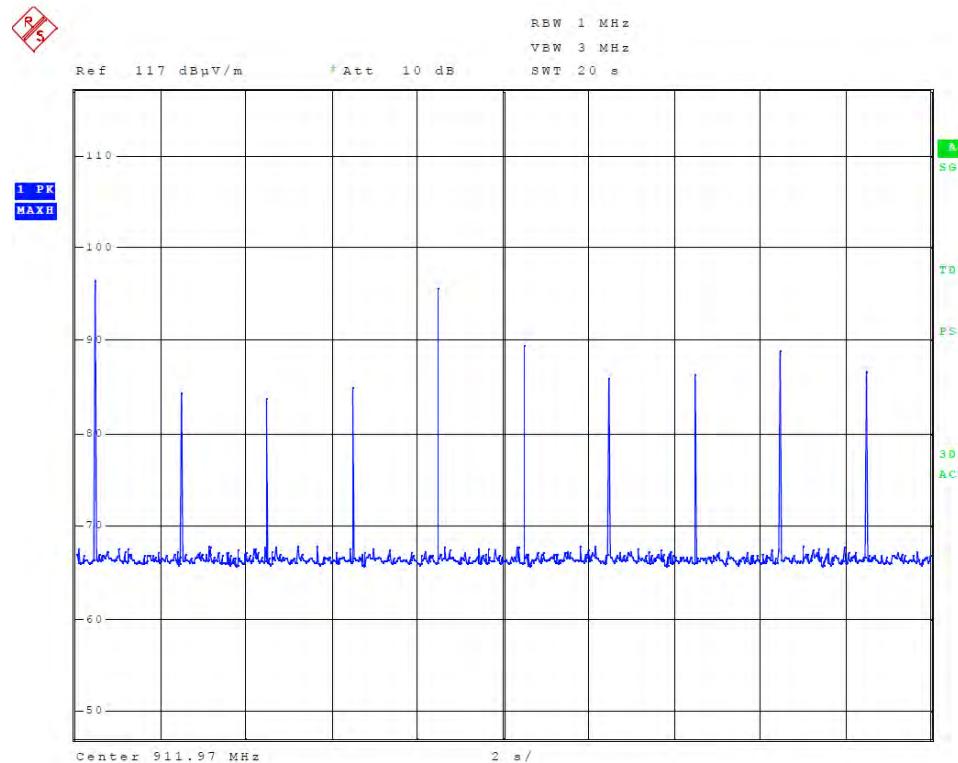


05.Jan 17 07:34

Meas Type NUMBER OF PULSES
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition CH25
Operator Andrej Skof
Test Spec
 VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	911.970000 MHz	Ref Level	117.000 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	0.000000 Hz	Ref Position	100.000 %
Start Frequency	911.970000 MHz	Level Range	70.000 dB
Stop Frequency	911.970000 MHz	RF Att	10.000 dB
RBW	1.000000 MHz	X-Axis	LIN
VBW	3.000000 MHz	Y-Axis	LOG
Sweep Time	20.00 s		

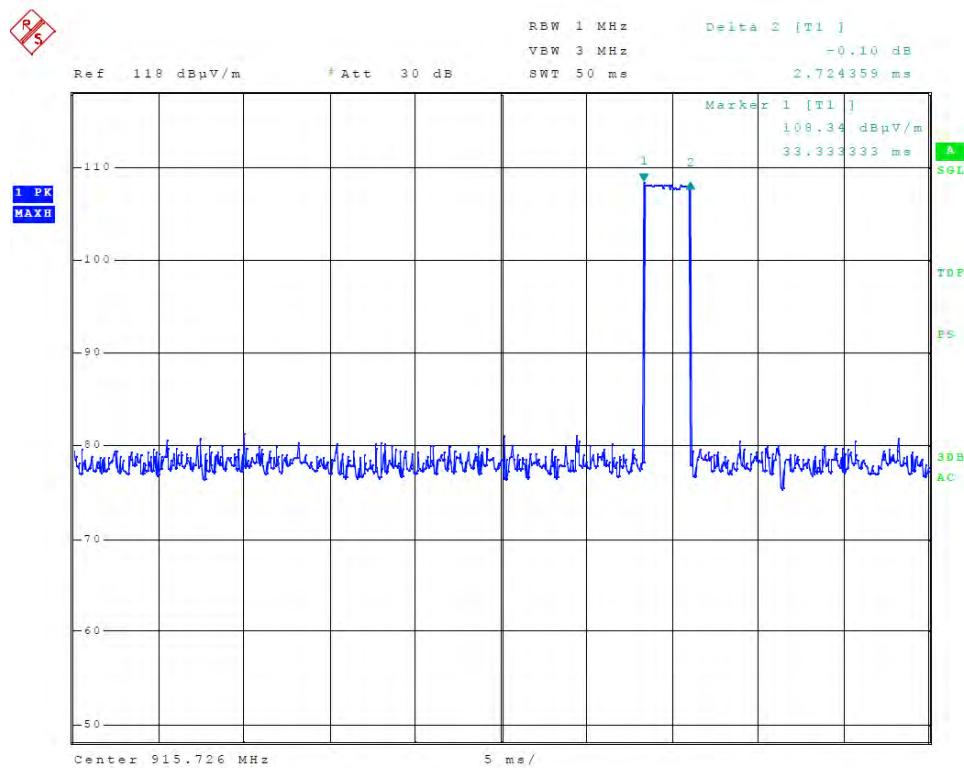


05.Jan 17 07:23

Meas Type DWELL TIME
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition CH50
Operator Andrej Skof
Test Spec
VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

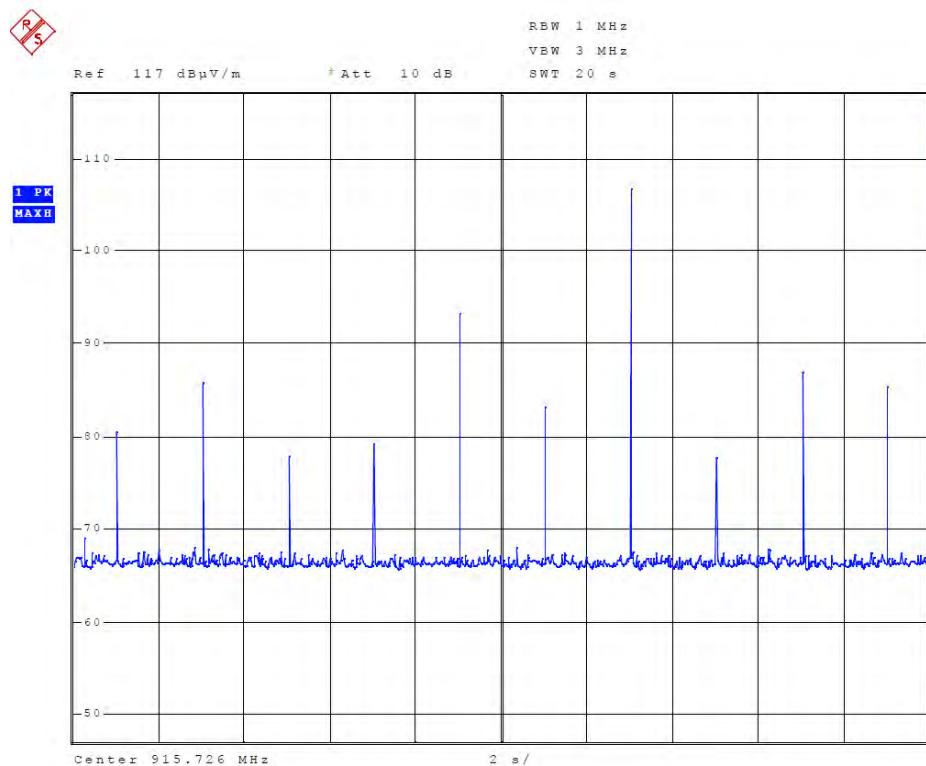
Center Frequency	915.726000 MHz	Ref Level	118.000 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	0.000000 Hz	Ref Position	100.000 %
Start Frequency	915.726000 MHz	Level Range	70.000 dB
Stop Frequency	915.726000 MHz	RF Att	30.000 dB
RBW	1.000000 MHz	X-Axis	LIN
VBW	3.000000 MHz	Y-Axis	LOG
Sweep Time	50.00 ms		



Meas Type NUMBER OF PULSES
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition CH50
Operator Andrej Skof
Test Spec
 VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	915.726000 MHz	Ref Level	117.000 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	0.000000 Hz	Ref Position	100.000 %
Start Frequency	915.726000 MHz	Level Range	70.000 dB
Stop Frequency	915.726000 MHz	RF Att	10.000 dB
RBW	1.000000 MHz	X-Axis	LIN
VBW	3.000000 MHz	Y-Axis	LOG
Sweep Time	20.00 s		



Tabulated test results

Frequency (MHz)	Dwell Time (ms)	Number of pulses in 20 seconds	Average time of Occupancy (ms)	Limit (ms)	Conclusion
908.4 (CH1)	2.7	10	27	400	PASS
912.0 (CH25)	2.7	10	27	400	PASS
915.8 (CH50)	2.7	10	27	400	PASS

3.5 §15.247 (a) (1) Number of Hopping Frequencies

Requirement

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies

Test procedure:

As per Clause 7.8.3 from ANSI C63.10-2013 and FCC/DA-00-705

Test results

03.Jan 17 11:19

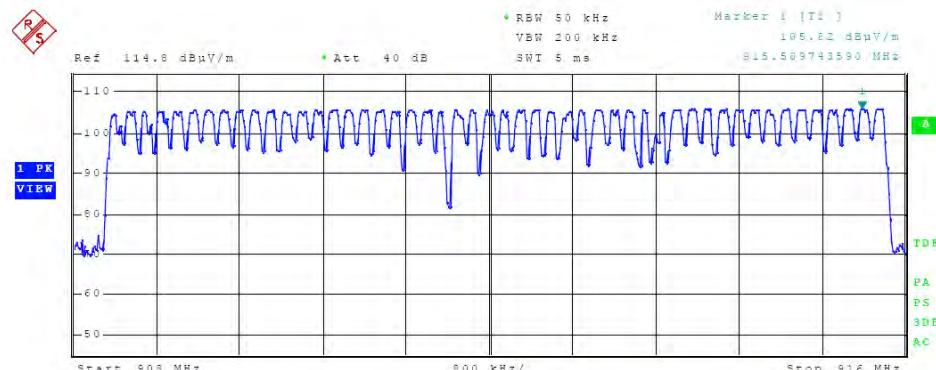
Meas Type	NUMBER OF CHANNELS
Equipment under Test	WSD 011-2
Manufacturer	NAVIS ELEKTRONIKA D.O.O.
OP Condition	Hopping enabled
Operator	Andrej Skof

Test Spec

VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	912.000000 MHz	Ref Level	114.800 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	8.000000 MHz	Ref Position	100.000 %
Start Frequency	908.000000 MHz	Level Range	70.000 dB
Stop Frequency	916.000000 MHz	RF Att	40.000 dB
RBW	50.000000 kHz	X-Axis	LIN
VBW	200.000000 kHz	Y-Axis	LOG
Sweep Time	5.00 ms		



#	Frequency	Level	#	Frequency	Level
1	908.384615 MHz	104.30 dB μ p	13	910.230769 MHz	105.24 dB μ p
2	908.576923 MHz	105.21 dB μ p	14	910.320513 MHz	105.32 dB μ p
3	908.679487 MHz	105.11 dB μ p	15	910.500000 MHz	105.37 dB μ p
4	908.838333 MHz	105.21 dB μ p	16	910.641026 MHz	105.40 dB μ p
5	909.025641 MHz	105.18 dB μ p	17	910.807692 MHz	105.45 dB μ p
6	909.166667 MHz	105.33 dB μ p	18	910.961538 MHz	105.42 dB μ p
7	909.282051 MHz	105.27 dB μ p	19	911.076923 MHz	105.21 dB μ p
8	909.435897 MHz	105.29 dB μ p	20	911.230769 MHz	105.49 dB μ p
9	909.615385 MHz	105.39 dB μ p	21	911.423077 MHz	105.36 dB μ p
10	909.730769 MHz	105.29 dB μ p	22	911.525641 MHz	105.24 dB μ p
11	909.910256 MHz	105.38 dB μ p	23	911.679487 MHz	105.41 dB μ p
12	910.025641 MHz	105.12 dB μ p	24	911.833333 MHz	105.30 dB μ p

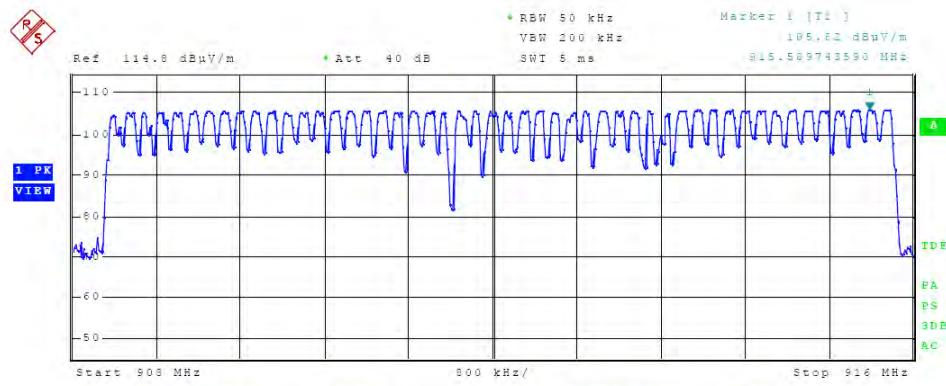
Meas Type NUMBER OF CHANNELS
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping enabled
Operator Andrej Skof

Test Spec

VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	912.000000 MHz	Ref Level	114.800 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	8.000000 MHz	Ref Position	100.000 %
Start Frequency	908.000000 MHz	Level Range	70.000 dB
Stop Frequency	916.000000 MHz	RF Att	40.000 dB
RBW	50.000000 kHz	X-Axis	LIN
VBW	200.000000 kHz	Y-Axis	LOG
Sweep Time	5.00 ms		

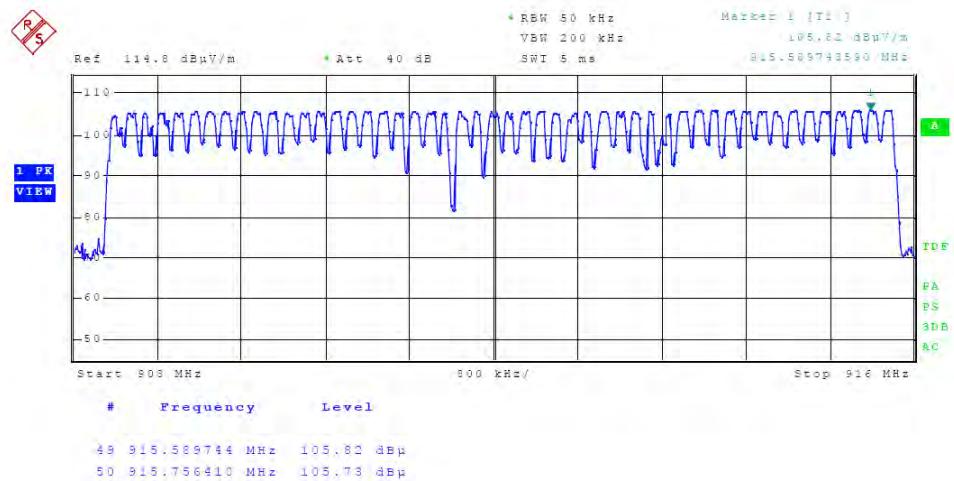


#	Frequency	Level	#	Frequency	Level
25	911.974359 MHz	105.27 dB μ p	37	913.807692 MHz	105.53 dB μ p
26	912.128205 MHz	105.33 dB μ p	38	913.948718 MHz	105.64 dB μ p
27	912.320513 MHz	105.32 dB μ p	39	914.089744 MHz	105.67 dB μ p
28	912.435897 MHz	105.54 dB μ p	40	914.282051 MHz	105.61 dB μ p
29	912.576923 MHz	105.25 dB μ p	41	914.435897 MHz	105.52 dB μ p
30	912.782051 MHz	105.20 dB μ p	42	914.576923 MHz	105.57 dB μ p
31	912.884615 MHz	105.30 dB μ p	43	914.679487 MHz	105.50 dB μ p
32	913.051282 MHz	105.44 dB μ p	44	914.871755 MHz	105.64 dB μ p
33	913.179487 MHz	105.36 dB μ p	45	914.987179 MHz	105.57 dB μ p
34	913.333333 MHz	105.34 dB μ p	46	915.141026 MHz	105.56 dB μ p
35	913.487179 MHz	105.33 dB μ p	47	915.282051 MHz	105.55 dB μ p
36	913.666667 MHz	104.51 dB μ p	48	915.448718 MHz	105.78 dB μ p

Meas Type NUMBER OF CHANNELS
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping enabled
Operator Andrej Skof
Test Spec
VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	912.000000 MHz	Ref Level	114.800 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	8.000000 MHz	Ref Position	100.000 %
Start Frequency	908.000000 MHz	Level Range	70.000 dB
Stop Frequency	916.000000 MHz	RF Att	40.000 dB
RBW	50.000000 kHz	X-Axis	LIN
VBW	200.000000 kHz	Y-Axis	LOG
Sweep Time	5.00 ms		



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Conclusion:

Number of channels: 50

PASS

3.6 §15.247 (a) (1) Carrier Frequency Separation

Requirement

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Procedure

As per Clause 7.8.2 from ANSII C63.10-2013 and FCC/DA-00-705

Test results

03.Jan 17 12:33

Meas Type	CHANNEL SEPARATION
Equipment under Test	WSD 011-2
Manufacturer	NAVIS ELEKTRONIKA D.O.O.
OP Condition	CH1 and CH2
Operator	Andrej Skof
Test Spec	
VERTICAL 100 cm, 0 deg	

Sweep Settings Screen A

Center Frequency	908.476282 MHz	Ref Level	114.800 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	500.000000 kHz	Ref Position	100.000 %
Start Frequency	908.226282 MHz	Level Range	70.000 dB
Stop Frequency	908.726282 MHz	RF Att	40.000 dB
RBW	10.000000 kHz	X-Axis	LIN
VBW	30.000000 kHz	Y-Axis	LOG
Sweep Time	20.00 ms		

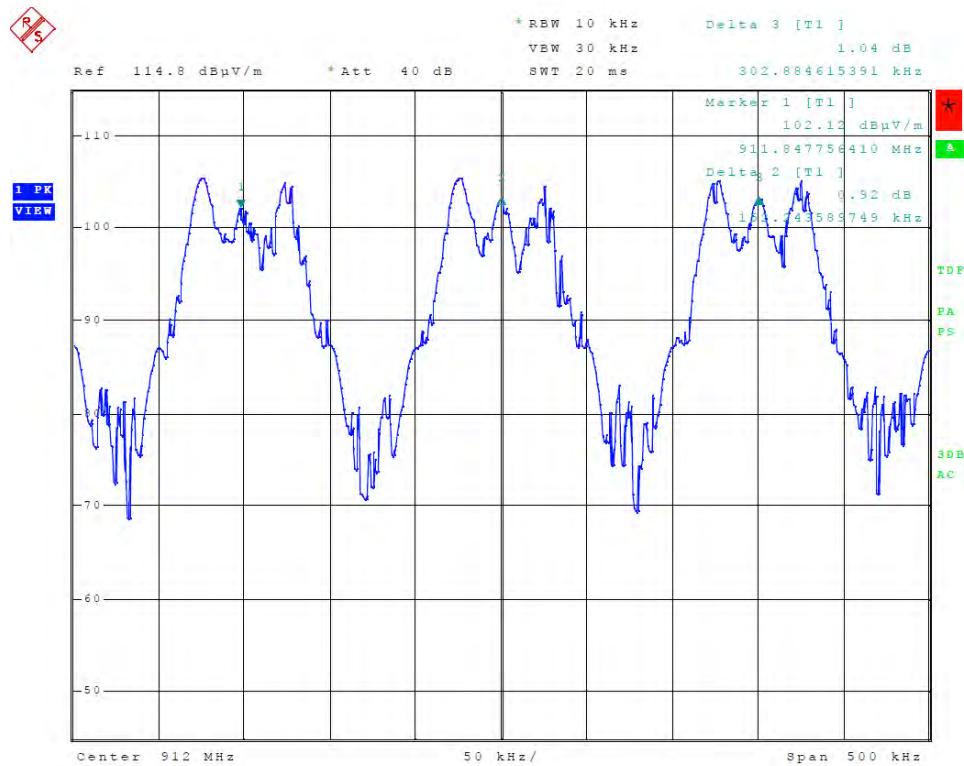


03.Jan 17 12:38

Meas Type CHANNEL SEPARATION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition CH24 - CH26
Operator Andrej Skof
Test Spec
VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	912.000000 MHz	Ref Level	114.800 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	500.000000 kHz	Ref Position	100.000 %
Start Frequency	911.750000 MHz	Level Range	70.000 dB
Stop Frequency	912.250000 MHz	RF Att	40.000 dB
RBW	10.000000 kHz	X-Axis	LIN
VBW	30.000000 kHz	Y-Axis	LOG
Sweep Time	20.00 ms		



Meas Type CHANNEL SEPARATION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition CH49 and CH50
Operator Andrej Skof
Test Spec
 VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	915.650000 MHz	Ref Level	114.800 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	500.000000 kHz	Ref Position	100.000 %
Start Frequency	915.400000 MHz	Level Range	70.000 dB
Stop Frequency	915.900000 MHz	RF Att	40.000 dB
RBW	10.000000 kHz	X-Axis	LIN
VBW	30.000000 kHz	Y-Axis	LOG
Sweep Time	20.00 ms		



Tabulated test results

Channel selection	Channel Separation (kHz)	Limit (kHz)	Conclusion
CH1 to CH2	151	113 (20 dB BW)	PASS
CH 25 to CH26	151	113 (20 dB BW)	PASS
CH 49 to CH50	151	113 (20 dB BW)	PASS

3.7 §15.247 (a) (1) Pseudorandom Frequency Hopping Sequence and Equal Hooping Frequency Use

Data declared by manufacturer by manufacturer:

Pseudorandom Frequency Hopping Sequence

For FHSS[frequency hopping spread spectrum] are used 50 frequency channels in 150 kHz steps. Starting frequency is 908.4MHz. Channel hop is made on every new transmitted package (~2s). Channel hopping sequence is determined by array of pseudorandom generated numbers between 1 and 50.

Equal Hopping Frequency Use

Every new transmitted data package is transmitted on different frequency channel with pseudorandom generated sequence channel change. After 50 transmitted data packages transmitter repeat pseudorandom sequence. This logic ensure that transmitter continuous transmit data packages uniform distributed on all 50 frequency channels.

3.8 §15.247 (b) Peak Power Output

Requirement

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels.

Test Procedure

As per Clause 7.8.5 from ANSII C63.10-2013 and FCC/DA-00-705

Note: The test was performed Radiated since the EUT has an integrated antenna.

Calculation of Transmitter Peak Power:

$$P = (E^*d)^2/(30^*G)$$

E – Radiated Field Strength in V/m

d – Measurement distance

G – Numeric gain of the transmitting antenna with reference to isotropic radiator

Calculation of final measurements:

Final Measurement (dB μ V/m) = Receiver Reading (dB μ V/m) + AF (dB) + CL (dB) + Atten (dB) + Preamp (dB)

where:

Final Measurement = Final measurement result

Receiver Reading = Uncorrected amplitude measured by the receiver

AF = Antenna Factor

CL = Cable Loss

Atten = Attenuator correction

Preamp = Preamplifier correction

Test results

21.Mar 17 08:57

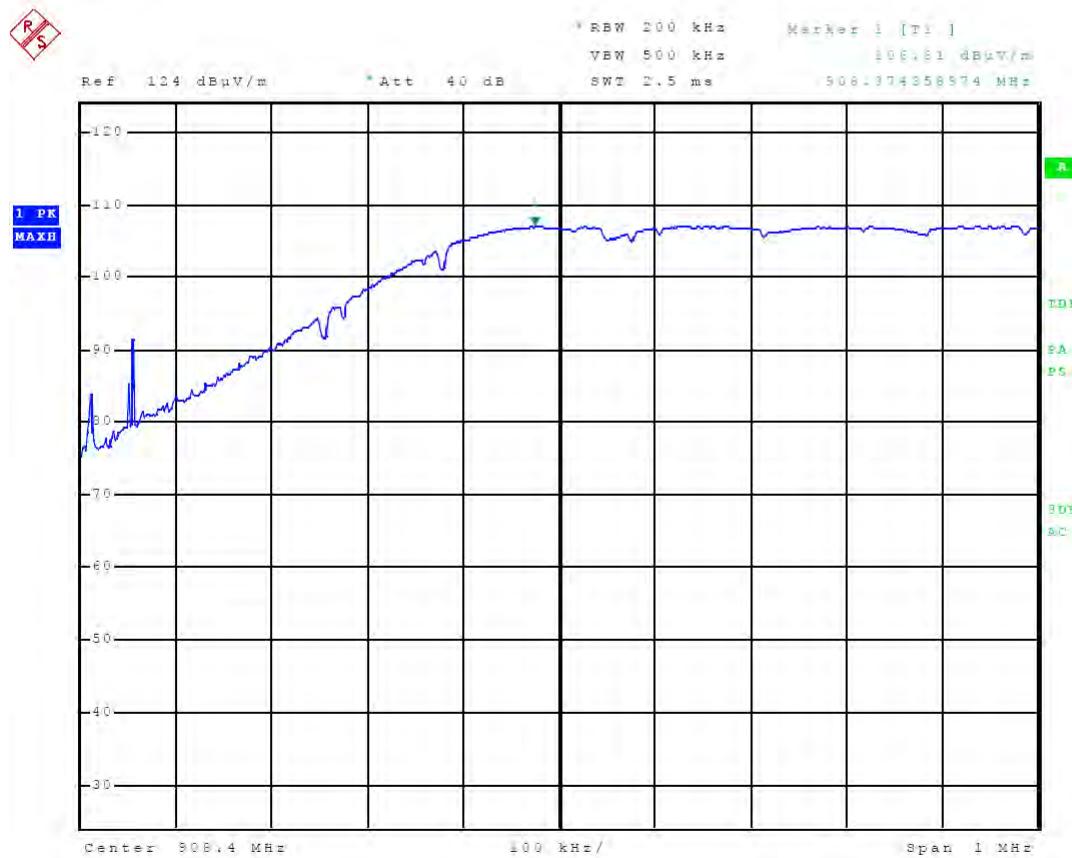
Meas Type PEAK POWER OUTPUT
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition NORMAL (CH1)
Operator Andrej Skof

Test Spec

VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	908.400000 MHz	Ref Level	124.000 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	1.000000 MHz	Ref Position	100.000 %
Start Frequency	907.900000 MHz	Level Range	100.000 dB
Stop Frequency	908.900000 MHz	RF Att	40.000 dB
RBW	200.000000 kHz	X-Axis	LIN
VBW	500.000000 kHz	Y-Axis	LOG
Sweep Time	2.50 ms		



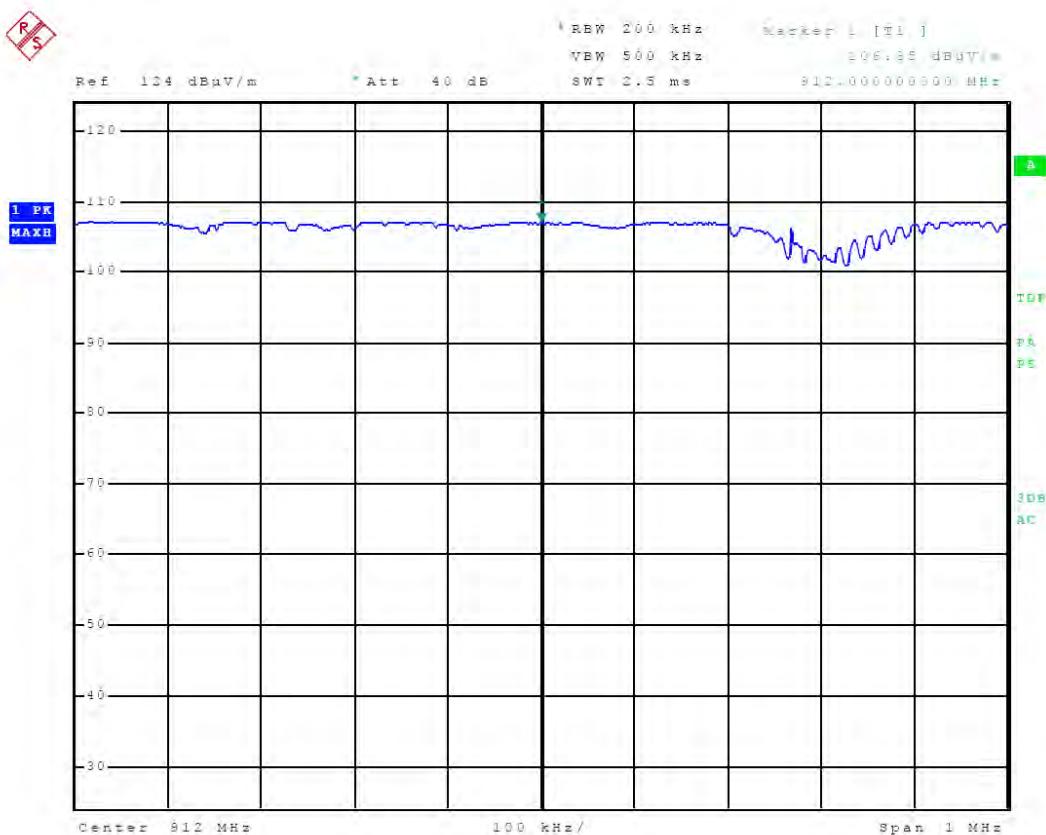


21.Mar 17 08:57

Meas Type PEAK POWER OUTPUT
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition NORMAL (CH25)
Operator Andrej Skof
Test Spec
 VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	912.000000 MHz	Ref Level	124.000 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	1.000000 MHz	Ref Position	100.000 %
Start Frequency	911.500000 MHz	Level Range	100.000 dB
Stop Frequency	912.500000 MHz	RF Att	40.000 dB
RBW	200.000000 kHz	X-Axis	LIN
VBW	500.000000 kHz	Y-Axis	LOG
Sweep Time	2.50 ms		



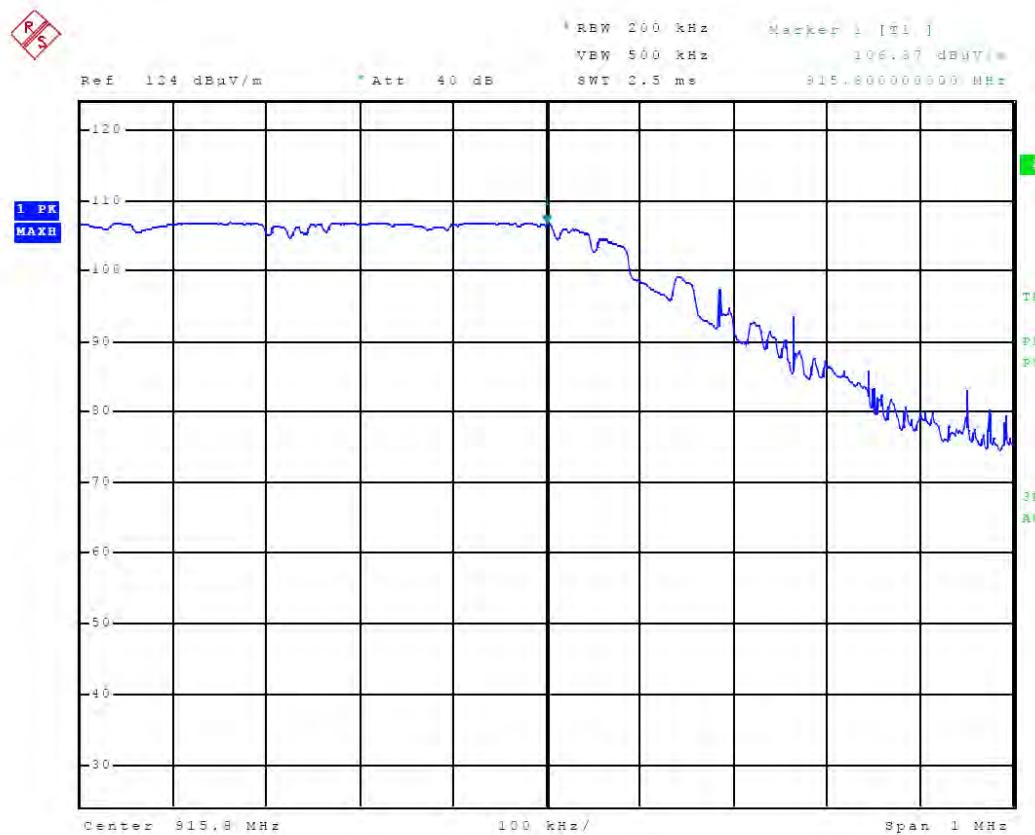


21.Mar 17 08:55

Meas Type PEAK POWER OUTPUT
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition NORMAL (CH50)
Operator Andrej Skof
Test Spec
 VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	915.800000 MHz	Ref Level	124.000 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	1.000000 MHz	Ref Position	100.000 %
Start Frequency	915.300000 MHz	Level Range	100.000 dB
Stop Frequency	916.300000 MHz	RF Att	40.000 dB
RBW	200.000000 kHz	X-Axis	LIN
VBW	500.000000 kHz	Y-Axis	LOG
Sweep Time	2.50 ms		

**Final Tabulated test results**

Frequency (MHz)	Field Strength (dB μ V/m)	Field Strength (V/m)	Antenna Gain (dBi)	Conducted power (W)	Limit (W)	Conclusion
908.4 (CH1)	106.81	0.22	0	0.015	1	PASS
912.0 (CH25)	106.85	0.22	0	0.015	1	PASS
915.8 (CH50)	106.37	0.21	0	0.013	1	PASS

3.9 §15.247 (c) Spurious RF Conducted Emissions

Test not applicable since EUT has integrated antenna and antenna conducted tests cannot be performed. Due to that radiated tests were done to show compliance with the spurious RF conducted emission limit specified in section 15.247 (c). For the test results see Radiated Spurious Emission test results.

Conclusion: PASS

3.10 §15.247 Radiated Spurious Emissions

Requirements

§15.35 Measurement detector functions and bandwidths

(b) Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§15.250, 15.252, 15.253(d), 15.255, 15.256, and 15.509 through 15.519 of this part, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device, e.g., the total peak power level. Note that the use of a pulse desensitization correction factor may be needed to determine the total peak emission level. The instruction manual or application note for the measurement instrument should be consulted for determining pulse desensitization factors, as necessary.

§15.209 Radiated emission limit

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency Range (MHz)	Limits (dB μ V/m)	Test distance (m)
0,009 to 0,490	$20 * \log(2400/F(\text{kHz}))$	300
0,490 to 1,705	$20 * \log(24000/F(\text{kHz}))$	30
1,705 to 30,0	30	30
30 to 88	40**	3
88 to 216	43.5**	3
216 to 960	46**	3
Above 960	54	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

§15.205 Restricted bands of operation

Requirement

Except as shown in paragraph (d) of §15.205 only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

²Above 38.6

§15.247 (d) Band edge

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test procedure

As per Clauses 6.3, 6.4, 6.5, 6.6 and 6.10 from ANSI C63.10-2013 and FCC/DA-00-705

Test results

Calculation of final measurements:

Final Measurement (dB μ V/m) = Receiver Reading (dB μ V/m) + AF (dB) + CL (dB) + Atten (dB) + Preamp (dB)

where:

Final Measurement = Final measurement result

Receiver Reading = Uncorrected amplitude measured by the receiver

AF = Antenna Factor

CL = Cable Loss

Atten = Attenuator correction

Preamp = Preamplifier correction



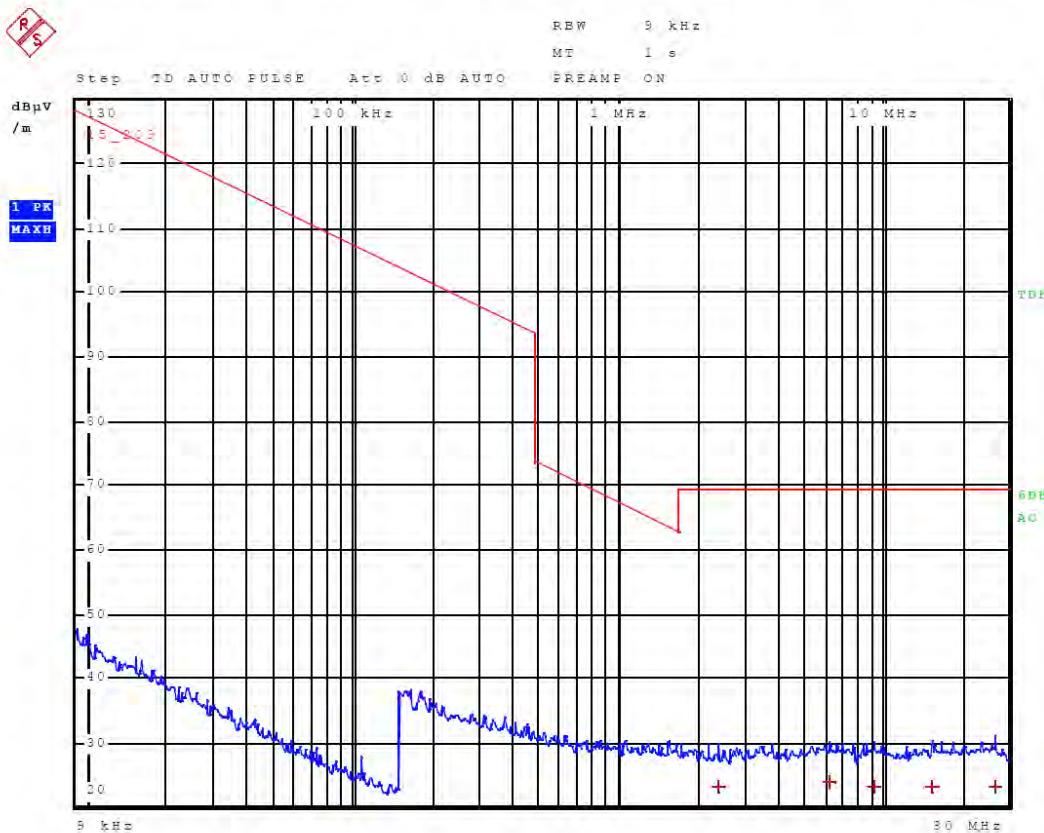
06.Jan 17 07:16

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 Antenna: 0 deg, Sample: 0 deg

Time Domain Scan (2 Ranges)

Scan Start: 9 kHz
 Scan Stop: 30 MHz
 Detector: Trace 1: MAX PEAK
 Transducer: HFH2-Z2V

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
9.000000 kHz	149.950000 kHz	50.00 Hz	200.00 Hz	300 ms	Auto	20 dB	INPUT2
150.000000 kHz	30.000000 MHz	2.25 kHz	9.00 kHz	30 ms	Auto	20 dB	INPUT2





06.Jan 17 07:16

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
Antenna: 0 deg, Sample: 0 deg

Final Measurement

Meas Time: 1 s
Margin: 40 dB
Peaks: 5

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	6.303750000 MHz	23.74	Quasi Peak	-45.76
1	9.264750000 MHz	23.20	Quasi Peak	-46.30
1	26.605500000 MHz	23.05	Quasi Peak	-46.45
1	2.411250000 MHz	23.03	Quasi Peak	-46.47
1	15.414000000 MHz	23.01	Quasi Peak	-46.49



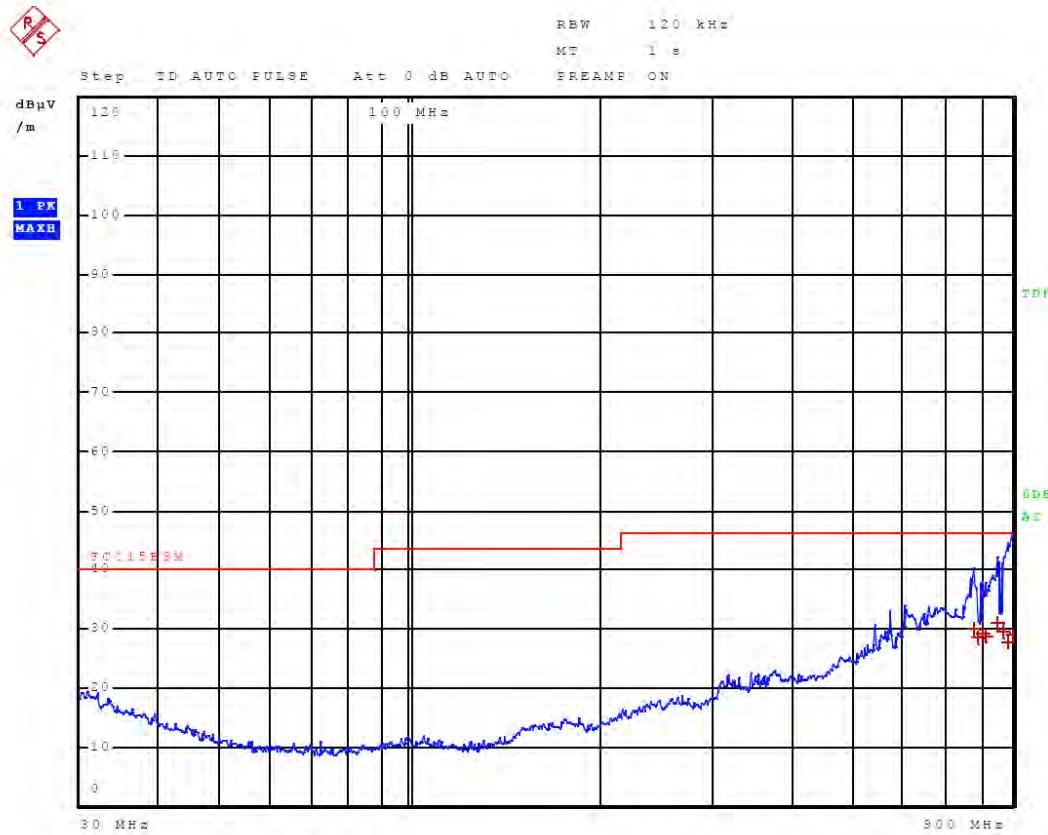
03.Jan 17 10:15

Meas Type RADIATED EMISSION, 30 MHz - 900 MHz
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 VERTICAL 100 cm, 0 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
 Scan Stop: 900 MHz
 Detector: Trace 1: MAX PEAK
 Transducer: 3142B3m

Start Frequency	Stop Frequency	Step Size	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	900.000000 MHz	30.00 kHz	120.00 kHz 10 ms	Auto	20 dB	INPUT2





03.Jan 17 10:15

Meas Type RADIATED EMISSION, 30 MHz - 900 MHz**Equipment under Test** WSD 011-2**Manufacturer** NAVIS ELEKTRONIKA D.O.O.**OP Condition** Hopping mode**Operator** Andrej Skof**Test Spec**

VERTICAL 100 cm, 0 deg

Final Measurement

Meas Time: 1 s
Margin: 10 dB
Peaks: 8

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	850.680000000 MHz	30.97	Quasi Peak	-15.03
1	780.960000000 MHz	29.88	Quasi Peak	-16.12
1	870.330000000 MHz	29.29	Quasi Peak	-16.71
1	806.070000000 MHz	29.24	Quasi Peak	-16.76
1	897.960000000 MHz	28.89	Quasi Peak	-17.11
1	815.580000000 MHz	28.56	Quasi Peak	-17.44
1	792.150000000 MHz	28.36	Quasi Peak	-17.64
1	886.140000000 MHz	27.73	Quasi Peak	-18.27



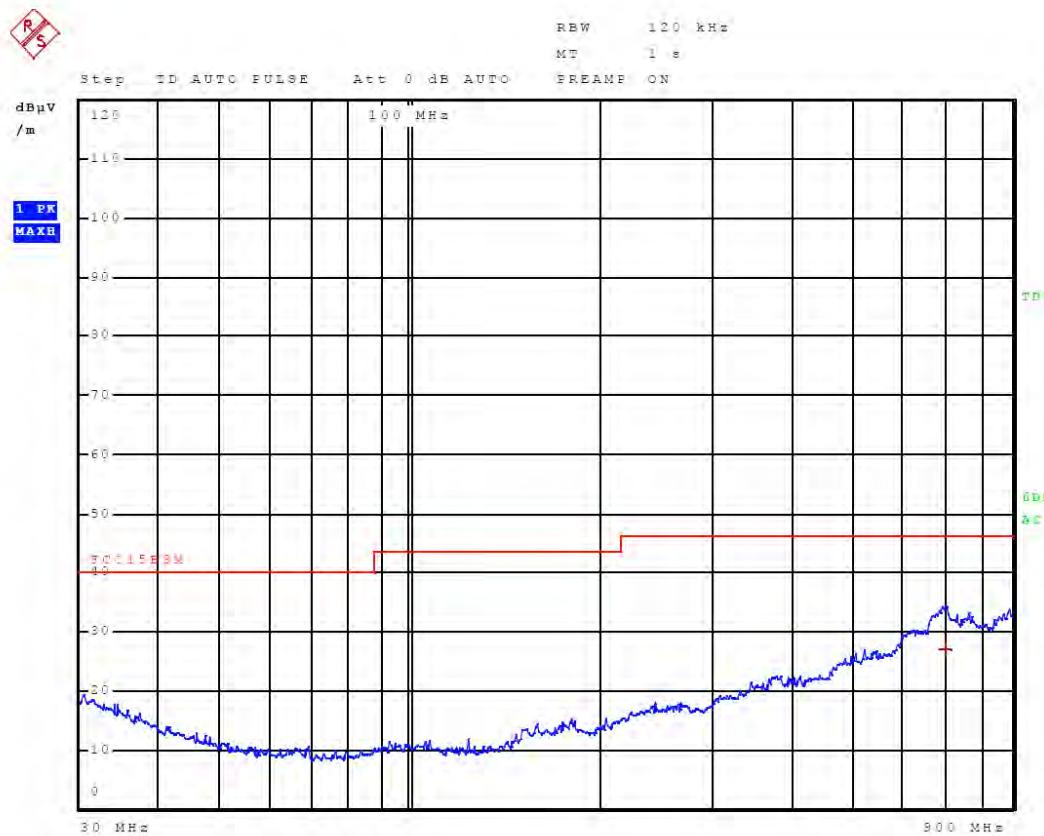
03.Jan 17 10:18

Meas Type RADIATED EMISSION, 30 MHz - 900 MHz
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 100 cm, 0 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 900 MHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

Start Frequency	Stop Frequency	Step Size	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	900.000000 MHz	30.00 kHz	120.00 kHz 10 ms	Auto	20 dB	INPUT2





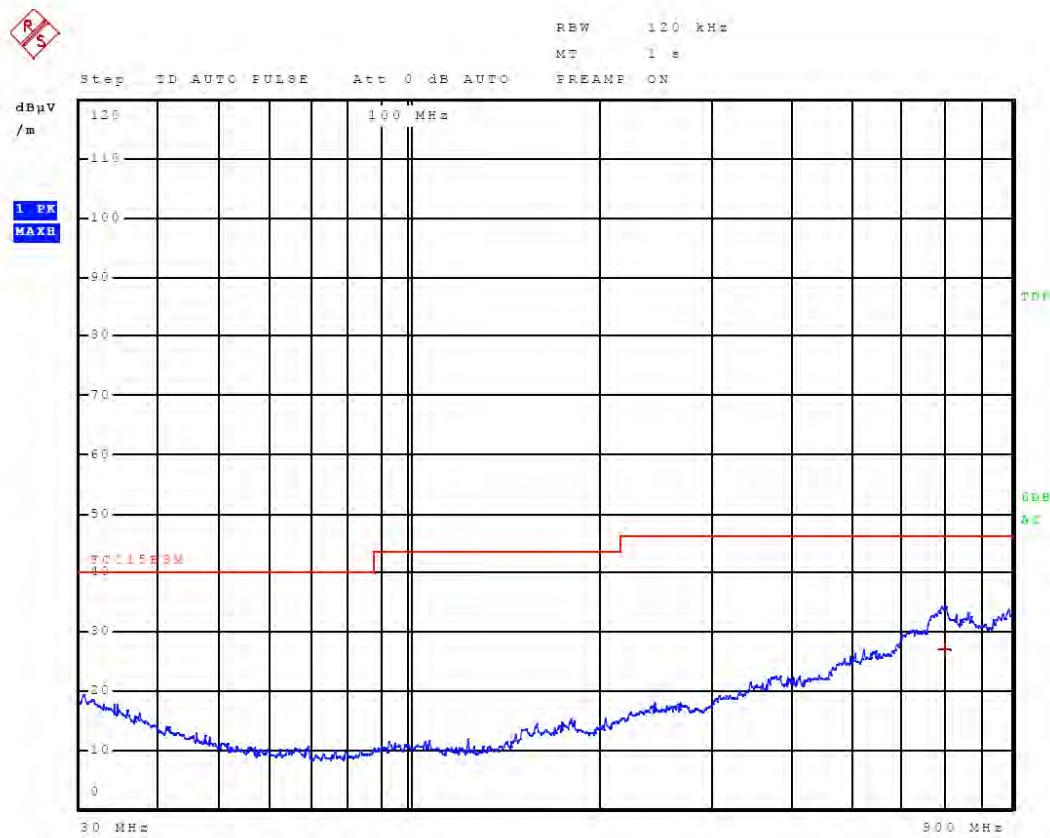
03.Jan 17 10:18

Meas Type RADIATED EMISSION, 30 MHz - 900 MHz
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 100 cm, 0 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 900 MHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	900.000000 MHz	30.00 kHz	120.00 kHz	10 ms	Auto	20 dB	INPUT2





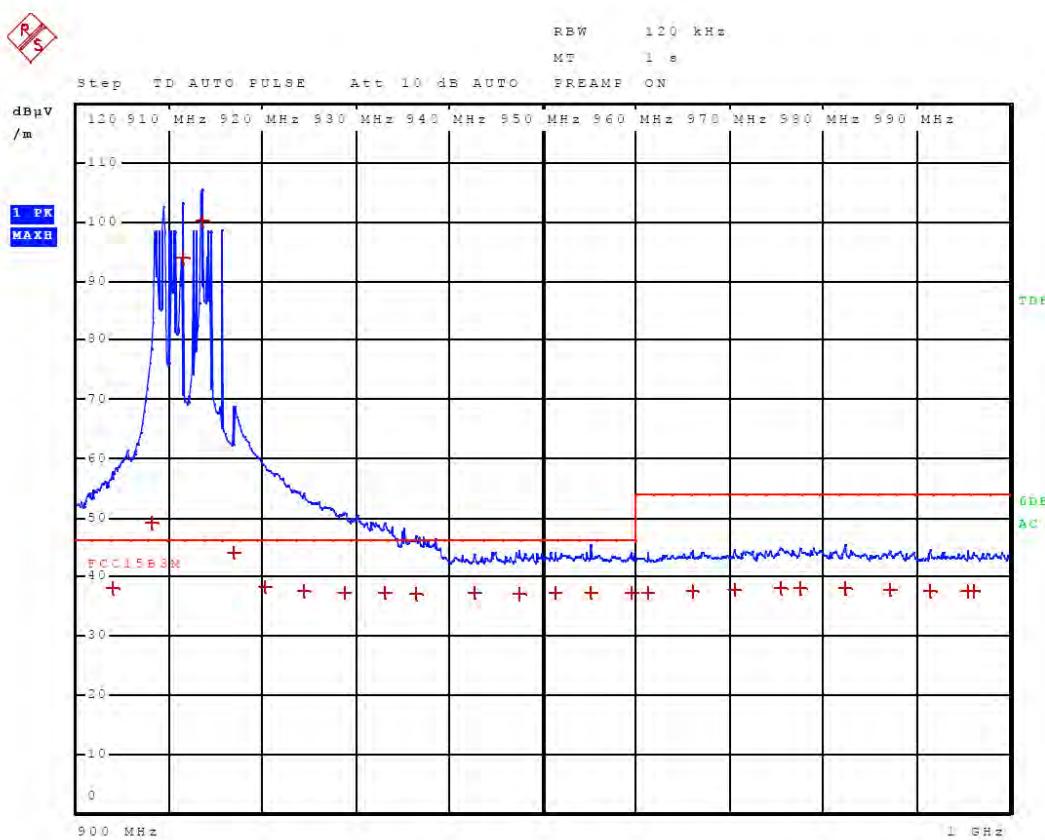
03.Jan 17 10:23

Meas Type	RADIATED EMISSION
Equipment under Test	WSD 011-2
Manufacturer	NAVIS ELEKTRONIKA D.O.O.
OP Condition	Hopping mode
Operator	Andrej Skof
Test Spec	
VERTICAL 100 cm, 0 deg	

Time Domain Scan (1 Range)

Scan Start: 900 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

Start Frequency	Stop Frequency	Step Size	Meas Time	RF Attenuation	Preamp	Input
900.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	1 ms	Auto	20 dB INPUT2





03.Jan 17 10:23

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
VERTICAL 100 cm, 0 deg

Final Measurement

Meas Time: 1 s
Margin: 15 dB
Subranges: 25

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	903.810000000 MHz	37.94	Quasi Peak	-8.06
1	907.980000000 MHz	49.13	Quasi Peak	3.13
1	911.340000000 MHz	93.96	Quasi Peak	47.96
1	913.380000000 MHz	100.27	Quasi Peak	54.27
1	916.860000000 MHz	43.94	Quasi Peak	-2.06
1	920.160000000 MHz	38.19	Quasi Peak	-7.81
1	924.360000000 MHz	37.50	Quasi Peak	-8.50
1	928.590000000 MHz	37.26	Quasi Peak	-8.74
1	933.060000000 MHz	37.08	Quasi Peak	-8.92
1	936.390000000 MHz	37.02	Quasi Peak	-8.98
1	942.600000000 MHz	37.13	Quasi Peak	-8.87
1	947.430000000 MHz	37.02	Quasi Peak	-8.98
1	951.240000000 MHz	37.07	Quasi Peak	-8.93
1	955.110000000 MHz	37.11	Quasi Peak	-8.89
1	959.400000000 MHz	37.15	Quasi Peak	-8.85
1	961.140000000 MHz	37.15	Quasi Peak	-16.85
1	965.940000000 MHz	37.48	Quasi Peak	-16.52
1	970.560000000 MHz	37.69	Quasi Peak	-16.31
1	975.390000000 MHz	37.99	Quasi Peak	-16.01
1	977.490000000 MHz	37.95	Quasi Peak	-16.05
1	982.290000000 MHz	37.83	Quasi Peak	-16.17
1	987.210000000 MHz	37.67	Quasi Peak	-16.33
1	991.410000000 MHz	37.48	Quasi Peak	-16.52
1	995.490000000 MHz	37.50	Quasi Peak	-16.50
1	996.120000000 MHz	37.50	Quasi Peak	-16.50



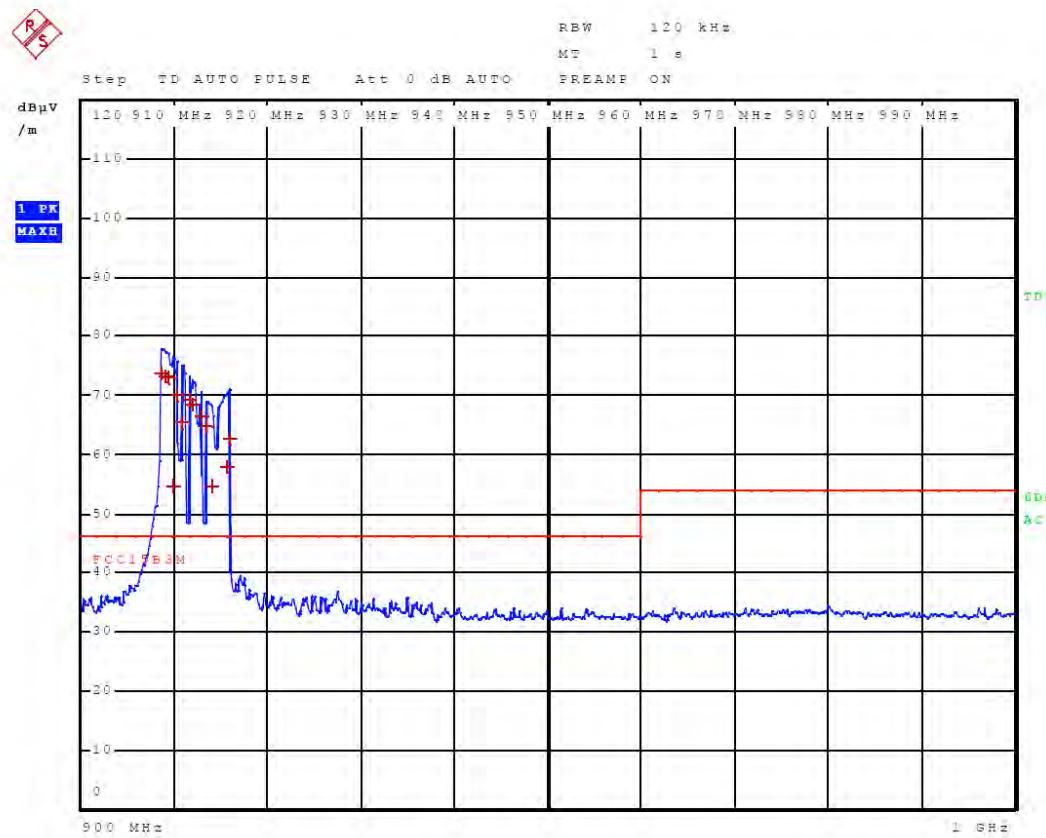
03.Jan 17 10:19

Meas Type RADIATED EMISSION, 900 MHz - 1 GHz
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 HORIZONTAL 100 cm, 0 deg

Time Domain Scan (1 Range)

Scan Start: 900 MHz
 Scan Stop: 1 GHz
 Detector: Trace 1: MAX PEAK
 Transducer: 3142B3m

Start Frequency	Stop Frequency	Step Size	Meas Time	RF Atten	Preamp	Input
900.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz 1 ms	Auto	20 dB	INPUT2





03.Jan 17 10:19

Meas Type RADIATED EMISSION, 900 MHz - 1 GHz
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 100 cm, 0 deg

Final Measurement

Meas Time: 1 s
Margin: 15 dB
Peaks: 13

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	908.520000000 MHz	73.84	Quasi Peak	27.84
1	908.970000000 MHz	73.30	Quasi Peak	27.30
1	909.270000000 MHz	72.89	Quasi Peak	26.89
1	909.720000000 MHz	54.66	Quasi Peak	8.66
1	910.170000000 MHz	70.04	Quasi Peak	24.04
1	910.770000000 MHz	65.44	Quasi Peak	19.44
1	911.520000000 MHz	69.23	Quasi Peak	23.23
1	911.820000000 MHz	68.55	Quasi Peak	22.55
1	912.720000000 MHz	66.32	Quasi Peak	20.32
1	913.320000000 MHz	64.77	Quasi Peak	18.77
1	913.920000000 MHz	54.54	Quasi Peak	8.54
1	915.480000000 MHz	57.98	Quasi Peak	11.98
1	915.780000000 MHz	62.70	Quasi Peak	16.70



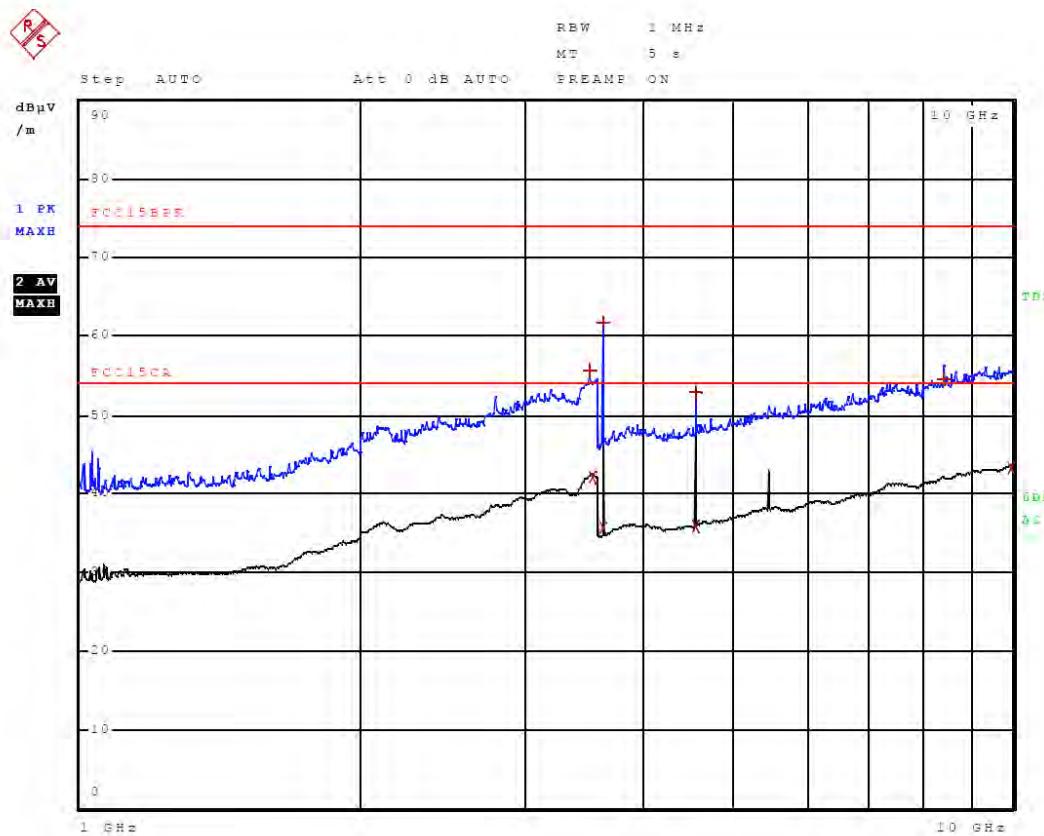
13.Jan 17 16:23

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 VERTICAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 1 GHz
 Scan Stop: 10 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	10.000000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 16:23

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
VERTICAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 22 dB
Peaks: 9

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	9.964400000 GHz	43.21	CISPR Averag	-10.79
2	3.544400000 GHz	42.11	CISPR Averag	-11.89
1	3.639600000 GHz	61.70	Max Peak	-12.30
2	4.571200000 GHz	35.86	CISPR Averag	-18.14
2	4.573600000 GHz	35.77	CISPR Averag	-18.23
1	3.519200000 GHz	55.60	Max Peak	-18.40
2	3.640000000 GHz	35.59	CISPR Averag	-18.41
1	8.444800000 GHz	54.55	Max Peak	-19.45
1	4.571200000 GHz	52.84	Max Peak	-21.16



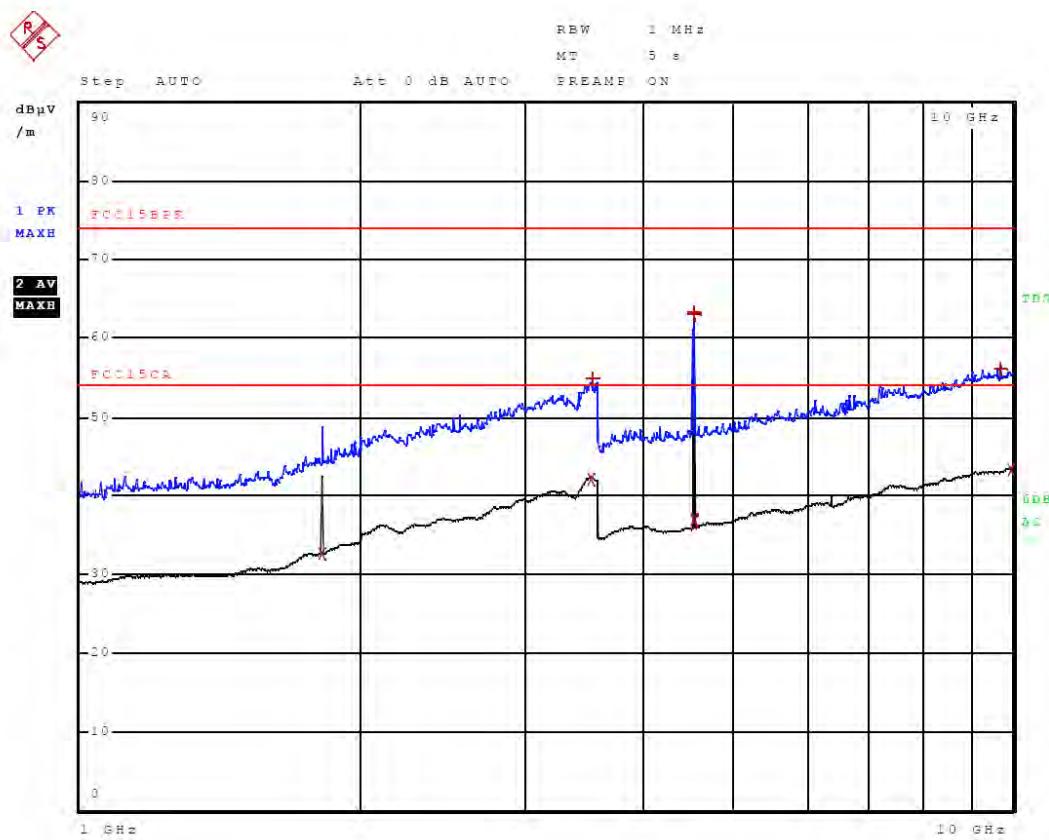
13.Jan 17 16:26

Meas Type	RADIATED EMISSION
Equipment under Test	WSD 011-2
Manufacturer	NAVIS ELEKTRONIKA D.O.O.
OP Condition	Hopping mode
Operator	Andrej Skof
Test Spec	
	HORIZONTAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 10 GHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Meas Time	RF Atten	Preamp	Input	
1.000000 GHz	10.000000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	TINPUT1





13.Jan 17 16:26

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 22 dB
Peaks: 9

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	4.550400000 GHz	63.30	Max Peak	-10.70
2	9.975200000 GHz	43.17	CISPR Averag	-10.83
1	4.548000000 GHz	62.98	Max Peak	-11.02
2	3.529600000 GHz	42.08	CISPR Averag	-11.92
2	4.548000000 GHz	37.00	CISPR Averag	-17.00
2	4.550400000 GHz	36.86	CISPR Averag	-17.14
1	9.713600000 GHz	56.15	Max Peak	-17.85
1	3.551600000 GHz	54.99	Max Peak	-19.01
2	1.818000000 GHz	32.67	CISPR Averag	-21.33



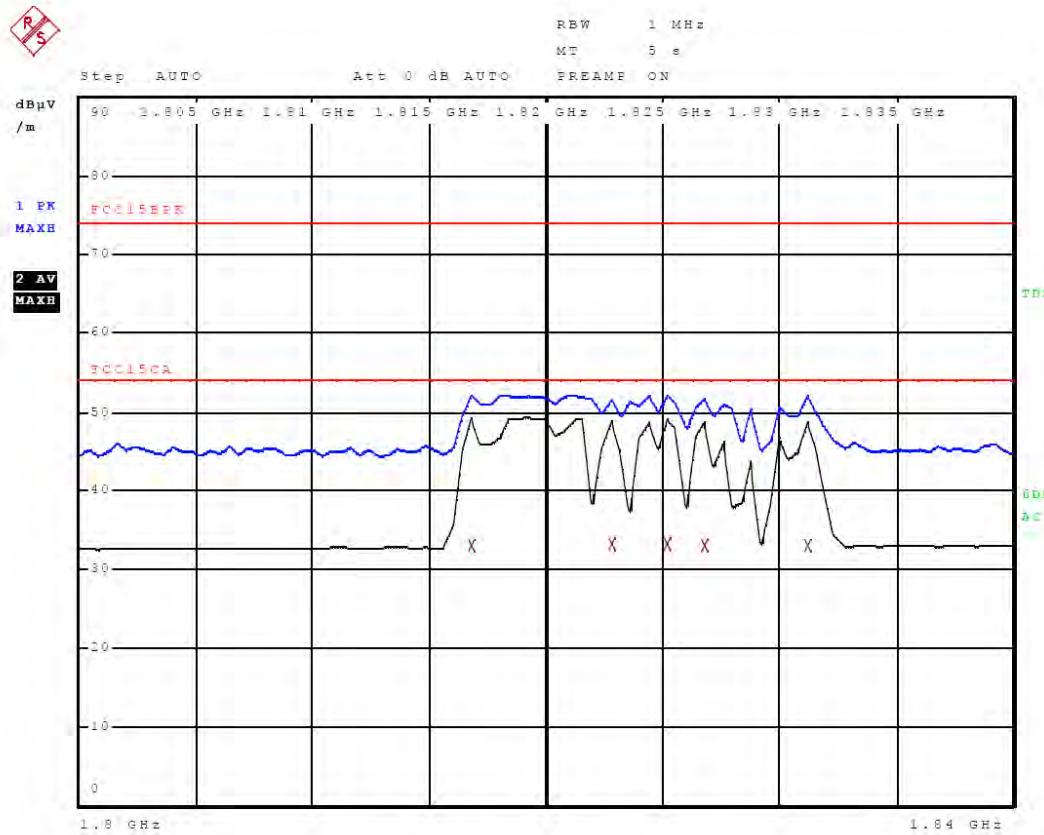
13.Jan 17 15:53

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 VERTICAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 1.8 GHz
 Scan Stop: 1.84 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.800000 GHz	1.840000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	20 dB	INPUT1





13.Jan 17 15:53

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
VERTICAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 21 dB
Peaks: 5

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	1.825200000 GHz	33.23	CISPR Averag	-20.77
2	1.822800000 GHz	33.21	CISPR Averag	-20.79
2	1.816800000 GHz	33.08	CISPR Averag	-20.92
2	1.826800000 GHz	32.99	CISPR Averag	-21.01
2	1.831200000 GHz	32.96	CISPR Averag	-21.04



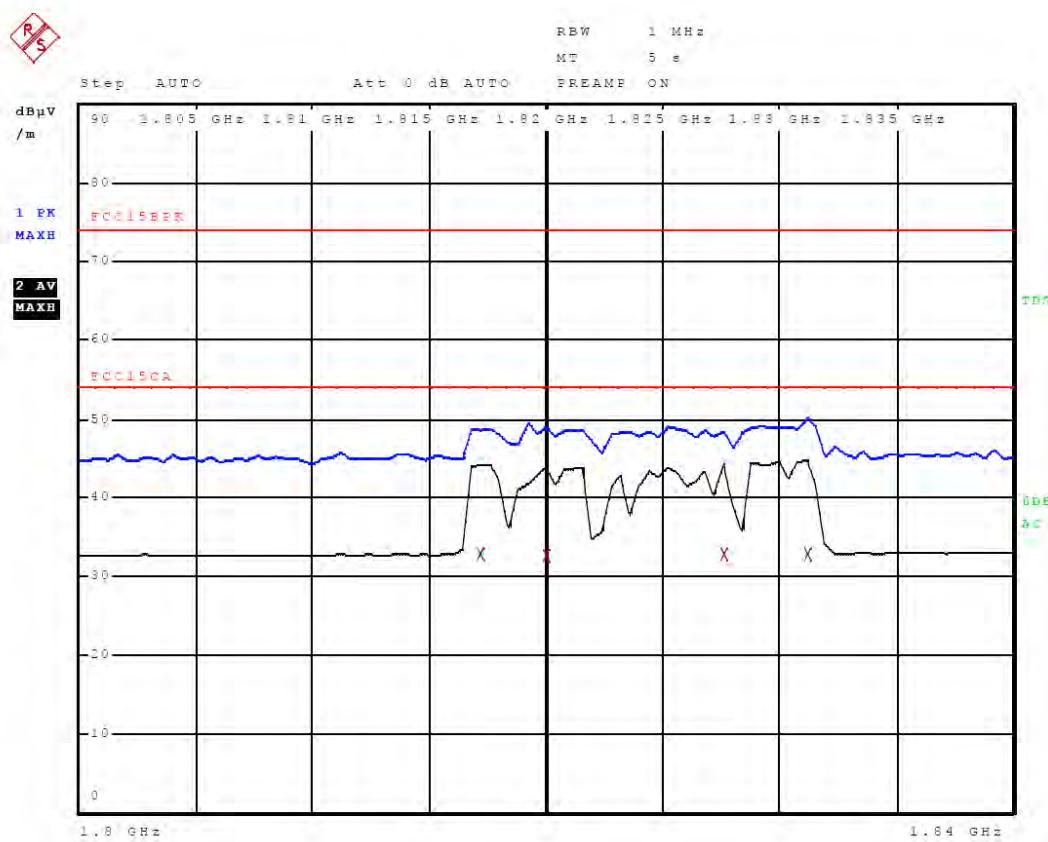
13.Jan 17 15:51

Meas Type	RADIATED EMISSION
Equipment under Test	WSD 011-2
Manufacturer	NAVIS ELEKTRONIKA D.O.O.
OP Condition	Hopping mode
Operator	Andrej Skof
Test Spec	
	HORIZONTAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 1.8 GHz
Scan Stop: 1.84 GHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Meas Time	RF Attenuation	Preamplifier	Input
1.800000 GHz	1.840000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	20 dB





13.Jan 17 15:51

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 21 dB
Peaks: 4

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	1.827600000 GHz	32.86	CISPR Averag	-21.14
2	1.831200000 GHz	32.76	CISPR Averag	-21.24
2	1.817200000 GHz	32.72	CISPR Averag	-21.28
2	1.820000000 GHz	32.70	CISPR Averag	-21.30



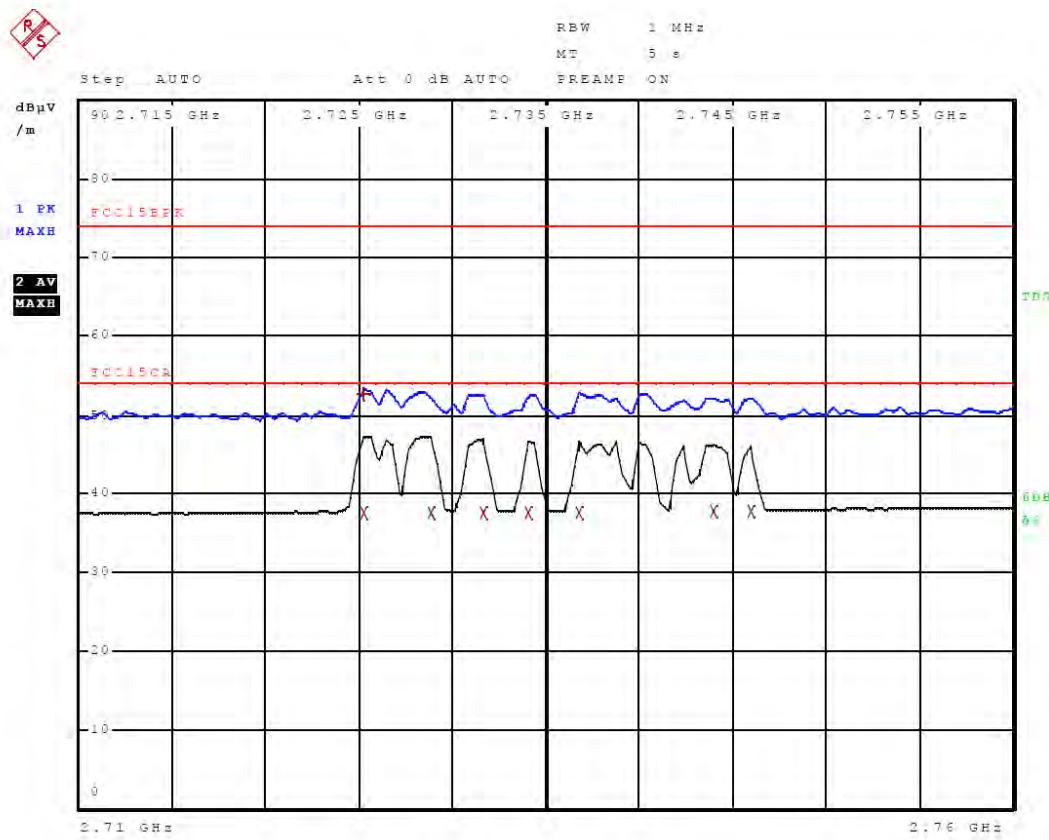
13.Jan 17 15:47

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 VERTICAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 2.71 GHz
 Scan Stop: 2.76 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Meas Time	RF Atten	Preamp	Input
2.710000 GHz	2.760000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	20 dB INPUT1





13.Jan 17 15:47

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
VERTICAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 21 dB
Peaks: 8

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	2.746000000 GHz	37.81	CISPR Averag	-16.19
2	2.744000000 GHz	37.75	CISPR Averag	-16.25
2	2.731600000 GHz	37.60	CISPR Averag	-16.40
2	2.734000000 GHz	37.59	CISPR Averag	-16.41
2	2.736800000 GHz	37.58	CISPR Averag	-16.42
2	2.728800000 GHz	37.52	CISPR Averag	-16.48
2	2.725200000 GHz	37.51	CISPR Averag	-16.49
1	2.725200000 GHz	52.67	Max Peak	-21.33



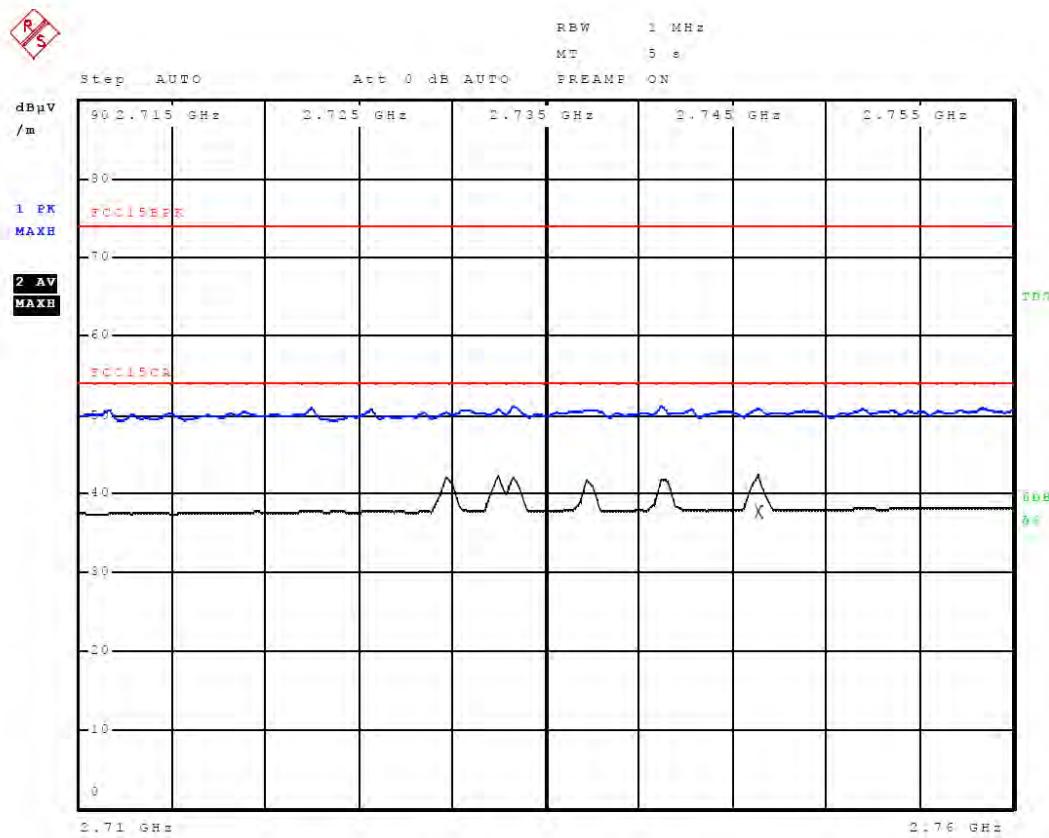
13.Jan 17 15:49

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 HORIZONTAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 2.71 GHz
 Scan Stop: 2.76 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Meas Time	RF Atten	Preamp	Input
2.710000 GHz	2.760000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	20 dB INPUT1





13.Jan 17 15:49

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 21 dB
Peaks: 1

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	2.746400000 GHz	37.67	CISPR Averag	-16.33



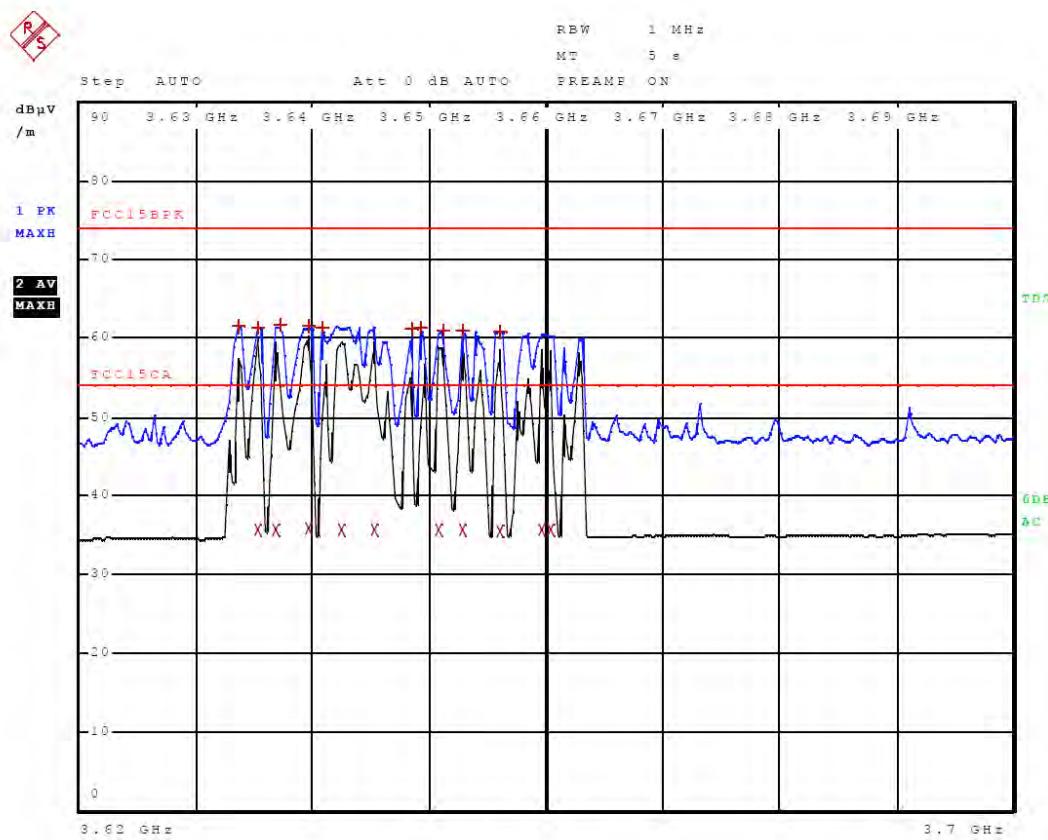
13.Jan 17 15:42

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 VERTICAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 3.62 GHz
 Scan Stop: 3.7 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
3.620000 GHz	3.700000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 15:42

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
VERTICAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 21 dB
Peaks: 20

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	3.637200000 GHz	61.65	Max Peak	-12.35
1	3.633600000 GHz	61.63	Max Peak	-12.37
1	3.639600000 GHz	61.54	Max Peak	-12.46
1	3.635200000 GHz	61.42	Max Peak	-12.58
1	3.640800000 GHz	61.38	Max Peak	-12.62
1	3.649200000 GHz	61.34	Max Peak	-12.66
1	3.648400000 GHz	61.16	Max Peak	-12.84
1	3.651200000 GHz	60.96	Max Peak	-13.04
1	3.652800000 GHz	60.94	Max Peak	-13.06
1	3.656000000 GHz	60.70	Max Peak	-13.30
2	3.639600000 GHz	35.74	CISPR Averag	-18.26
2	3.660400000 GHz	35.67	CISPR Averag	-18.33
2	3.652800000 GHz	35.65	CISPR Averag	-18.35
2	3.645200000 GHz	35.64	CISPR Averag	-18.36
2	3.659600000 GHz	35.63	CISPR Averag	-18.37
2	3.635200000 GHz	35.63	CISPR Averag	-18.37
2	3.650800000 GHz	35.61	CISPR Averag	-18.39
2	3.636800000 GHz	35.60	CISPR Averag	-18.40
2	3.642400000 GHz	35.58	CISPR Averag	-18.42
2	3.656000000 GHz	35.49	CISPR Averag	-18.51



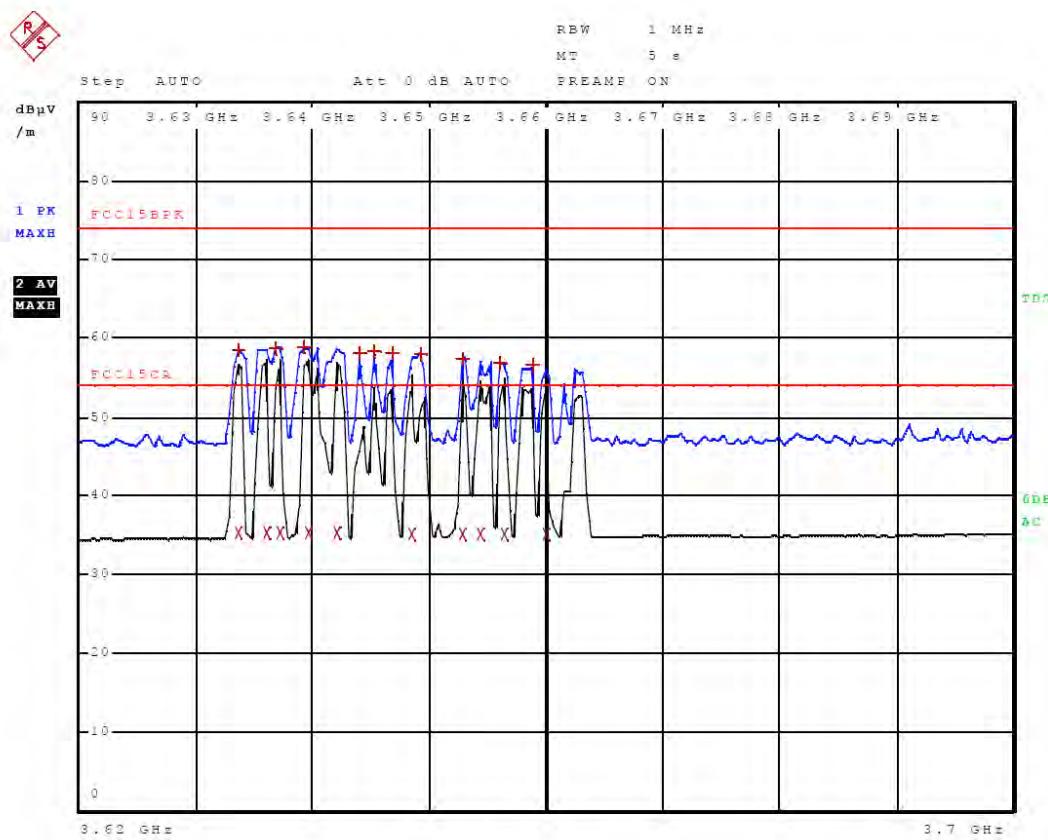
13.Jan 17 15:39

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 HORIZONTAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 3.62 GHz
 Scan Stop: 3.7 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
3.620000 GHz	3.700000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 15:39

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 21 dB
Peaks: 20

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	3.639200000 GHz	58.85	Max Peak	-15.15
1	3.636800000 GHz	58.69	Max Peak	-15.31
1	3.633600000 GHz	58.61	Max Peak	-15.39
1	3.645200000 GHz	58.29	Max Peak	-15.71
1	3.644000000 GHz	58.17	Max Peak	-15.83
1	3.646800000 GHz	58.09	Max Peak	-15.91
1	3.649200000 GHz	57.95	Max Peak	-16.05
1	3.652800000 GHz	57.46	Max Peak	-16.54
1	3.656000000 GHz	56.84	Max Peak	-17.16
1	3.658800000 GHz	56.55	Max Peak	-17.45
2	3.637200000 GHz	35.33	CISPR Averag	-18.67
2	3.636000000 GHz	35.32	CISPR Averag	-18.68
2	3.639600000 GHz	35.30	CISPR Averag	-18.70
2	3.633600000 GHz	35.23	CISPR Averag	-18.77
2	3.642000000 GHz	35.21	CISPR Averag	-18.79
2	3.648400000 GHz	35.16	CISPR Averag	-18.84
2	3.660000000 GHz	35.14	CISPR Averag	-18.86
2	3.652800000 GHz	35.12	CISPR Averag	-18.88
2	3.656400000 GHz	35.08	CISPR Averag	-18.92
2	3.654400000 GHz	35.08	CISPR Averag	-18.92



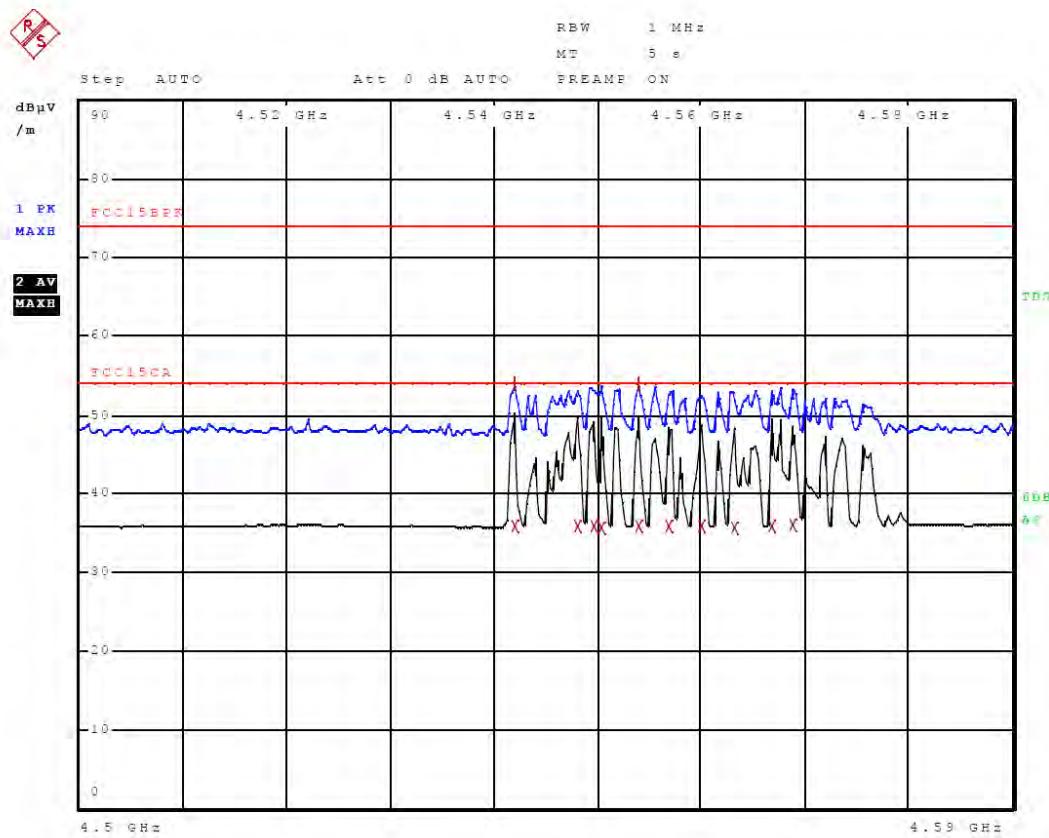
13.Jan 17 15:55

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 VERTICAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 4.5 GHz
 Scan Stop: 4.59 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
4.500000 GHz	4.590000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 15:55

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
VERTICAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 21 dB
Peaks: 12

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	4.568800000 GHz	35.94	CISPR Averag	-18.06
2	4.556800000 GHz	35.88	CISPR Averag	-18.12
2	4.566800000 GHz	35.87	CISPR Averag	-18.13
2	4.554000000 GHz	35.83	CISPR Averag	-18.17
2	4.560000000 GHz	35.81	CISPR Averag	-18.19
2	4.548000000 GHz	35.81	CISPR Averag	-18.19
2	4.542000000 GHz	35.80	CISPR Averag	-18.20
2	4.549600000 GHz	35.78	CISPR Averag	-18.22
2	4.550400000 GHz	35.72	CISPR Averag	-18.28
2	4.563200000 GHz	35.71	CISPR Averag	-18.29
1	4.554000000 GHz	54.00	Max Peak	-20.00
1	4.542000000 GHz	53.98	Max Peak	-20.02



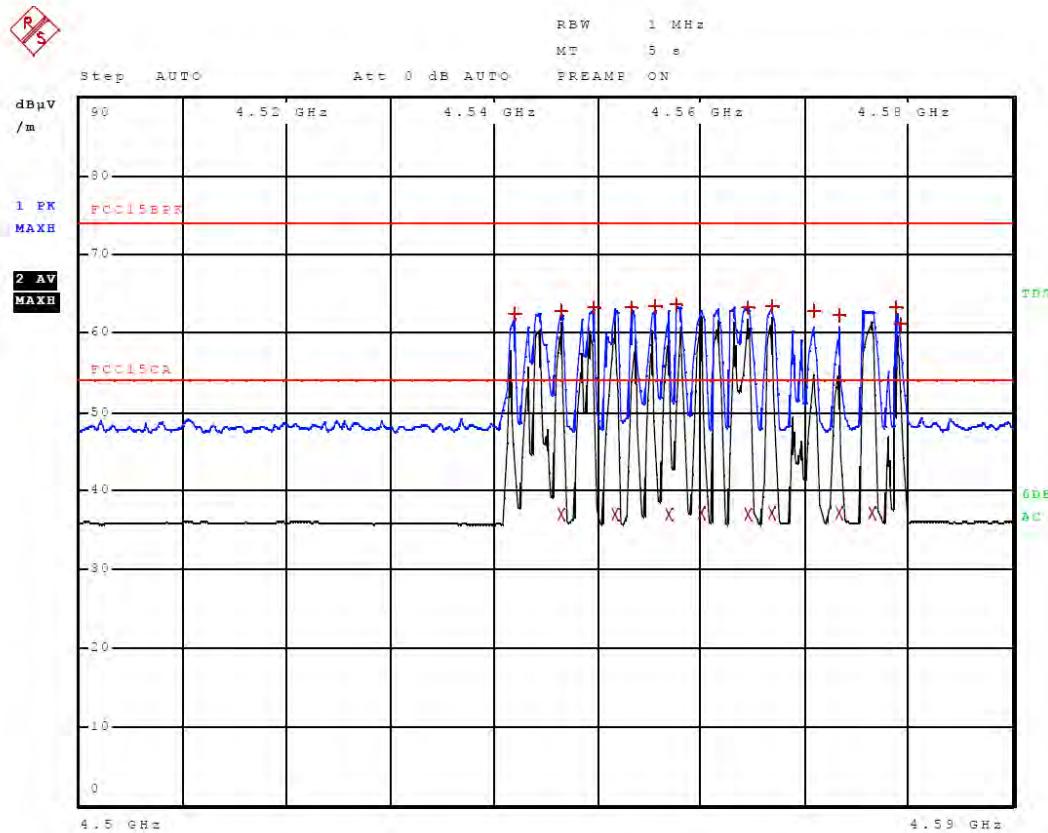
13.Jan 17 15:58

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 HORIZONTAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 4.5 GHz
 Scan Stop: 4.59 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
4.500000 GHz	4.590000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 15:58

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 15 dB
Subranges: 20

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	4.557600000 GHz	63.54	Max Peak	-10.46
1	4.555600000 GHz	63.50	Max Peak	-10.50
1	4.566800000 GHz	63.38	Max Peak	-10.62
1	4.564400000 GHz	63.33	Max Peak	-10.67
1	4.549600000 GHz	63.30	Max Peak	-10.70
1	4.553200000 GHz	63.28	Max Peak	-10.72
1	4.578800000 GHz	63.27	Max Peak	-10.73
1	4.546400000 GHz	62.92	Max Peak	-11.08
1	4.570800000 GHz	62.81	Max Peak	-11.19
1	4.542000000 GHz	62.43	Max Peak	-11.57
1	4.573200000 GHz	62.33	Max Peak	-11.67
1	4.579200000 GHz	61.21	Max Peak	-12.79
2	4.573200000 GHz	37.23	CISPR Averag	-16.77
2	4.576400000 GHz	37.20	CISPR Averag	-16.80
2	4.560000000 GHz	37.12	CISPR Averag	-16.88
2	4.566800000 GHz	37.12	CISPR Averag	-16.88
2	4.556800000 GHz	37.03	CISPR Averag	-16.97
2	4.564400000 GHz	37.02	CISPR Averag	-16.98
2	4.546400000 GHz	36.96	CISPR Averag	-17.04
2	4.551600000 GHz	36.92	CISPR Averag	-17.08



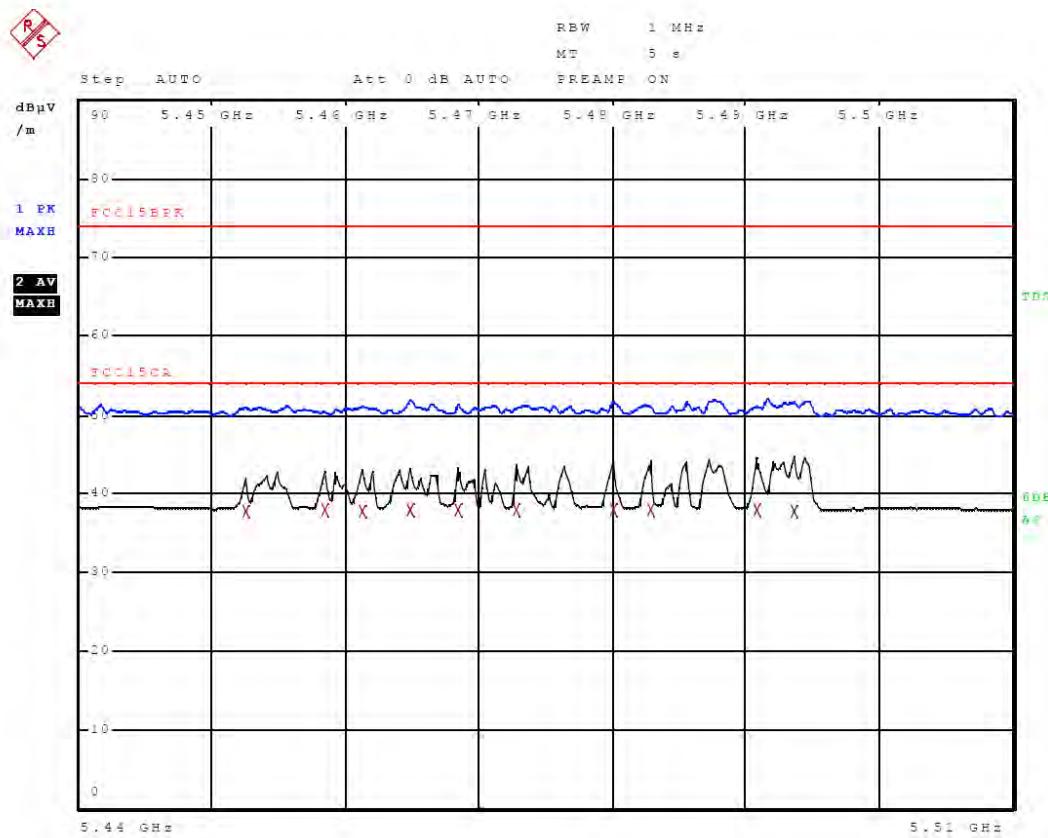
13.Jan 17 16:04

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 VERTICAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 5.44 GHz
 Scan Stop: 5.51 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
5.440000 GHz	5.510000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 16:04

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
VERTICAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 15 dB
Subranges: 10

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	5.480000000 GHz	37.97	CISPR Averag	-16.03
2	5.468400000 GHz	37.97	CISPR Averag	-16.03
2	5.464800000 GHz	37.90	CISPR Averag	-16.10
2	5.490800000 GHz	37.86	CISPR Averag	-16.14
2	5.472800000 GHz	37.84	CISPR Averag	-16.16
2	5.458400000 GHz	37.83	CISPR Averag	-16.17
2	5.482800000 GHz	37.82	CISPR Averag	-16.18
2	5.493600000 GHz	37.81	CISPR Averag	-16.19
2	5.452400000 GHz	37.80	CISPR Averag	-16.20
2	5.461200000 GHz	37.79	CISPR Averag	-16.21



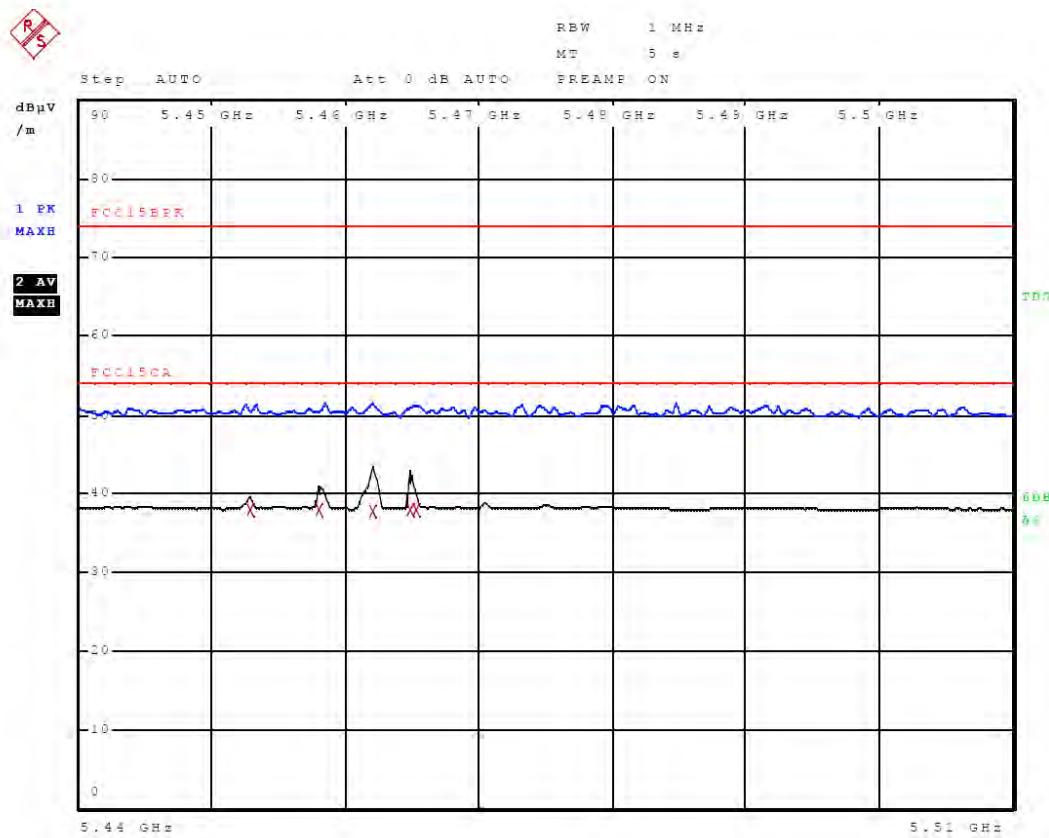
13.Jan 17 16:02

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 HORIZONTAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 5.44 GHz
 Scan Stop: 5.51 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
5.440000 GHz	5.510000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 16:02

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 15 dB
Subranges: 5

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	5.464800000 GHz	37.88	CISPR Averag	-16.12
2	5.465200000 GHz	37.86	CISPR Averag	-16.14
2	5.452800000 GHz	37.82	CISPR Averag	-16.18
2	5.458000000 GHz	37.82	CISPR Averag	-16.18
2	5.462000000 GHz	37.76	CISPR Averag	-16.24



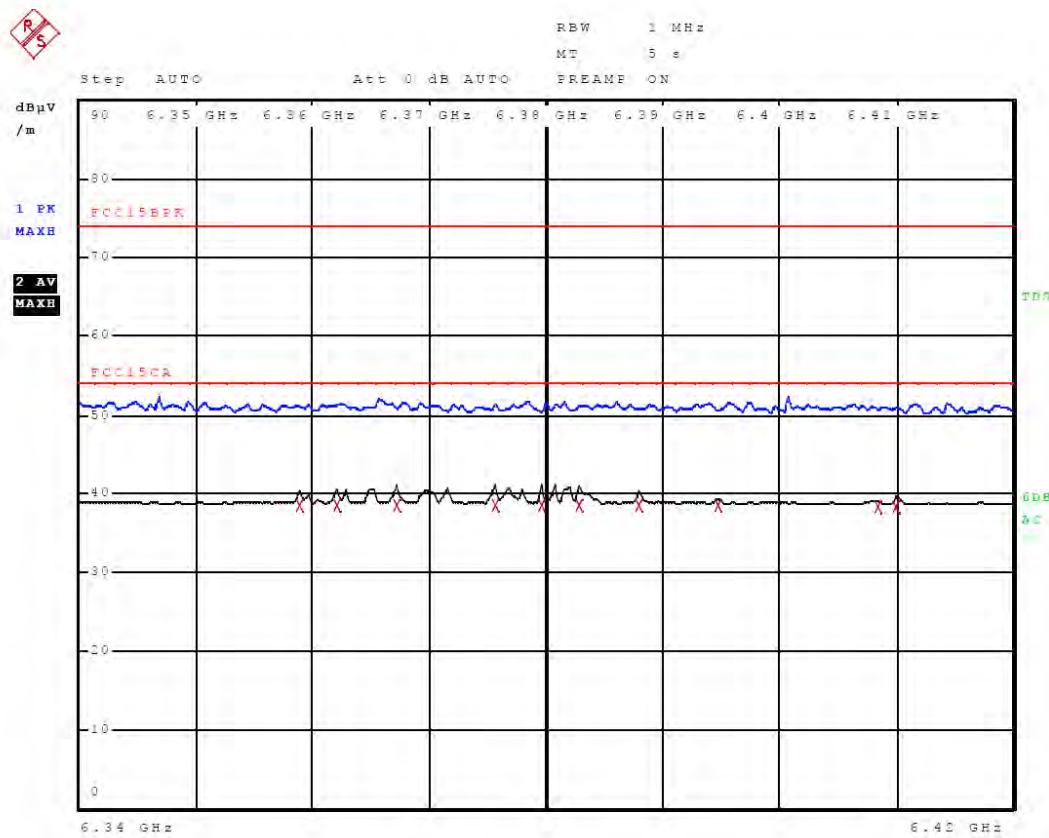
13.Jan 17 16:08

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 VERTICAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 6.34 GHz
 Scan Stop: 6.42 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
6.340000 GHz	6.420000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 16:08

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
VERTICAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 15 dB
Subranges: 10

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	6.367200000 GHz	38.56	CISPR Averag	-15.44
2	6.379600000 GHz	38.51	CISPR Averag	-15.49
2	6.375600000 GHz	38.50	CISPR Averag	-15.50
2	6.358800000 GHz	38.49	CISPR Averag	-15.51
2	6.362000000 GHz	38.47	CISPR Averag	-15.53
2	6.382800000 GHz	38.46	CISPR Averag	-15.54
2	6.388000000 GHz	38.46	CISPR Averag	-15.54
2	6.394800000 GHz	38.42	CISPR Averag	-15.58
2	6.410000000 GHz	38.35	CISPR Averag	-15.65
2	6.408400000 GHz	38.34	CISPR Averag	-15.66



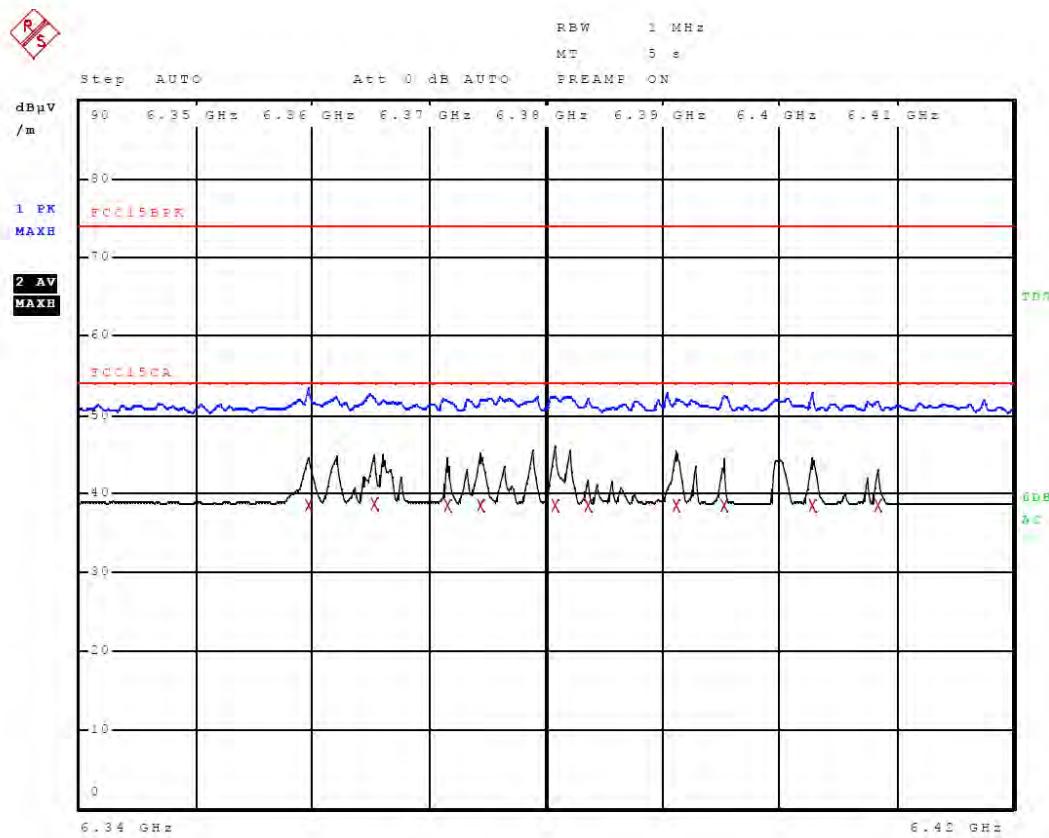
13.Jan 17 16:11

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 HORIZONTAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 6.34 GHz
 Scan Stop: 6.42 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
6.340000 GHz	6.420000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 16:11

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 15 dB
Subranges: 10

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	6.365200000 GHz	38.61	CISPR Averag	-15.39
2	6.380800000 GHz	38.56	CISPR Averag	-15.44
2	6.359600000 GHz	38.56	CISPR Averag	-15.44
2	6.391200000 GHz	38.56	CISPR Averag	-15.44
2	6.374400000 GHz	38.56	CISPR Averag	-15.44
2	6.402800000 GHz	38.54	CISPR Averag	-15.46
2	6.371600000 GHz	38.54	CISPR Averag	-15.46
2	6.383600000 GHz	38.49	CISPR Averag	-15.51
2	6.395200000 GHz	38.49	CISPR Averag	-15.51
2	6.408400000 GHz	38.41	CISPR Averag	-15.59



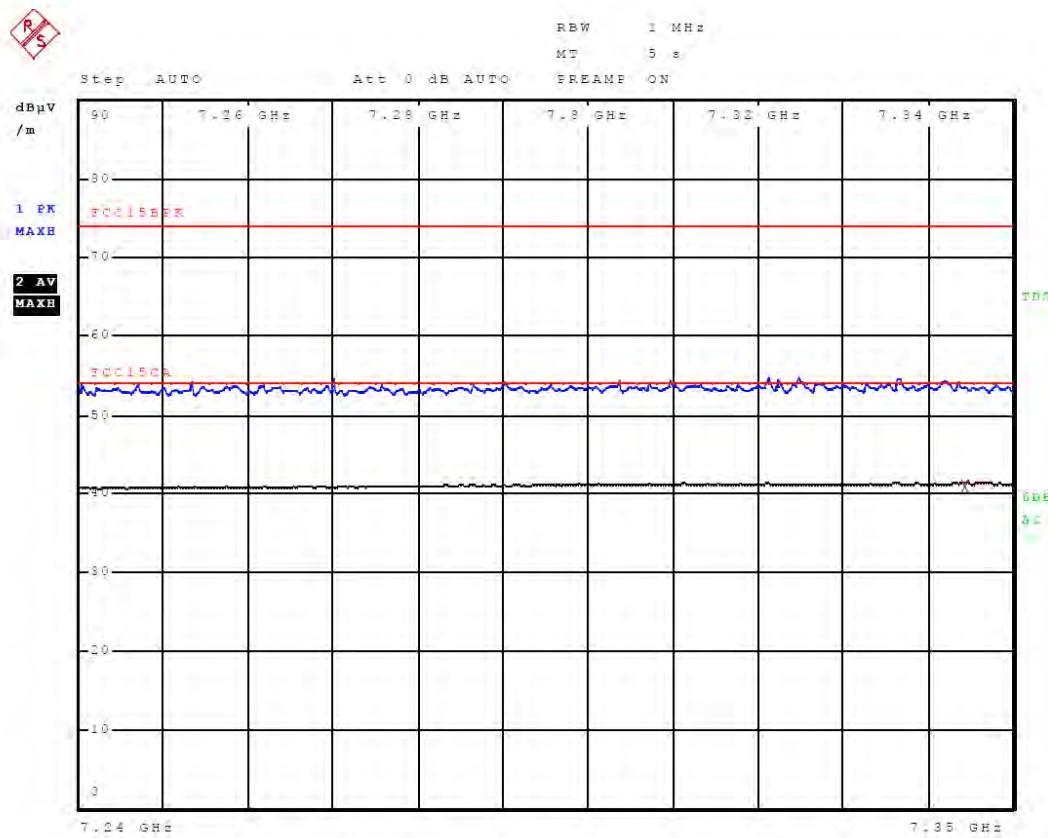
13.Jan 17 16:15

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 VERTICAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 7.24 GHz
 Scan Stop: 7.35 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
7.240000 GHz	7.350000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 16:15

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
VERTICAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 15 dB
Peaks: 1

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	7.344400000 GHz	40.90	CISPR Averag	-13.10



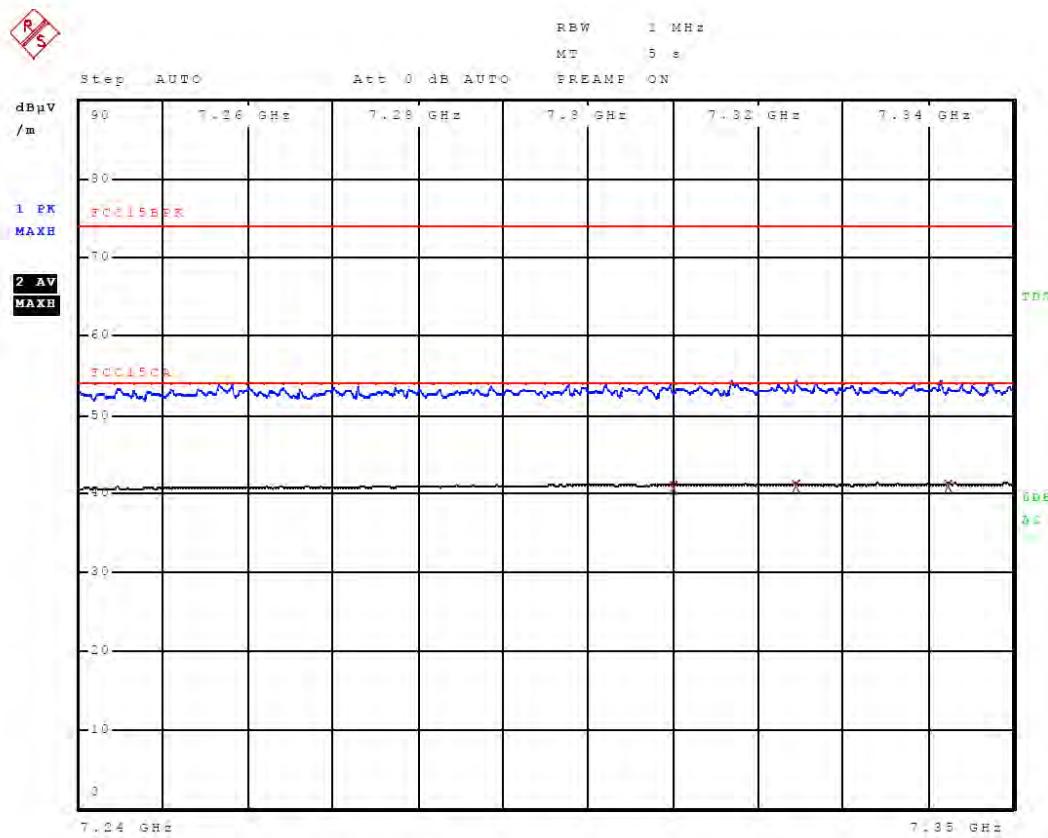
13.Jan 17 16:14

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 HORIZONTAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 7.24 GHz
 Scan Stop: 7.35 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
7.240000 GHz	7.350000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 16:14

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 15 dB
Subranges: 3

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	7.342400000 GHz	40.88	CISPR Averag	-13.12
2	7.324400000 GHz	40.86	CISPR Averag	-13.14
2	7.310000000 GHz	40.83	CISPR Averag	-13.17



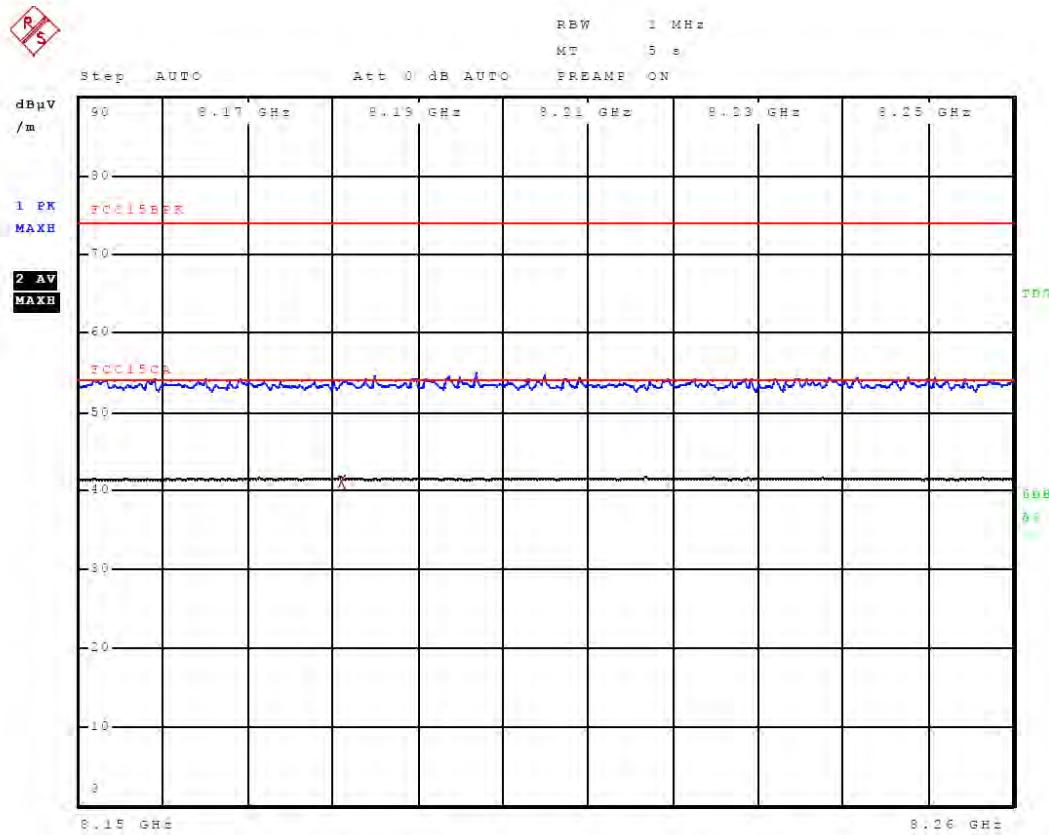
13.Jan 17 16:18

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 VERTICAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 8.15 GHz
 Scan Stop: 8.26 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
8.150000 GHz	8.260000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 16:18

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
VERTICAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 15 dB
Peaks: 1

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	8.180800000 GHz	41.21	CISPR Averag	-12.79



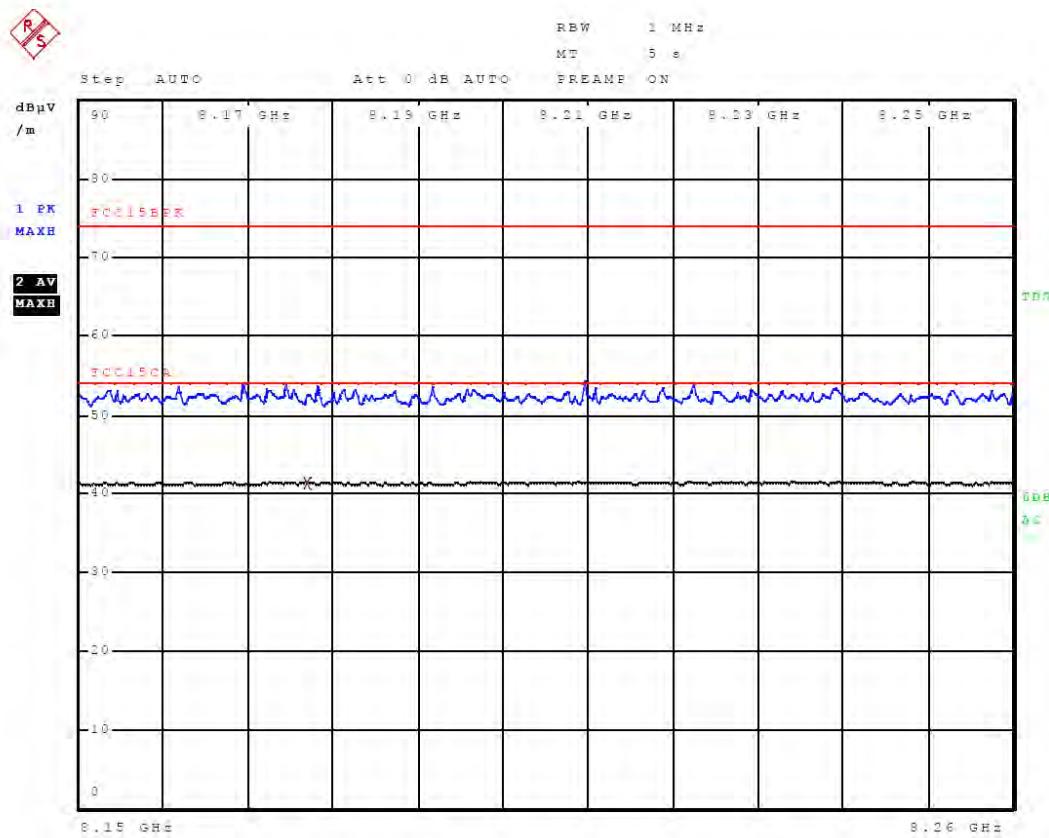
13.Jan 17 16:20

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 HORIZONTAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 8.15 GHz
 Scan Stop: 8.26 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
8.150000 GHz	8.260000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 16:20

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 15 dB
Peaks: 1

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	8.176800000 GHz	41.23	CISPR Averag	-12.77



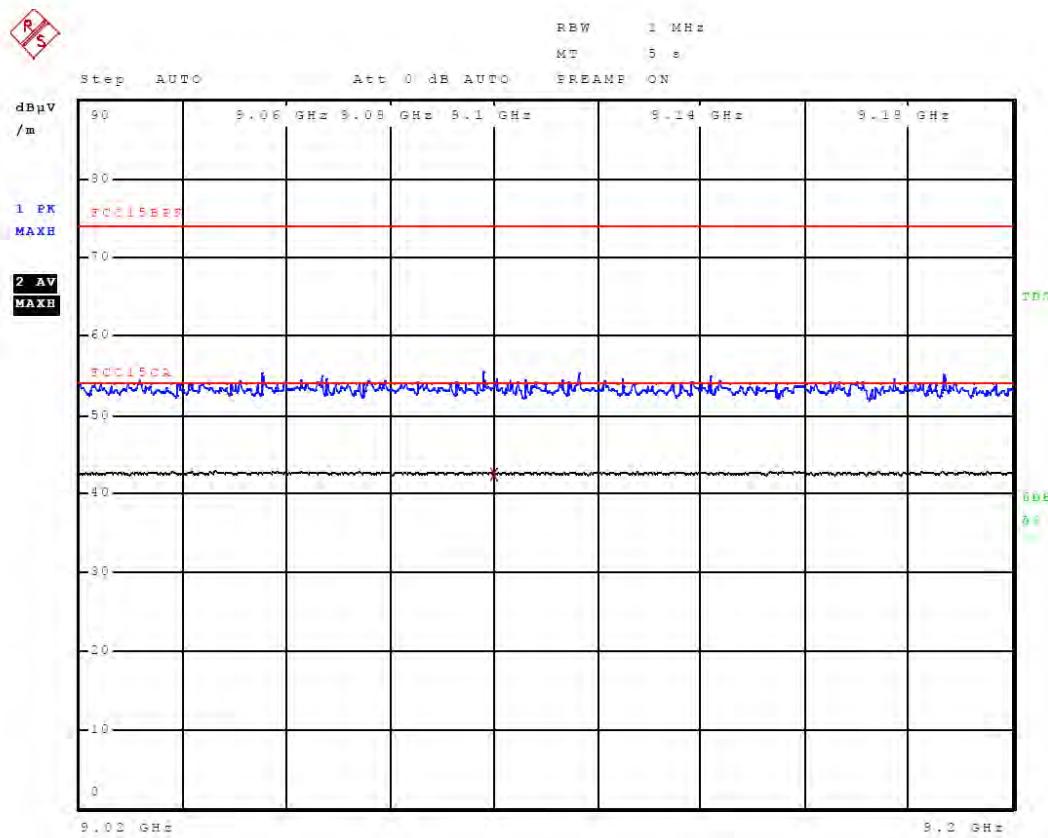
13.Jan 17 16:23

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 VERTICAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 9.02 GHz
 Scan Stop: 9.2 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
9.020000 GHz	9.200000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 16:23

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
VERTICAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 15 dB
Peaks: 1

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	9.100000000 GHz	42.50	CISPR Averag	-11.50



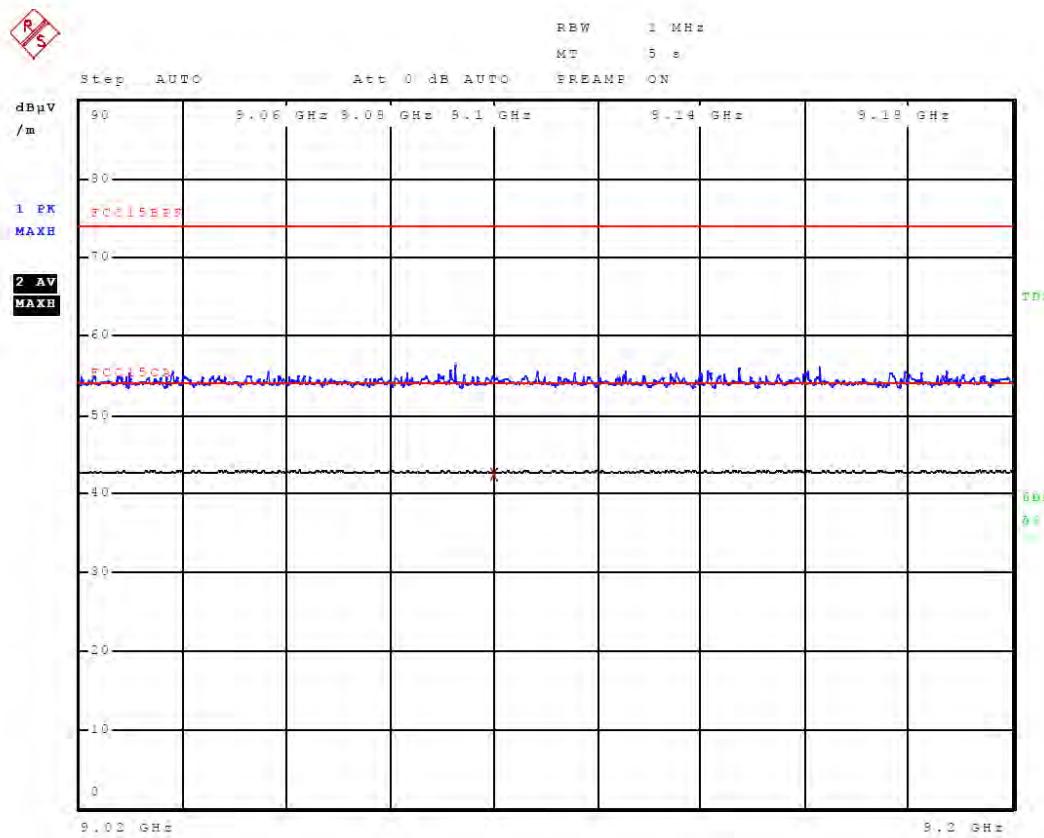
13.Jan 17 16:20

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
 HORIZONTAL 150 cm, 0 deg

Stepped Scan (1 Range)

Scan Start: 9.02 GHz
 Scan Stop: 9.2 GHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: RE-18GHz

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
9.020000 GHz	9.200000 GHz	400.00 kHz	1.00 MHz	1 ms	Auto	35 dB	INPUT1





13.Jan 17 16:20

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition Hopping mode
Operator Andrej Skof
Test Spec
HORIZONTAL 150 cm, 0 deg

Final Measurement

Meas Time: 5 s
Margin: 15 dB
Peaks: 1

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
2	9.100000000 GHz	42.48	CISPR Averag	-11.52

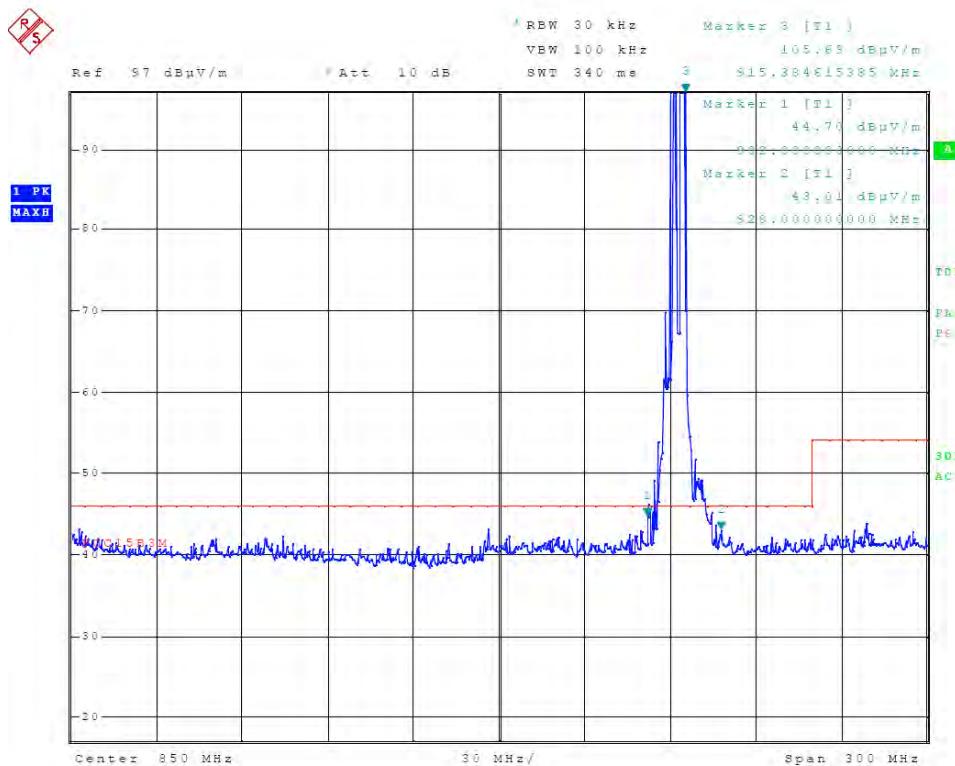
Band Edge

03.Jan 17 14:22

Meas Type RADIATED EMISSION
Equipment under Test WSD 011-2
Manufacturer NAVIS ELEKTRONIKA D.O.O.
OP Condition NORMAL
Operator Andrej Skof
Test Spec
 VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	850.000000 MHz	Ref Level	97.000 dB μ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	300.000000 MHz	Ref Position	100.000 %
Start Frequency	700.000000 MHz	Level Range	80.000 dB
Stop Frequency	1.000000 GHz	RF Att	10.000 dB
RBW	30.000000 kHz	X-Axis	LIN
VBW	100.000000 kHz	Y-Axis	LOG
Sweep Time	340.00 ms		

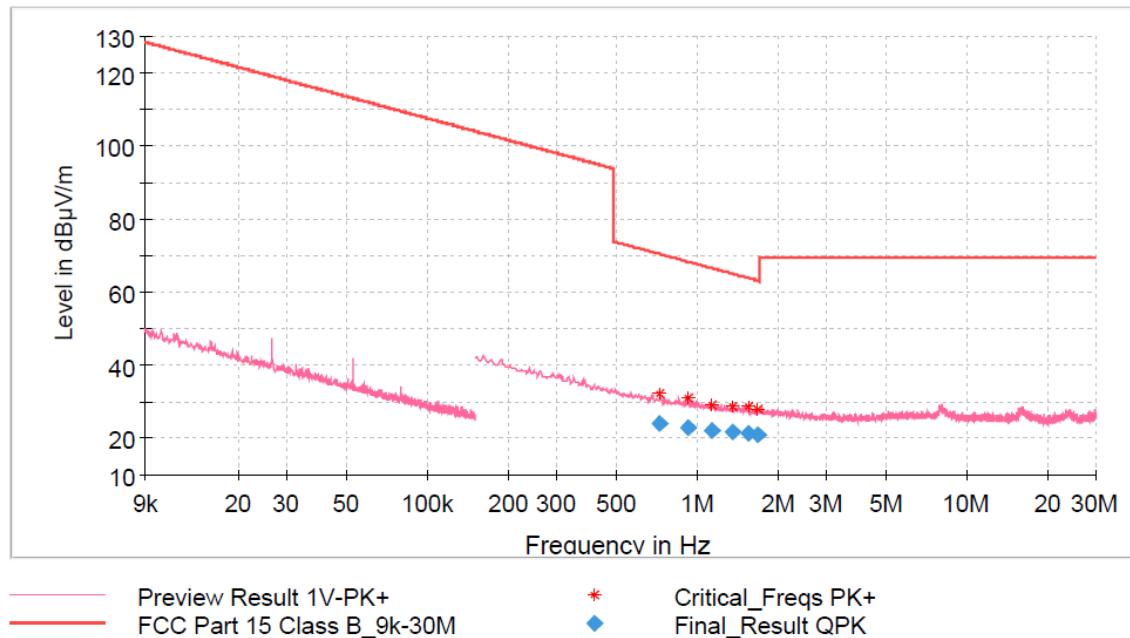


Rev. 1:

1 / 1

EUT Information

EUT: Anemometer WSD 011-2
Test condition: CONT. TX , CHANNEL 1

Full Spectrum**Final Result**

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (deg)
1.668750	20.88	63.19	42.31	340.0
1.549500	21.18	63.83	42.64	25.0
1.342500	21.55	65.07	43.52	96.0
1.137750	22.07	66.50	44.44	324.0
0.919500	22.94	68.35	45.41	347.0
0.728250	24.00	70.37	46.37	145.0

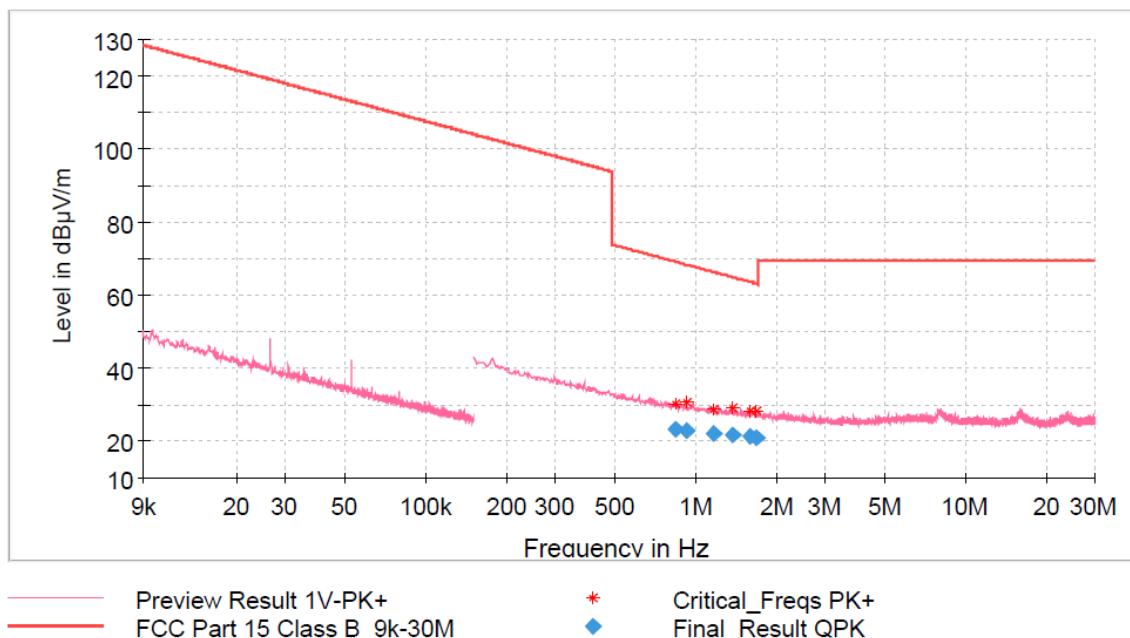
EUT Information

EUT:

Test condition:

Anemometer WSD 011-2
CONT. TX , CHANNEL 50

Full Spectrum



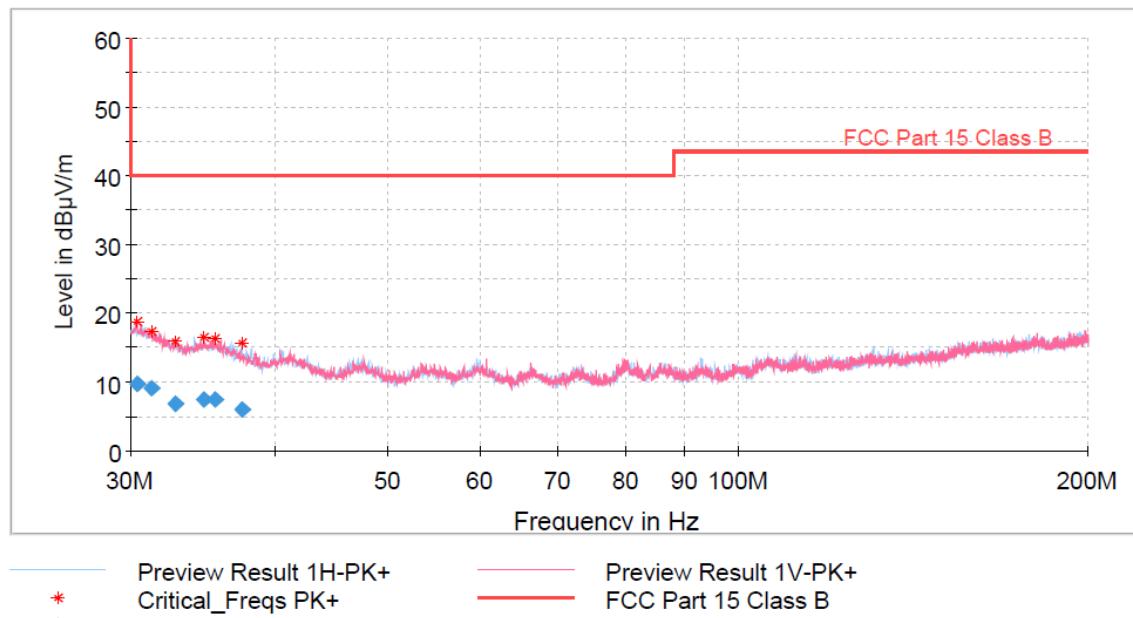
Final Result

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (deg)
1.684500	20.87	63.11	42.24	163.0
1.583250	21.16	63.64	42.49	188.0
1.371750	21.49	64.88	43.40	73.0
1.160250	22.01	66.33	44.33	4.0
0.924000	22.93	68.31	45.37	81.0
0.845250	23.32	69.08	45.76	147.0

EUT Information

EUT: Anemometer WSD 011-2
Test condition: CONT. TX , CHANNEL 1

Full Spectrum



Final Result

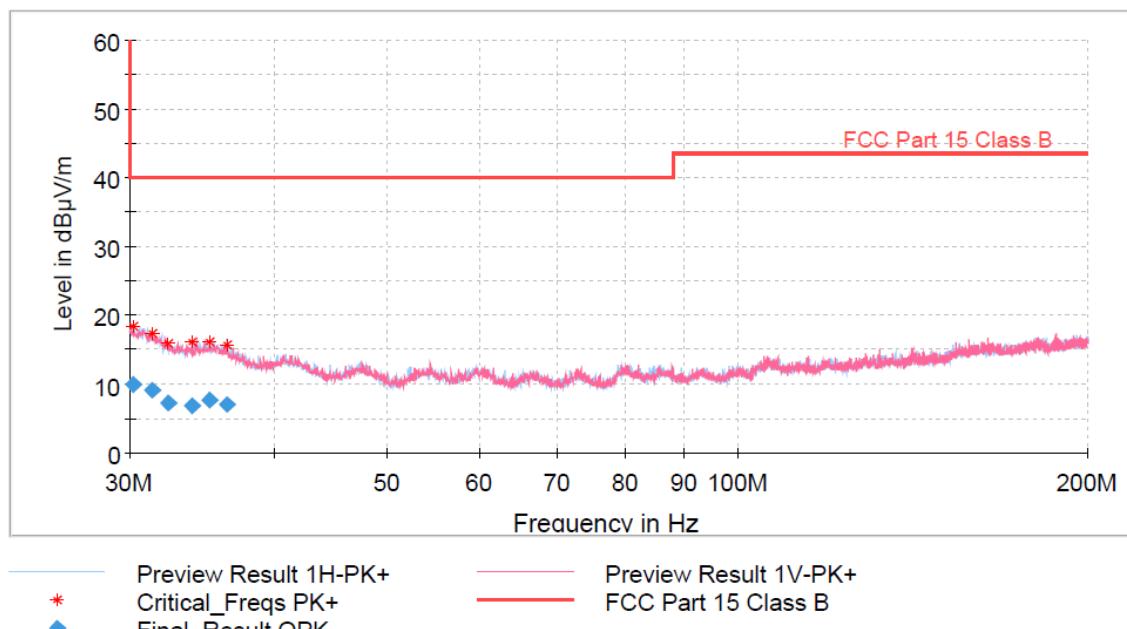
Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
30.360000	9.71	40.00	30.29	150.0	V	0.0
31.260000	9.08	40.00	30.92	104.0	V	37.0
35.430000	7.52	40.00	32.48	153.0	V	47.0
34.650000	7.41	40.00	32.59	202.0	H	0.0
32.790000	6.79	40.00	33.21	103.0	V	200.0
37.380000	5.94	40.00	34.06	153.0	H	296.0

EUT Information

EUT:
Test condition:

Anemometer WSD 011-2
CONT. TX , CHANNEL 50

Full Spectrum



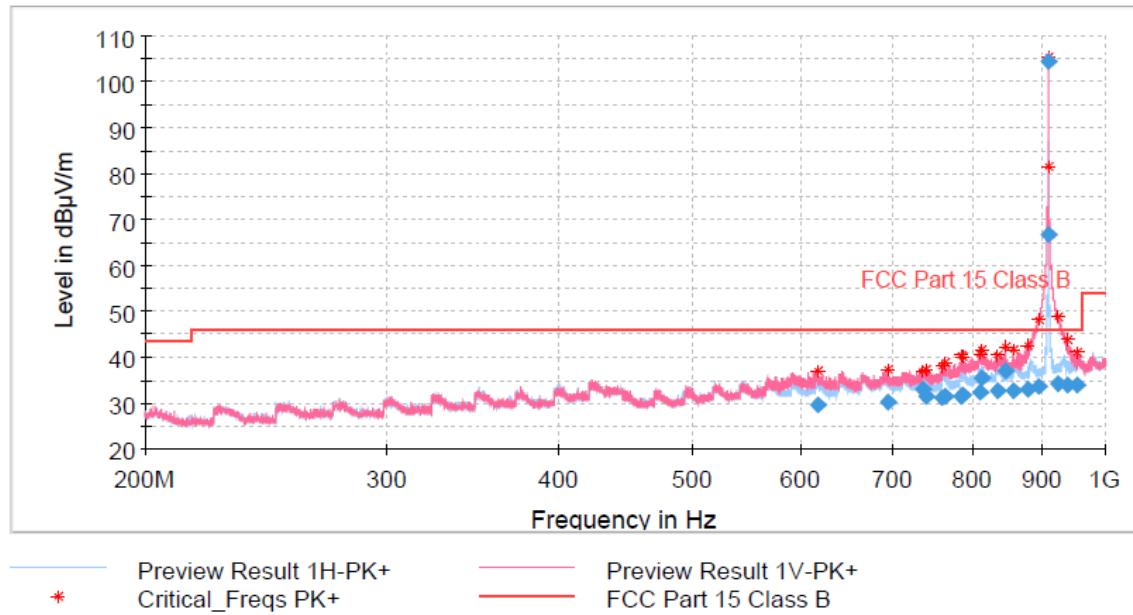
Final Result

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
30.180000	9.82	40.00	30.18	104.0	H	6.0
31.320000	9.01	40.00	30.99	154.0	H	272.0
35.100000	7.57	40.00	32.43	154.0	H	233.0
32.370000	7.27	40.00	32.73	150.0	H	254.0
36.390000	7.09	40.00	32.91	204.0	H	14.0
33.930000	6.80	40.00	33.20	153.0	V	143.0

EUT Information

EUT: Anemometer WSD 011-2
Test condition: CONT. TX , CHANNEL 1

Full Spectrum



Final Result

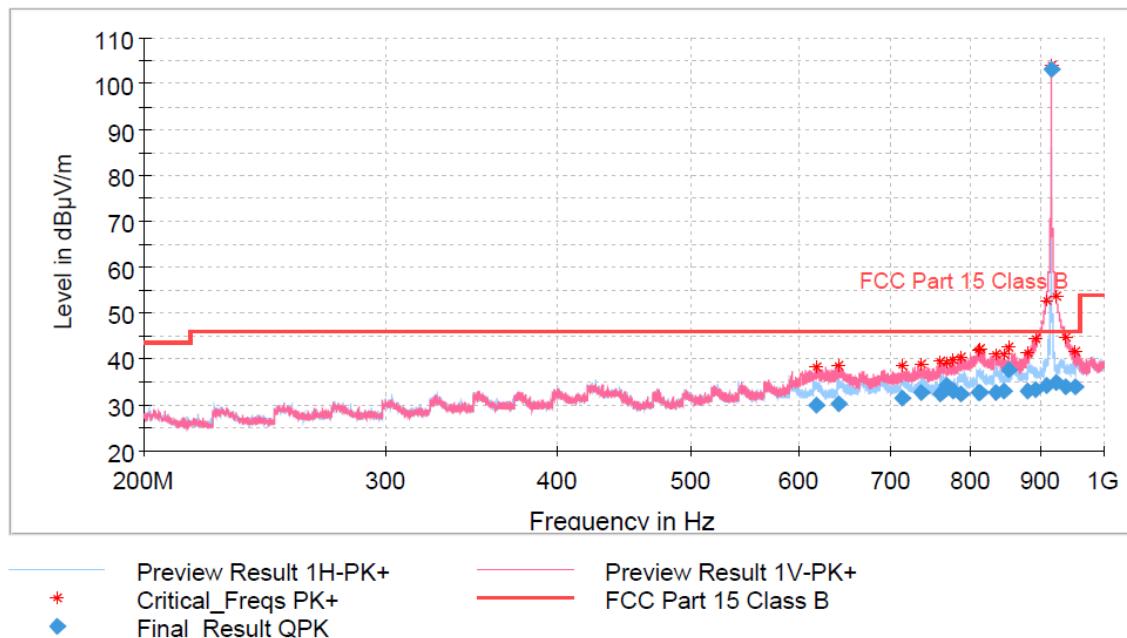
Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
908.400000	104.36	46.00	-58.36	100.0	V	241.0
907.950000	66.85	46.00	-20.85	100.0	V	247.0
844.380000	37.05	46.00	8.95	104.0	V	126.0
812.400000	35.59	46.00	10.41	193.0	V	207.0
922.710000	34.16	46.00	11.84	100.0	V	215.0
937.980000	33.96	46.00	12.04	100.0	V	145.0
954.150000	33.95	46.00	12.05	250.0	V	9.0
893.430000	33.46	46.00	12.54	100.0	V	254.0
877.380000	32.96	46.00	13.04	100.0	V	235.0
736.020000	32.95	46.00	13.05	123.0	V	235.0
833.970000	32.82	46.00	13.18	100.0	V	222.0
856.530000	32.68	46.00	13.32	100.0	V	333.0
811.170000	32.47	46.00	13.53	150.0	V	0.0
786.840000	31.67	46.00	14.33	150.0	V	265.0
784.770000	31.54	46.00	14.46	150.0	V	149.0
740.640000	31.49	46.00	14.51	150.0	V	239.0
764.280000	31.37	46.00	14.63	150.0	V	226.0
760.440000	31.27	46.00	14.73	150.0	V	214.0
693.810000	30.26	46.00	15.74	100.0	V	318.0
617.700000	29.60	46.00	16.40	100.0	V	292.0

EUT Information

EUT:
Test condition:

Anemometer WSD 011-2
CONT. TX , CHANNEL 50

Full Spectrum



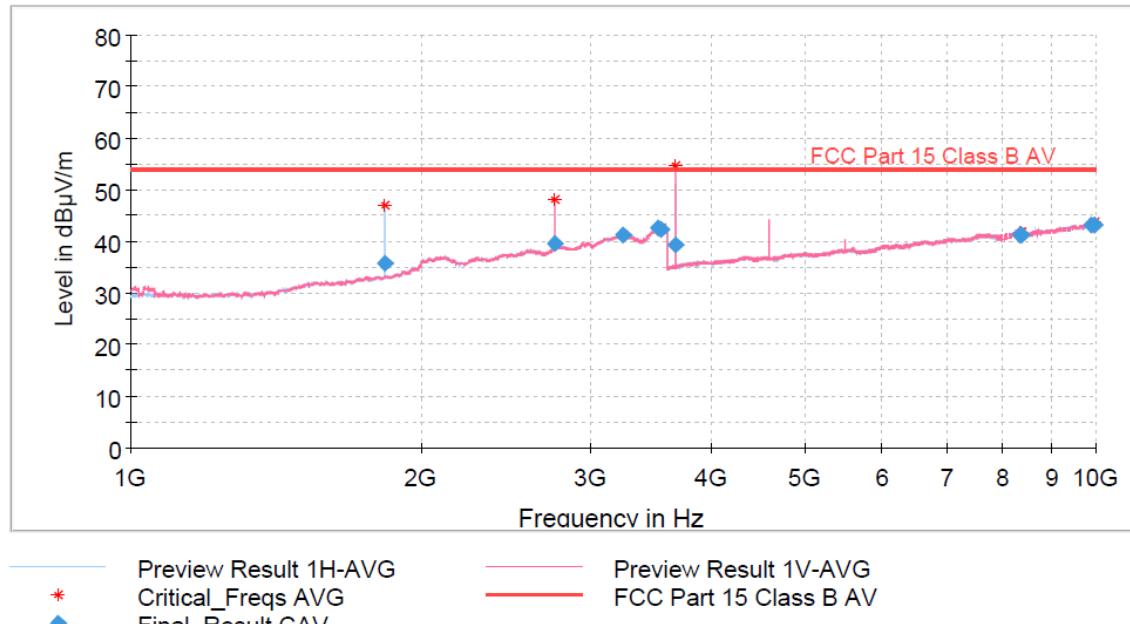
Final_Result

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
915.750000	103.16	46.00	-57.16	100.0	V	222.0
851.730000	37.53	46.00	8.47	104.0	V	306.0
922.920000	34.75	46.00	11.25	100.0	V	286.0
907.800000	34.37	46.00	11.63	100.0	V	0.0
768.060000	34.20	46.00	11.80	122.0	V	312.0
938.820000	34.05	46.00	11.95	100.0	V	0.0
953.790000	34.04	46.00	11.96	100.0	V	274.0
892.500000	33.17	46.00	12.83	100.0	V	0.0
775.470000	33.07	46.00	12.93	150.0	V	326.0
846.000000	32.98	46.00	13.02	100.0	V	8.0
878.790000	32.89	46.00	13.11	100.0	V	0.0
833.340000	32.81	46.00	13.19	100.0	V	16.0
735.480000	32.66	46.00	13.34	124.0	V	0.0
809.430000	32.57	46.00	13.43	150.0	V	357.0
811.410000	32.53	46.00	13.47	150.0	V	34.0
787.650000	32.35	46.00	13.65	104.0	V	118.0
760.530000	32.23	46.00	13.77	150.0	V	274.0
712.170000	31.57	46.00	14.43	124.0	V	254.0
641.190000	30.28	46.00	15.72	100.0	V	280.0
617.220000	29.97	46.00	16.03	100.0	V	3.0

EUT Information

EUT: Anemometer WSD 011-2
Test condition: CONT. TX , CHANNEL 1

Full Spectrum



Final Result

Frequency (MHz)	CAverage (dB μ V/m)	DET 2 (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
9977.000000	43.20	---	54.00	10.80	100.0	V	-14.0
9883.250000	43.04	---	54.00	10.96	200.0	V	4.0
3513.750000	42.48	---	54.00	11.52	200.0	H	25.0
3543.250000	42.37	---	54.00	11.63	103.0	H	-25.0
8327.500000	41.29	---	54.00	12.71	162.0	H	-14.0
8368.750000	41.26	---	54.00	12.74	143.0	H	-23.0
3232.750000	41.16	---	54.00	12.84	200.0	V	22.0
2747.250000	39.66	---	54.00	14.34	181.0	V	268.0
3663.000000	39.31	---	54.00	14.69	181.0	V	-23.0
1831.500000	35.64	---	54.00	18.36	142.0	H	102.0

EUT Information

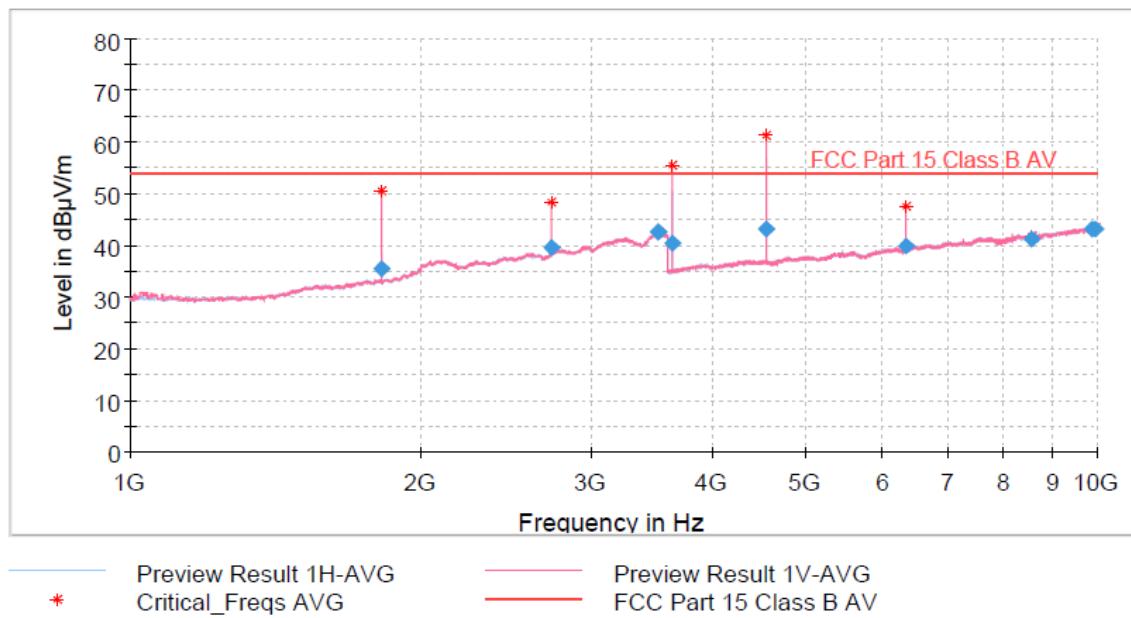
EUT:

Anemometer WSD 011-2

Test condition:

CONT. TX , CHANNEL 1

Full Spectrum



Final_Result

Frequency (MHz)	CAverage (dB μ V/m)	DET 2 (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
9980.500000	43.18	---	54.00	10.82	150.0	V	-25.0
9899.000000	43.17	---	54.00	10.83	211.0	H	25.0
4542.250000	43.16	---	54.00	10.84	104.0	V	25.0
3516.500000	42.52	---	54.00	11.48	212.0	V	25.0
3519.750000	42.48	---	54.00	11.52	250.0	V	-25.0
8561.500000	41.23	---	54.00	12.77	100.0	V	-14.0
3633.500000	40.47	---	54.00	13.53	231.0	V	352.0
6358.750000	39.76	---	54.00	14.24	104.0	V	-14.0
2725.250000	39.64	---	54.00	14.36	142.0	V	335.0
1816.750000	35.52	---	54.00	18.48	103.0	V	13.0

3.11 §15.247 (i) RF Exposure Compliance Requirements

Requirement

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See §1.1307(b)(1) of this chapter

Limits for Maximum Permissible Exposure from §1.1310 for General Population/Uncontrolled Exposure: 0.6 mW/cm²

Calculation procedure: OET 65 (Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields:

$$S = \text{EIRP} / 4\pi R^2$$

where:

S = power density (mW/cm²)

EIRP = equivalent (or effective) isotropically radiated power

R = distance to the center of radiation of the antenna (cm)

Results:

P = 10.77 dBm

R = 20 cm

$$S = 0,00095 \text{ mW/cm}^2$$

Conclusion: PASS

4 TEST EQUIPMENT

Description & Manufacturer	Model No.	SIQ No.	Last calibration	Calibrated until	Calibration period	Used
ETS, Anechoic chamber	3m	103949	2016-11	2017-11	24 months	X
Rohde-Schwarz, RFI receiver	ESU8	105187	2015-11	2017-11	24 months	/
Rohde-Schwarz, RFI receiver	ESU26	100428	2016-02	2018-02	24 months	X
R&S, Antenna	HFH2-Z2	/	2015-09	2017-09	24 months	X
EMCO, Antenna	3142B	104351	2015-09	2017-09	24 months	X
EMCO, Antenna	3115	103002	2015-09	2017-09	24 months	X
Heinrich Deisel, Turn table	DS 420.00	103337	NA	NA	NA	X
Antenna tower	/	/	NA	NA	NA	X
Controller for turn table and antenna tower	/	/	NA	NA	NA	X

Rev. 1:

Description	Model No.	SIQ No.	Last calibration	Calibrated until	Calibration period	Used
Rohde-Schwarz, RFI receiver	ESU26	100428	2018-02	2020-02	24 months	X
Comtest Engineering, Semi Anechoic Chamber SAC 1	SAC 3m	NPS001	2017-05	2019-05	24 months	X
Rohde & Schwarz, Horn Antenna	HF907 (SN 102508)	102508	2018-05	2020-05	24 months	X
Rohde & Schwarz, Ultra Broadband Antenna	HL562E (SN 100842)	102842	2017-07	2019-07	24 months	X
Maturo, Turn table (2 m diameter)	TT 2.0 SI	/	N/A	N/A	N/A	X
Maturo, Bore-sight antenna mast	BAM-4.0-P	/	N/A	N/A	N/A	X
Maturo, Multi-channel positioning equipment	Maturo NCD	/	N/A	N/A	N/A	X
Schwarzbeck, Biconical antenna	VHBB9124 (SN 9124-317)	105112	2016-11	2018-11	24 months	X
Rohde & Schwarz, Loop Antenna	FMZB 1519 B	/	2016-08	2018-08	24 months	X