

# Test report

**Number:** T251-0042/17 **Project file:** C20170001  
**Date:** 2017-04-13  
**Pages:** 97

**Product:** RF transmitter for Anemometer

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

**Ratings:** 3,6 V Li-SOCl<sub>2</sub> 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

**Remarks:** Date of receipt of test items: 2017-01-03  
Number of items tested: 5  
Date of performance of tests: 2017-01-03 - 2017-04-13  
The test results presented in this report relate only to the items tested.  
The product complies with the requirements of the testing methods.

/

**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
2017-04-13	T251-0042/17	Initial Test Report issued.	--

### 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 numbers:

S20170016 – Hopping enabled, transmitting every 50 ms

S20170015 – Hopping enabled, transmitting every 2 s

S20172124 – Channel 1, Hopping disabled

S20172125 – Channel 25, Hopping disabled

S20172126 – Channel 50, Hopping disabled

### 1.2 General product information

<b>Serial number:</b>	Prototype
<b>Supply voltage:</b>	3.6 V Li-SOCI2 battery (AA)
<b>Transmitter, Receiver, Transceiver, Simplex, Duplex</b>	Transmitter
<b>Rated RF output power:</b>	< 1 W peak conducted power
<b>Modulation type:</b>	2G FSK
<b>Operating frequency:</b>	908.4 MHz – 915.8 MHz
<b>Channel separation:</b>	150 kHz
<b>Number of channels:</b>	50
<b>Antenna type:</b>	Internal
<b>FCC ID:</b>	2AK8G-NAVIS-WS01



## 2 TEST SUMMARY

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 Hooping Frequency Use	PASS
§15.247 (b) Peak Power Output	PASS
§15.247 (d) Spurious RF Conducted Emissions	PASS
§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	3.6 Vdc
§15.247 (d) Spurious RF Conducted Emissions	3.6 Vdc
§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

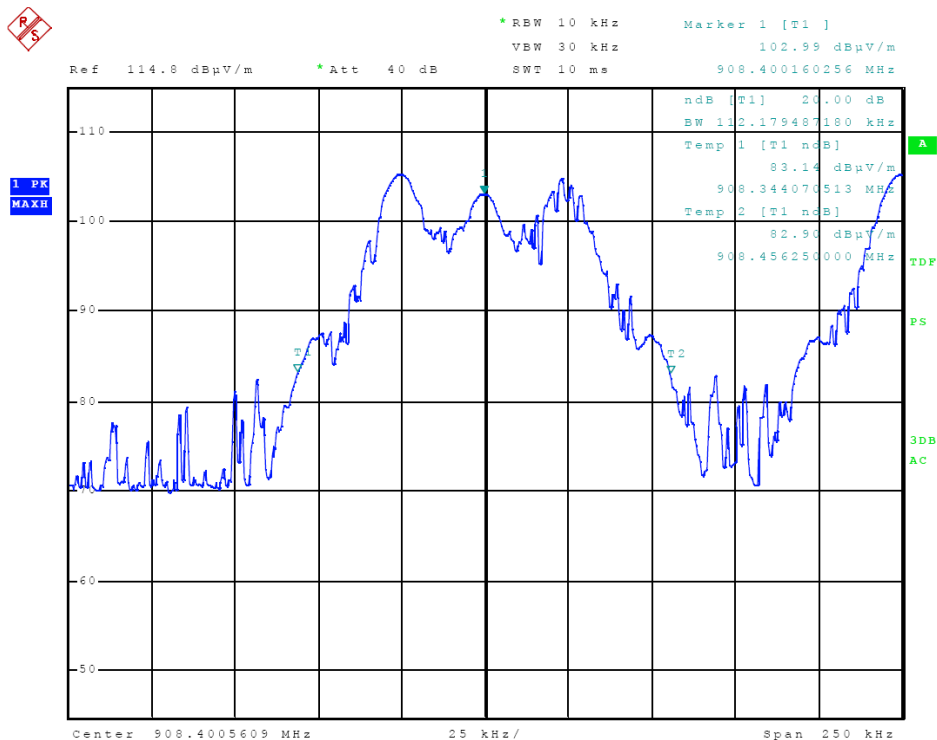
#### Test results

03.Jan 17 13:31

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

#### Sweep Settings Screen A

Center Frequency	908.400561 MHz	Ref Level	114.800 dBµV/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		



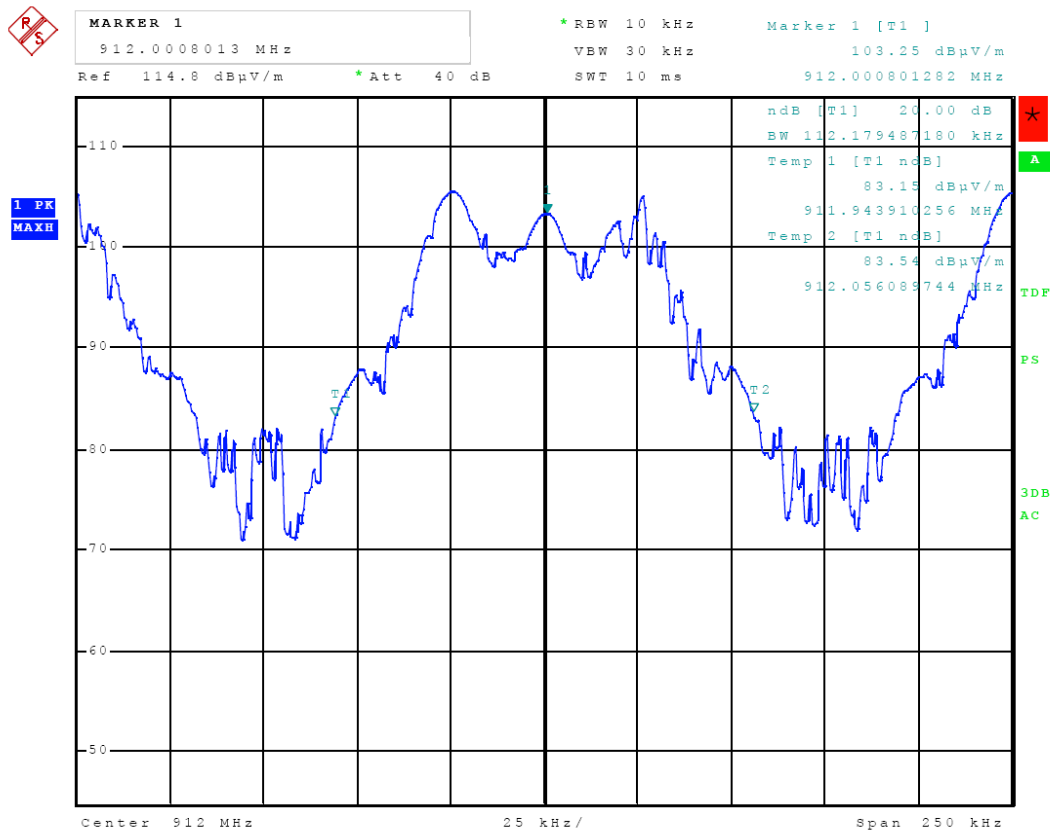
03.Jan 17 13:25

**Meas Type** OCCUPIED CHANNEL BANDWIDTH  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Hopping ON, CH25  
**Operator** Andrej Skof

**Test Spec**  
 VERTICAL 100 cm, 0 deg

**Sweep Settings Screen A**

Center Frequency	912.000000 MHz	Ref Level	114.800 dBµV/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		
VBW	30.000000 kHz	X-Axis	LIN
Sweep Time	10.00 ms	Y-Axis	LOG



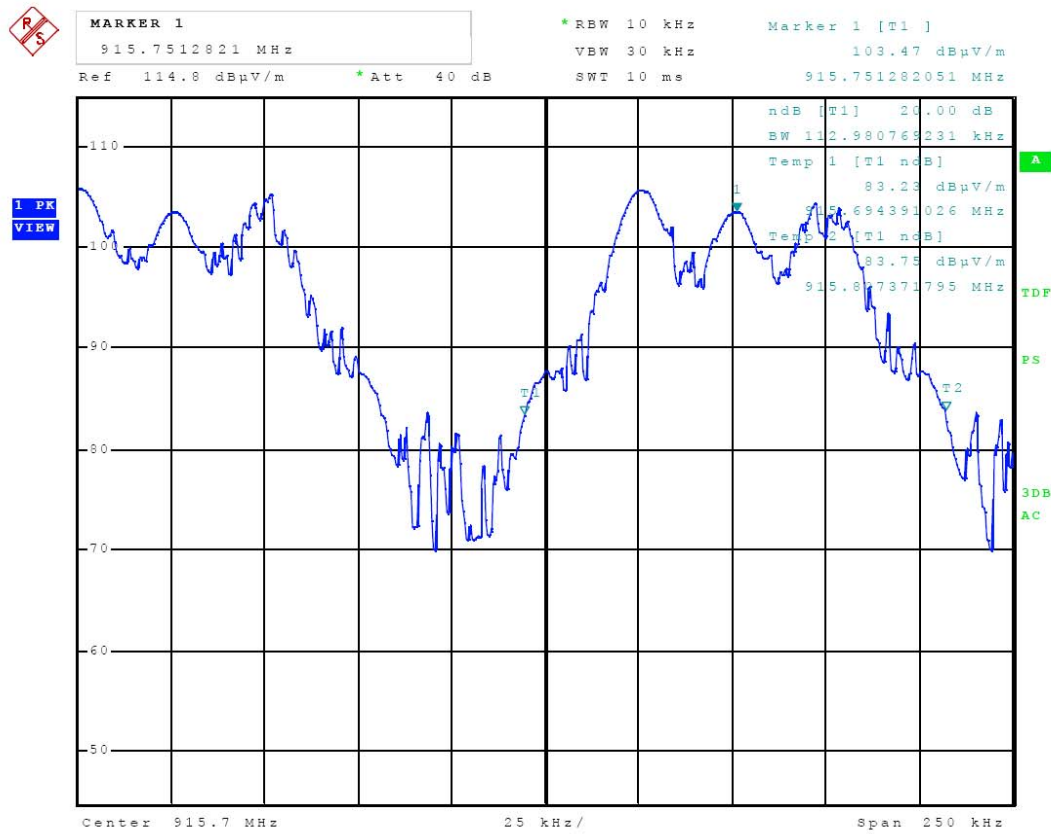


03.Jan 17 13:20

**Meas Type** OCCUPIED CHANNEL BANDWIDTH  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Hopping ON, 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 $\mu$ 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

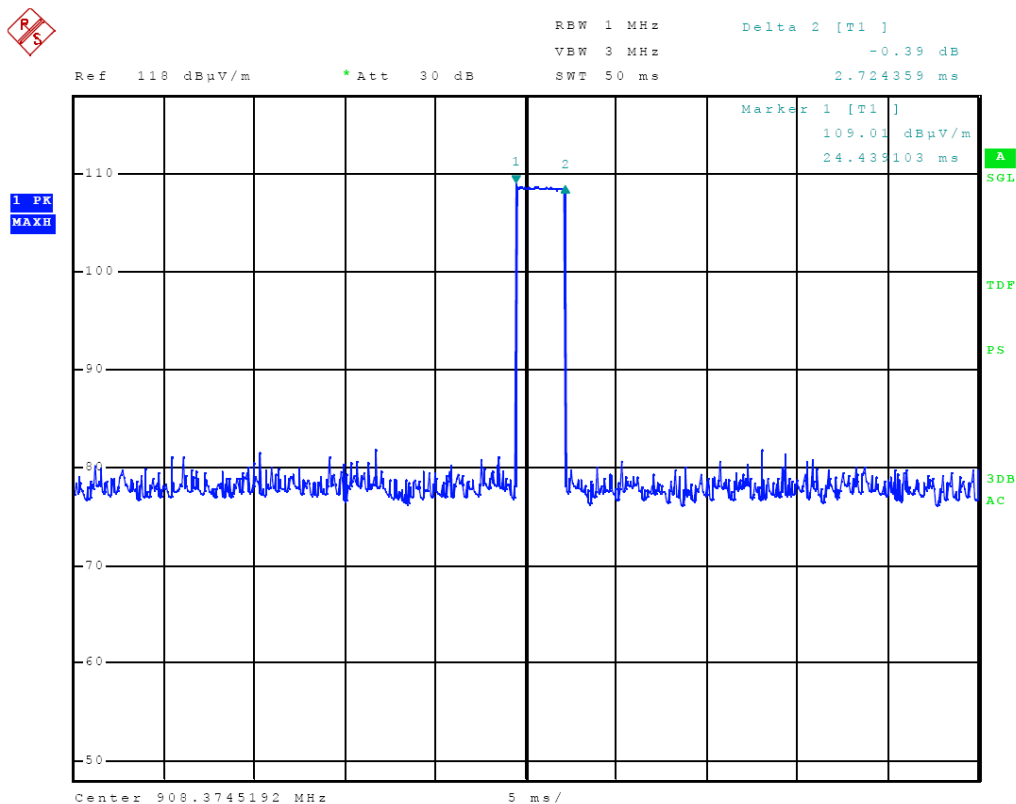
#### Test results

05.Jan 17 07:18

**Meas Type** DWELL TIME  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Hopping ON, CH1  
**Operator** Andrej Skof  
**Test Spec**  
 VERTICAL 100 cm, 0 deg

#### Sweep Settings Screen A

Center Frequency	908.374519 MHz	Ref Level	118.000 dBµV/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		

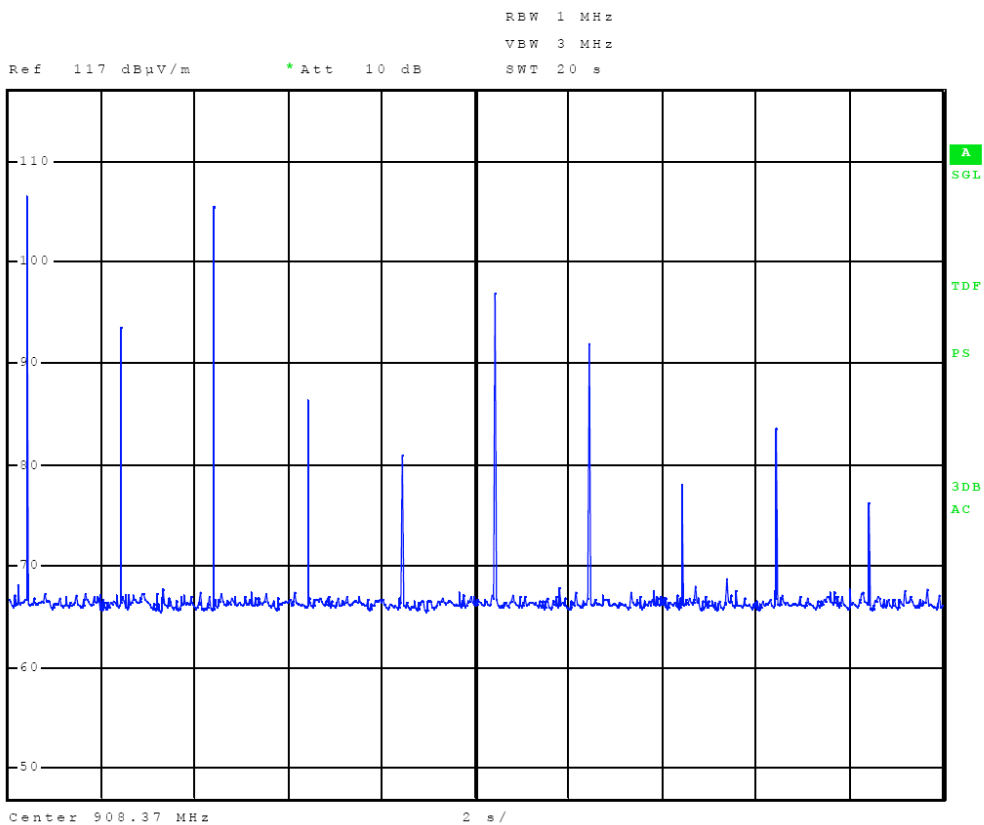




**Meas Type** NUMBER OF PULSES  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Hopping ON, CH1  
**Operator** Andrej Skof  
**Test Spec**  
 VERTICAL 100 cm, 0 deg

**Sweep Settings      Screen A**

Center Frequency	908.370000 MHz	Ref Level	117.000 dB $\mu$ 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		
VBW	3.000000 MHz	X-Axis	LIN
Sweep Time	20.00 s	Y-Axis	LOG



05.Jan 17 07:22

**Meas Type** DWELL TIME  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Hopping ON, CH25  
**Operator** Andrej Skof

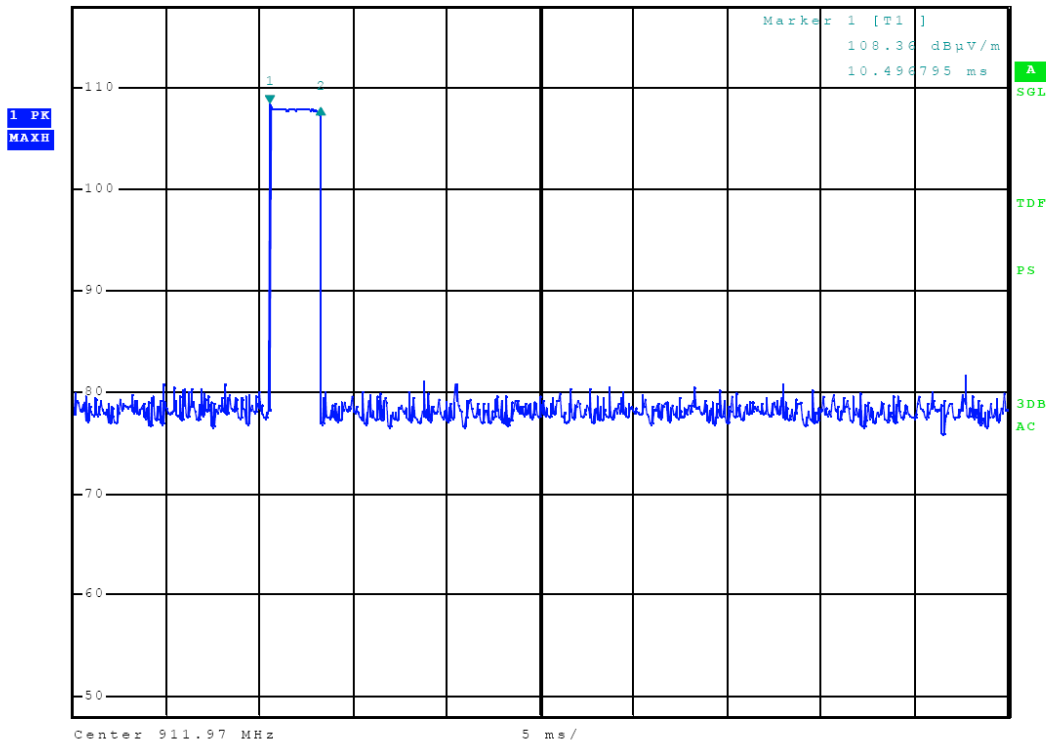
**Test Spec**  
 VERTICAL 100 cm, 0 deg

**Sweep Settings Screen A**

Center Frequency	911.970000 MHz	Ref Level	118.000 dB $\mu$ 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



Ref 118 dB $\mu$ V/m      \* Att 30 dB      RBW 1 MHz      Delta 2 [T1]      VBW 3 MHz      -0.38 dB      SWT 50 ms      2.724359 ms



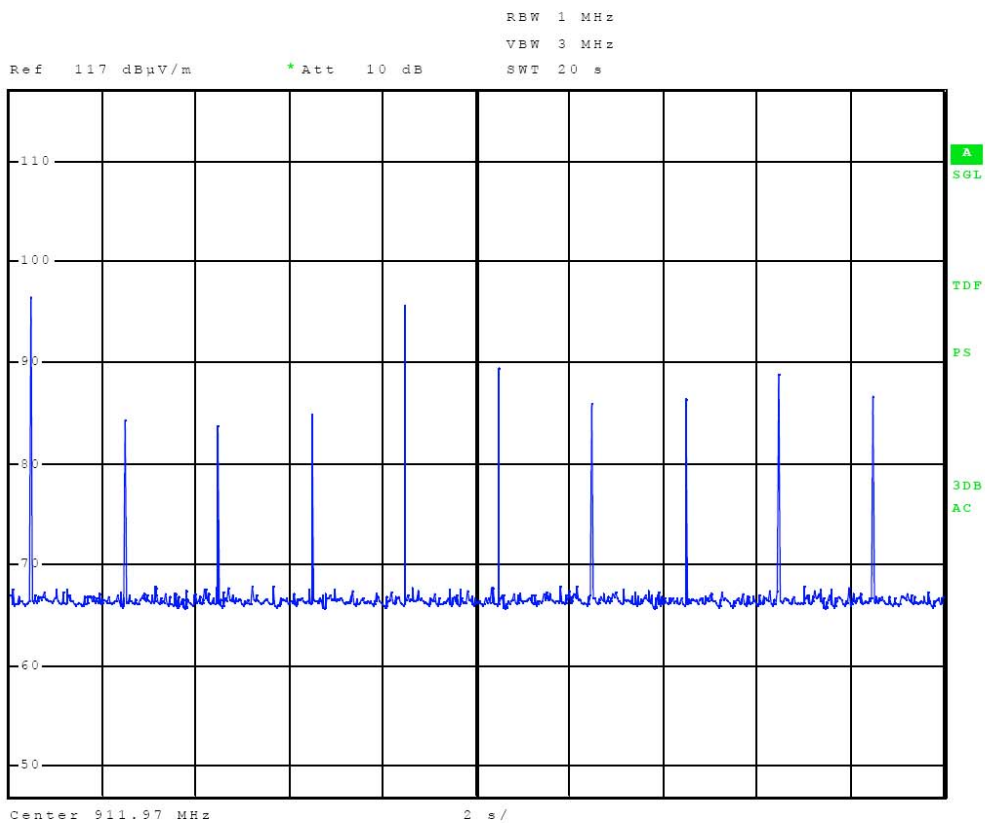


05.Jan 17 07:34

**Meas Type** NUMBER OF PULSES  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Hopping ON, 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 $\mu$ 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

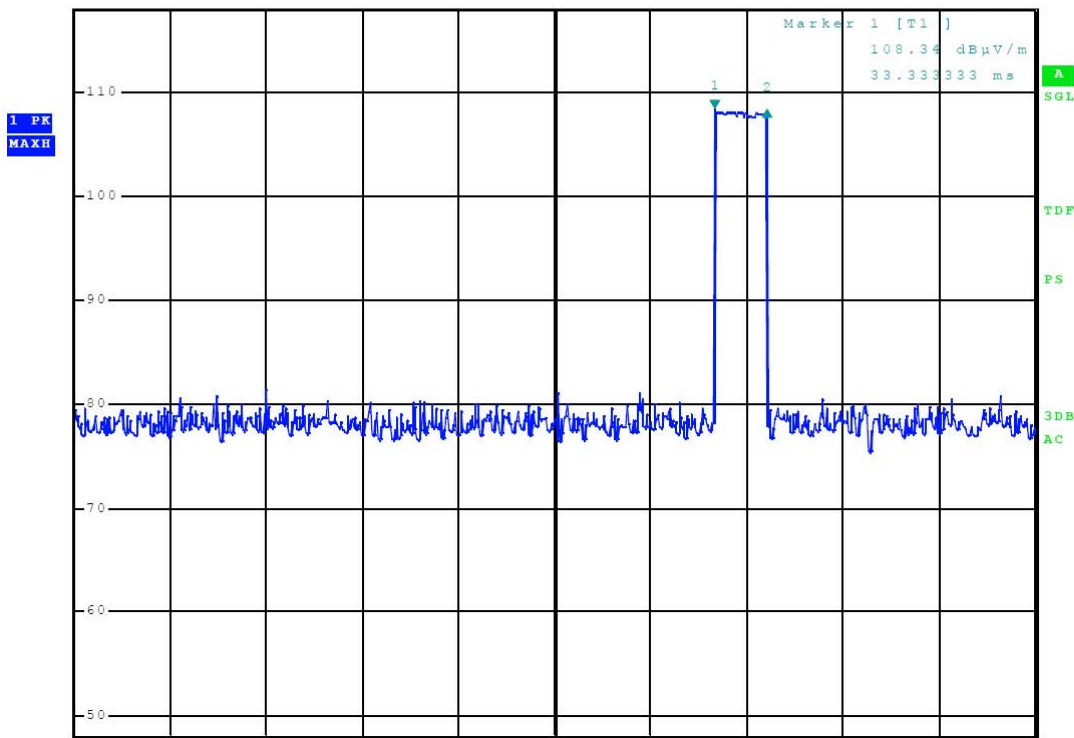
Meas Type DWELL TIME  
Equipment under Test WSD 011-2  
Manufacturer NAVIS ELEKTRONIKA D.O.O.  
OP Condition Hopping ON, CH50  
Operator Andrej Skof  
Test Spec  
VERTICAL 100 cm, 0 deg

Sweep Settings Screen A

Center Frequency	915.726000 MHz	Ref Level	118.000 dB $\mu$ 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		
VBW	3.000000 MHz	X-Axis	LIN
Sweep Time	50.00 ms	Y-Axis	LOG



Ref 118 dB $\mu$ V/m \* Att 30 dB RBW 1 MHz Delta 2 [T1 ]  
VBW 3 MHz -0.10 dB  
SWT 50 ms 2.724359 ms



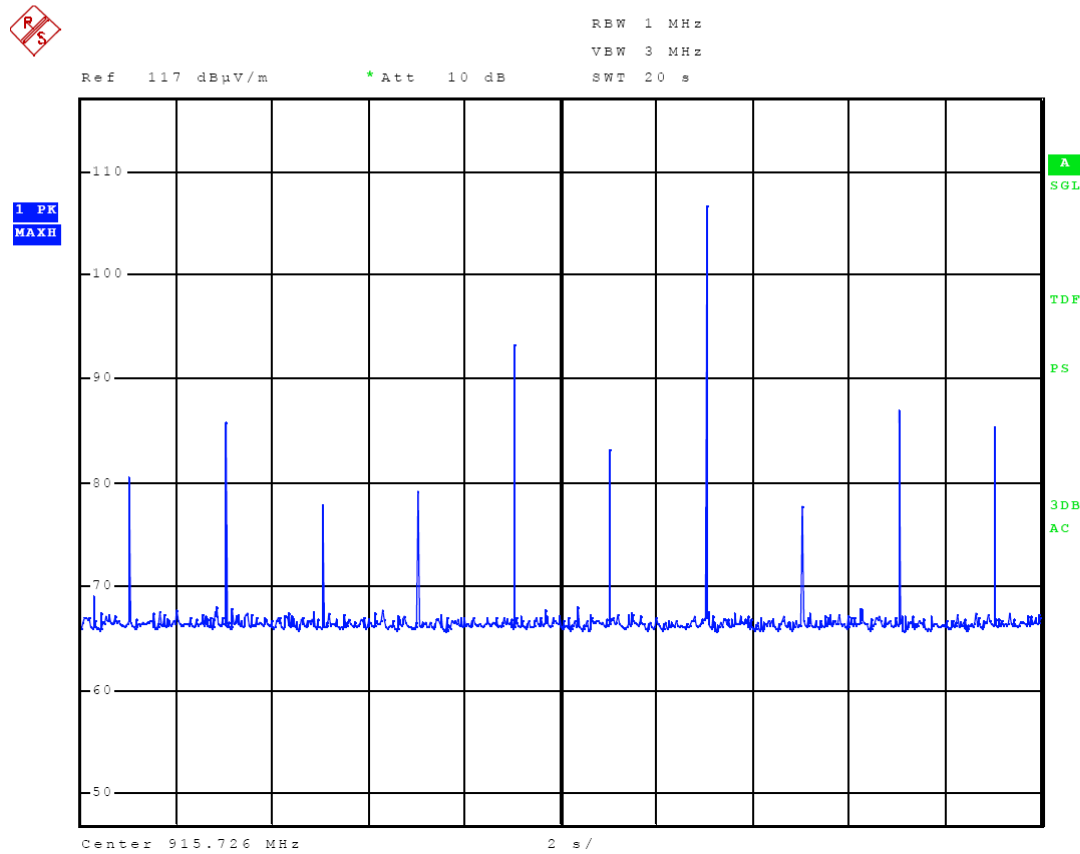


05.Jan 17 07:35

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

**Sweep Settings Screen A**

Center Frequency	915.726000 MHz	Ref Level	117.000 dBμV/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

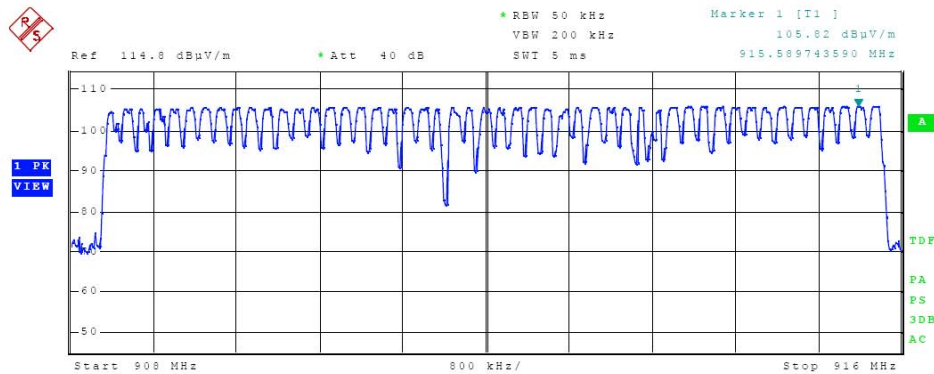
#### Test results

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 dBμV/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		



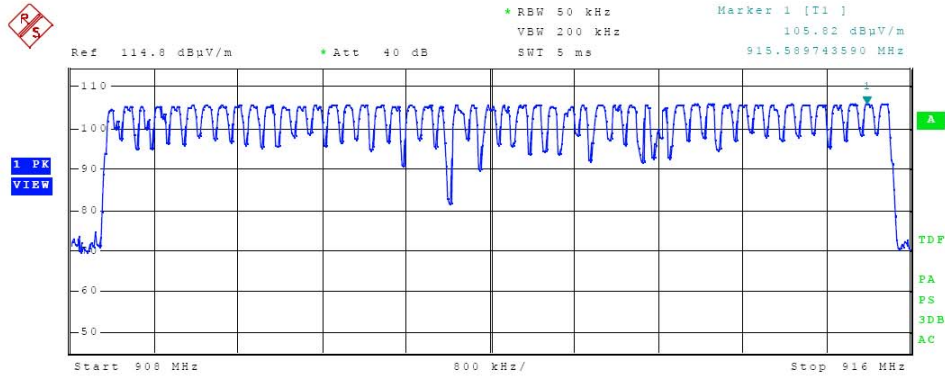
#	Frequency	Level	#	Frequency	Level
1	908.384615 MHz	104.30 dBμ	13	910.230769 MHz	105.24 dBμ
2	908.576923 MHz	105.21 dBμ	14	910.320513 MHz	105.32 dBμ
3	908.679487 MHz	105.11 dBμ	15	910.500000 MHz	105.37 dBμ
4	908.833333 MHz	105.21 dBμ	16	910.641026 MHz	105.40 dBμ
5	909.025641 MHz	105.18 dBμ	17	910.807692 MHz	105.45 dBμ
6	909.166667 MHz	105.33 dBμ	18	910.961538 MHz	105.42 dBμ
7	909.282051 MHz	105.27 dBμ	19	911.076923 MHz	105.21 dBμ
8	909.435897 MHz	105.29 dBμ	20	911.230769 MHz	105.49 dBμ
9	909.615385 MHz	105.39 dBμ	21	911.423077 MHz	105.36 dBμ
10	909.730769 MHz	105.29 dBμ	22	911.525641 MHz	105.24 dBμ
11	909.910256 MHz	105.38 dBμ	23	911.679487 MHz	105.41 dBμ
12	910.025641 MHz	105.12 dBμ	24	911.833333 MHz	105.30 dBμ



**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 dBµV/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		



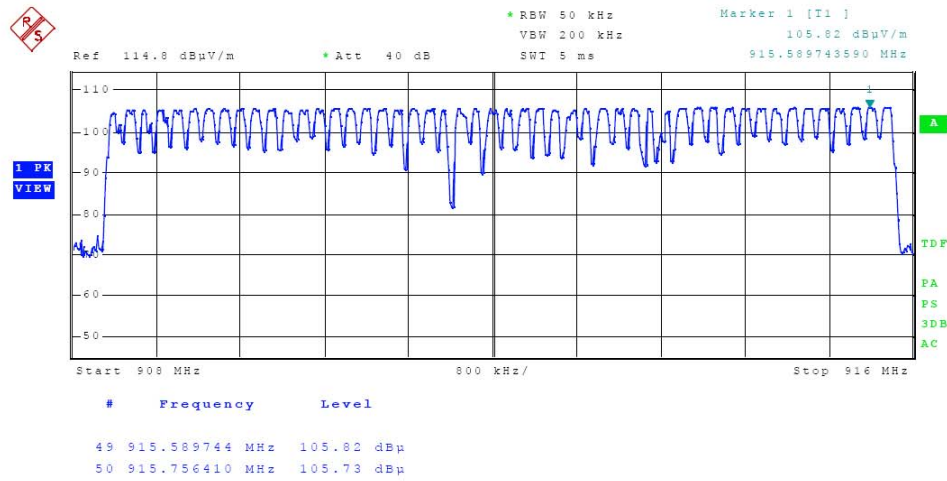
#	Frequency	Level	#	Frequency	Level
25	911.974359 MHz	105.27 dBµ	37	913.807692 MHz	105.53 dBµ
26	912.128205 MHz	105.33 dBµ	38	913.948718 MHz	105.64 dBµ
27	912.320513 MHz	105.32 dBµ	39	914.089744 MHz	105.67 dBµ
28	912.435897 MHz	105.54 dBµ	40	914.282051 MHz	105.61 dBµ
29	912.576923 MHz	105.25 dBµ	41	914.435897 MHz	105.52 dBµ
30	912.782051 MHz	105.20 dBµ	42	914.576923 MHz	105.57 dBµ
31	912.884615 MHz	105.30 dBµ	43	914.679487 MHz	105.50 dBµ
32	913.051282 MHz	105.44 dBµ	44	914.871795 MHz	105.64 dBµ
33	913.179487 MHz	105.36 dBµ	45	914.987179 MHz	105.57 dBµ
34	913.333333 MHz	105.34 dBµ	46	915.141026 MHz	105.56 dBµ
35	913.487179 MHz	105.33 dBµ	47	915.282051 MHz	105.55 dBµ
36	913.666667 MHz	104.91 dBµ	48	915.448718 MHz	105.78 dBµ



**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 $\mu$ 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		



**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 ANSI C63.10-2013 and FCC/DA-00-705

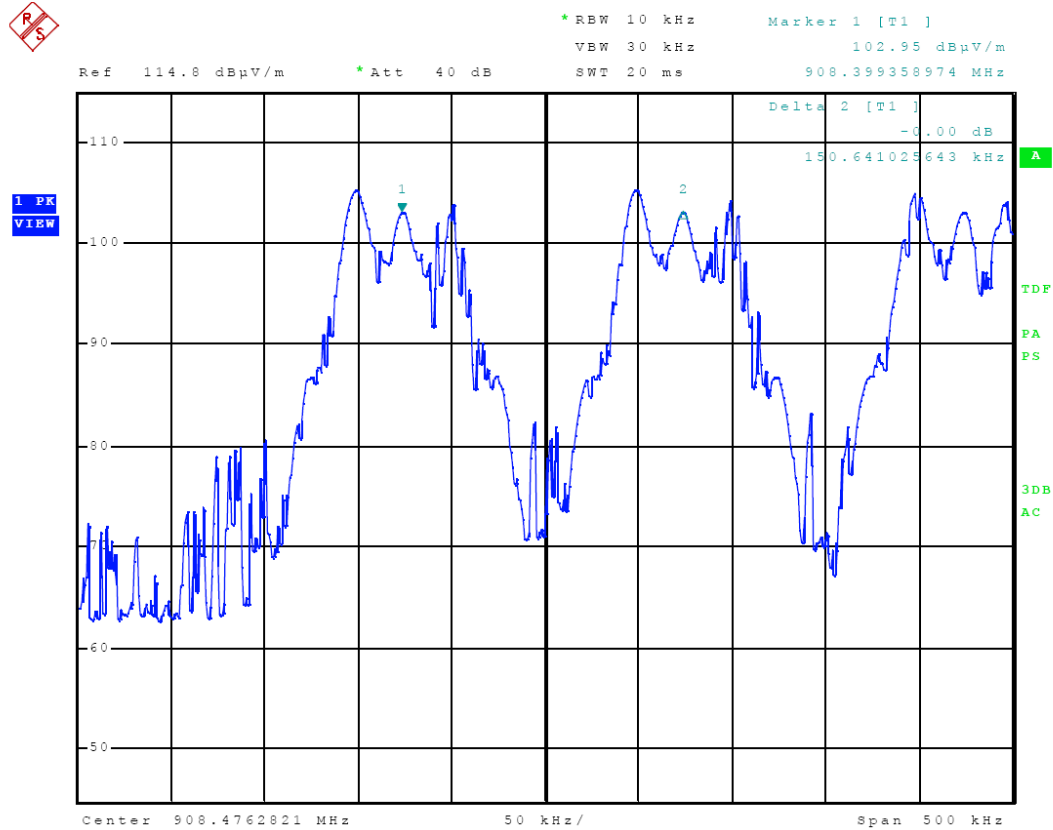
#### Test results

03.Jan 17 12:33

**Meas Type** CHANNEL SEPARATION  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Hopping ON, 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 dBµV/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

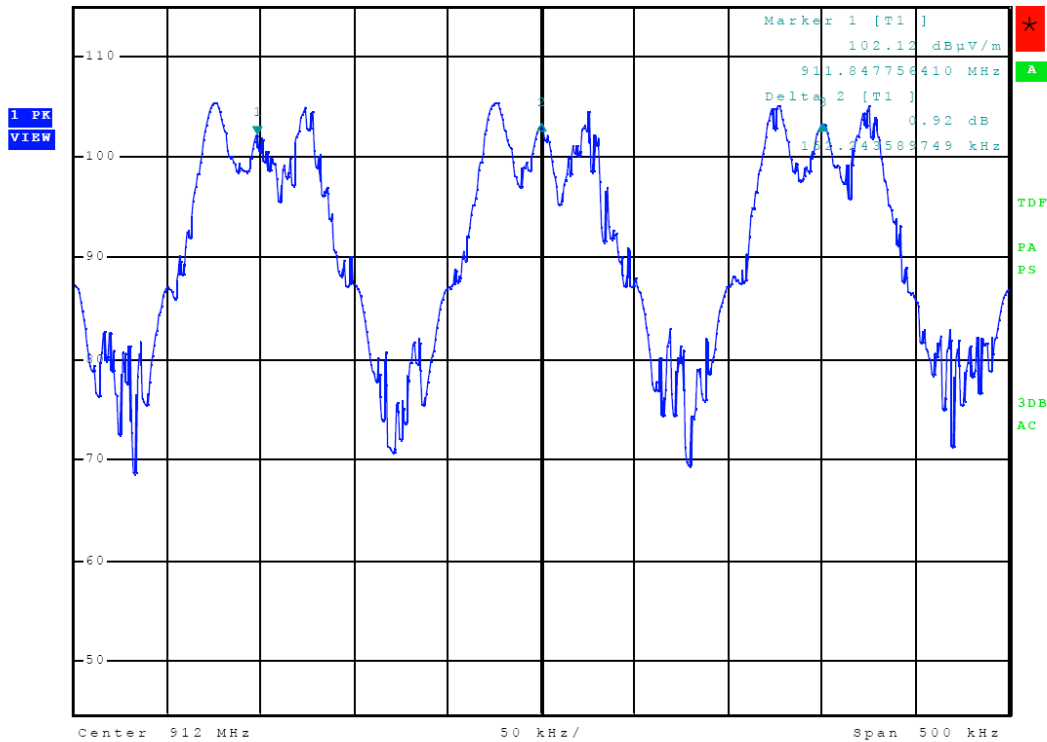
**Meas Type** CHANNEL SEPARATION  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Hopping ON, CH24 - CH26  
**Operator** Andrej Skof  
**Test Spec**  
 VERTICAL 100 cm, 0 deg

**Sweep Settings Screen A**

Center Frequency	912.000000 MHz	Ref Level	114.800 dBµV/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		
VBW	30.000000 kHz	X-Axis	LIN
Sweep Time	20.00 ms	Y-Axis	LOG



\*RBW 10 kHz      Delta 3 [T1 ]  
 VBW 30 kHz      1.04 dB  
 Ref 114.8 dBµV/m      \*Att 40 dB      SWT 20 ms      302.884615391 kHz



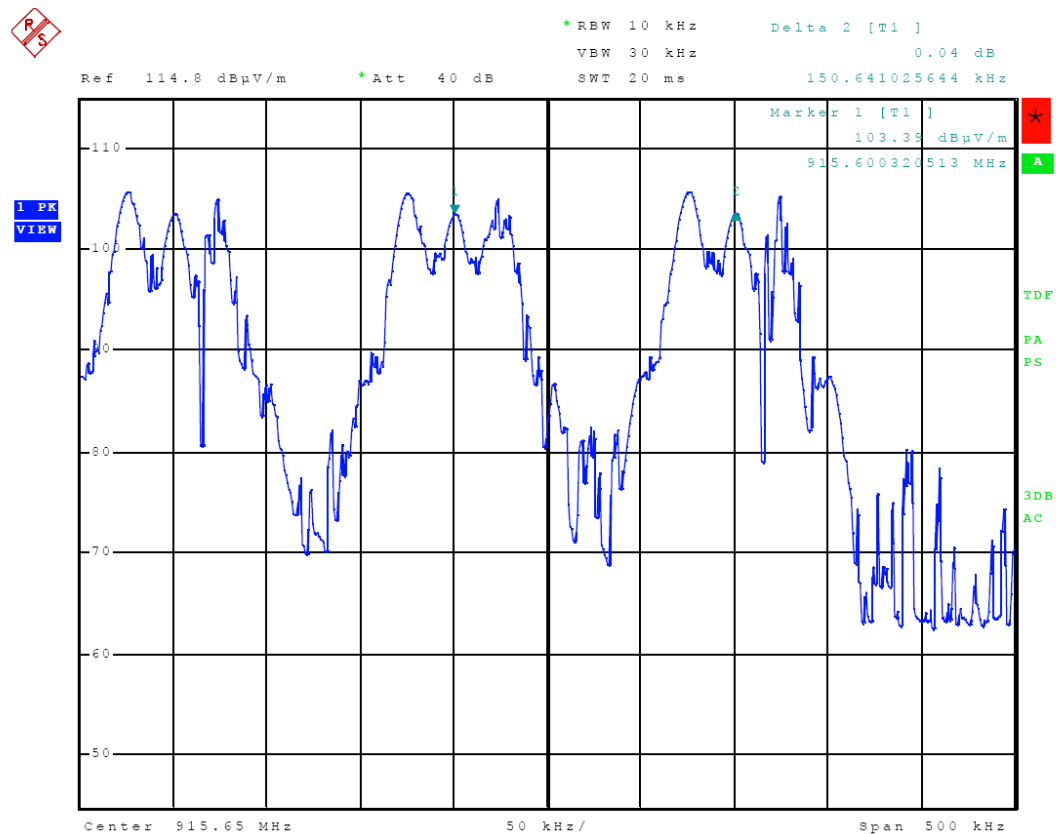


03.Jan 17 12:27

**Meas Type** CHANNEL SEPARATION  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Hopping ON, 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 dBµV/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		
VBW	30.000000 kHz	X-Axis	LIN
Sweep Time	20.00 ms	Y-Axis	LOG



**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 ANSI 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:

$$\text{Final Measurement (dB}\mu\text{V/m)} = \text{Receiver Reading (dB}\mu\text{V/m)} + \text{AF (dB)} + \text{CL (dB)} + \text{Atten (dB)} + \text{Preamp (dB)}$$

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

Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Field Strength (V/m)	Antenna Gain (dBi)	Conducted power (W)	Limit (W)	Conclusion
908.4 (CH1)	107.31	0.23	0	0.016	1	PASS
912.1 (CH25)	106.39	0.21	0	0.013	1	PASS
915.7 (CH50)	107.65	0.24	0	0.017	1	PASS

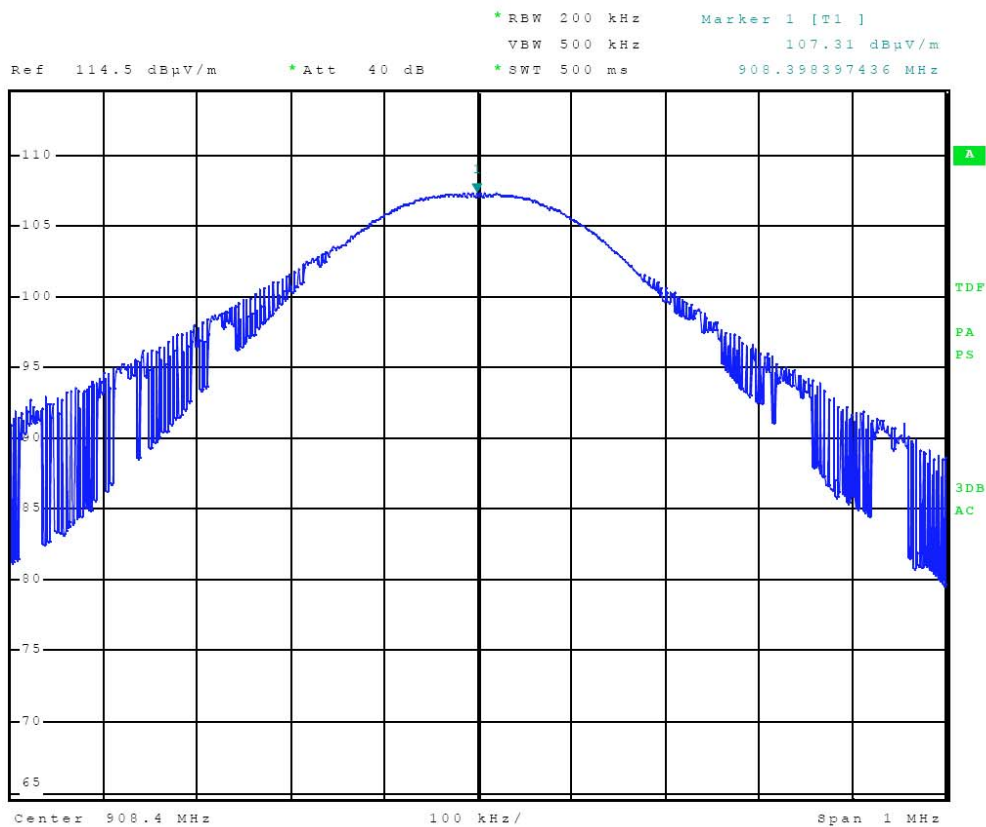
**S20170001**

11.Apr 17 05:22

**Meas Type** PEAK POWER OUTPUT  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Channel 1 (Hopping disabled)  
**Operator** Andrej Skof  
**Test Spec**  
 VERTICAL 100 cm, 0 deg

**Sweep Settings Screen A**

Center Frequency	908.400000 MHz	Ref Level	114.500 dB $\mu$ 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	50.000 dB
Stop Frequency	908.900000 MHz	RF Att	40.000 dB
RBW	200.000000 kHz		
VBW	500.000000 kHz	X-Axis	LIN
Sweep Time	500.00 ms	Y-Axis	LOG





11.Apr 17 06:20

**S20170001**

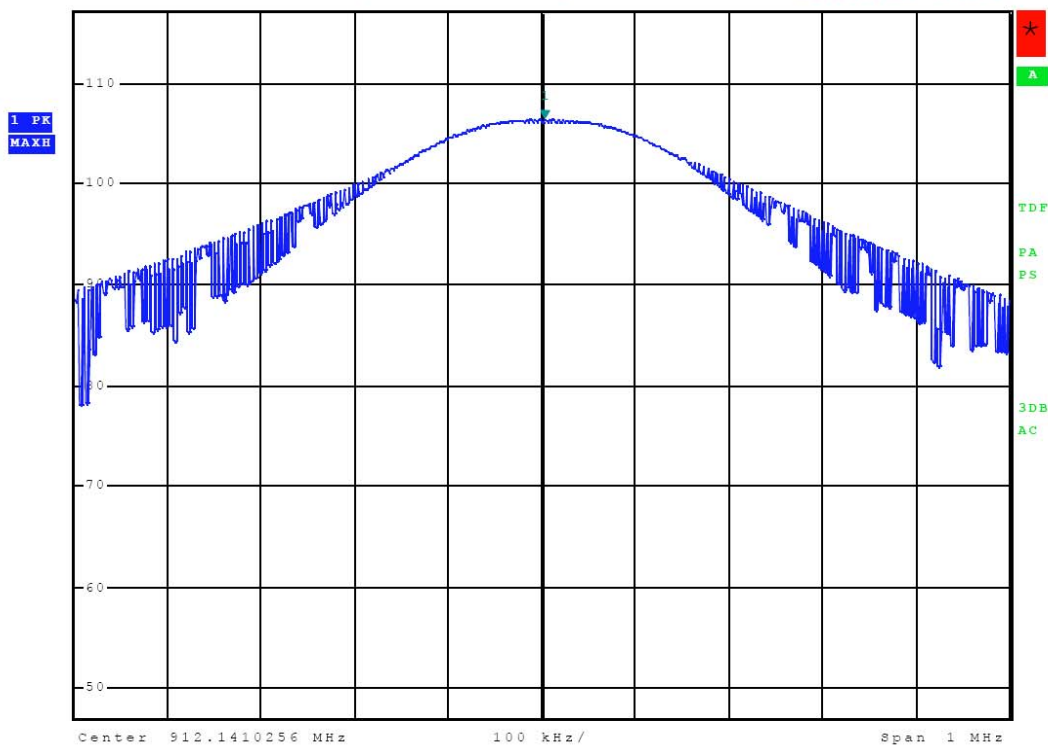
**Meas Type** PEAK POWER OUTPUT  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Channel 25 (Hopping disabled)  
**Operator** Andrej Skof  
**Test Spec**  
 VERTICAL 100 cm, 0 deg

**Sweep Settings Screen A**

Center Frequency	912.141026 MHz	Ref Level	117.000 dB $\mu$ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	1.000000 MHz	Ref Position	100.000 %
Start Frequency	911.641026 MHz	Level Range	70.000 dB
Stop Frequency	912.641026 MHz	RF Att	30.000 dB
RBW	200.000000 kHz	X-Axis	LIN
VBW	500.000000 kHz	Y-Axis	LOG
Sweep Time	500.00 ms		



Ref 117 dB $\mu$ V/m \* Att 30 dB \* RBW 200 kHz Marker 1 [T1] 106.39 dB $\mu$ V/m  
 VBW 500 kHz \* SWT 500 ms 912.144230769 MHz





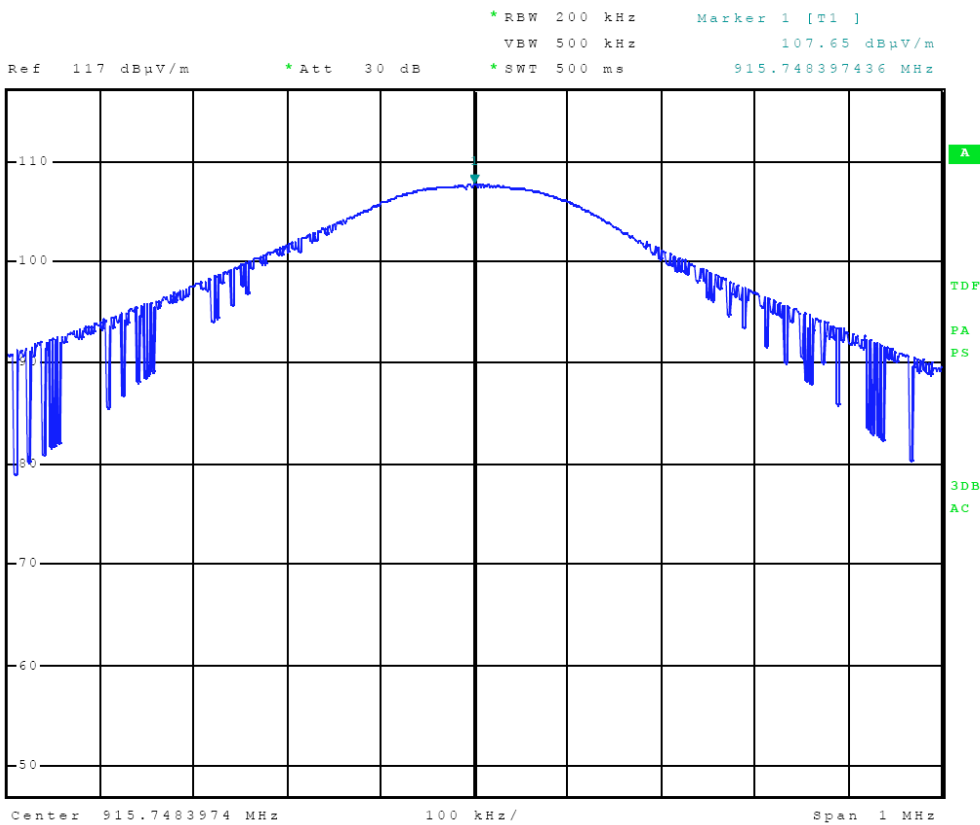
**S20170001**

11.Apr 17 06:24

**Meas Type** PEAK POWER OUTPUT  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Channel 50 (Hopping disabled)  
**Operator** Andrej Skof  
**Test Spec**  
 VERTICAL 100 cm, 0 deg

**Sweep Settings Screen A**

Center Frequency	915.748397 MHz	Ref Level	117.000 dB $\mu$ V/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	1.000000 MHz	Ref Position	100.000 %
Start Frequency	915.248397 MHz	Level Range	70.000 dB
Stop Frequency	916.248397 MHz	RF Att	30.000 dB
RBW	200.000000 kHz	X-Axis	LIN
VBW	500.000000 kHz	Y-Axis	LOG
Sweep Time	500.00 ms		





### **3.9 §15.247 (c) Spurious RF Conducted Emissions**

Since EUT has integrated antenna and antenna conducted tests cannot be performed. Due to that alternative test procedure was used acc. to the FCC/DA-00-705. 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 in chapter 3.10.

**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 (dBµV/m)	Test distance (m)
0,009 to 0,490	$20 \cdot \log(2400/F(\text{kHz}))$	300
0,490 to 1,705	$20 \cdot \log(24000/F(\text{kHz}))$	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
<sup>1</sup> 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	( <sup>2</sup> )
13.36-13.41			

<sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup>Above 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 $\mu$ V/m) = Receiver Reading (dB $\mu$ 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

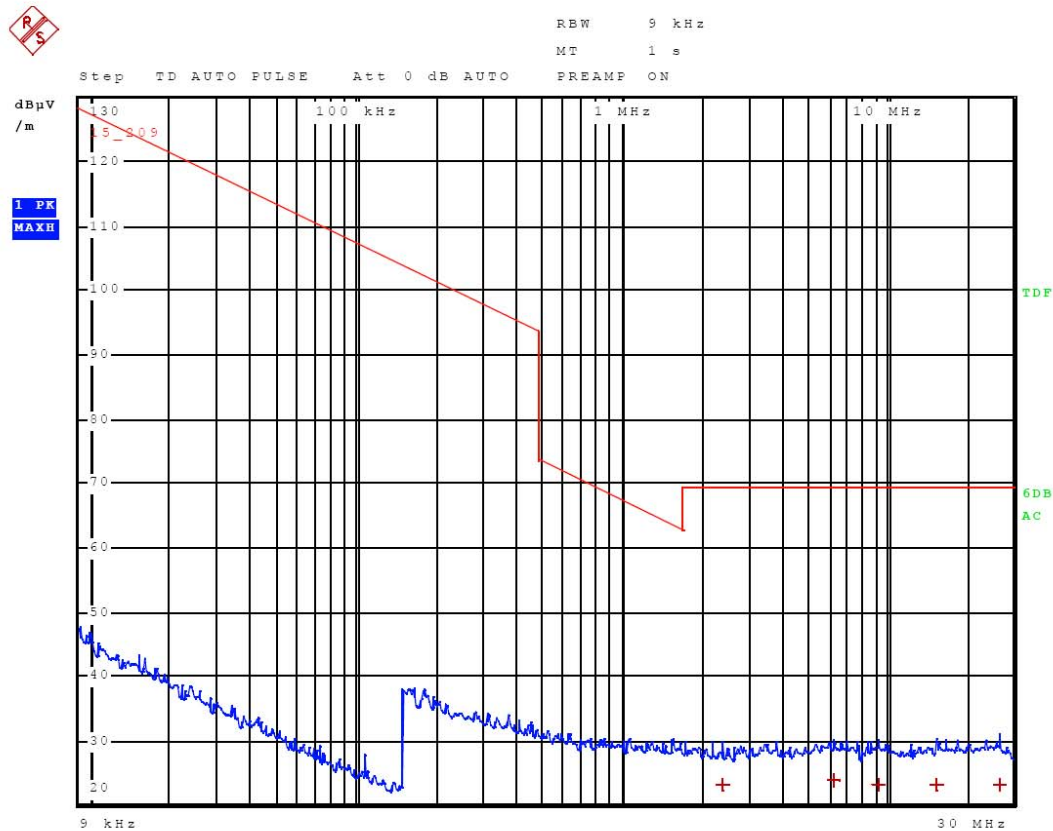
**Test Spec**

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 $\mu$ 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



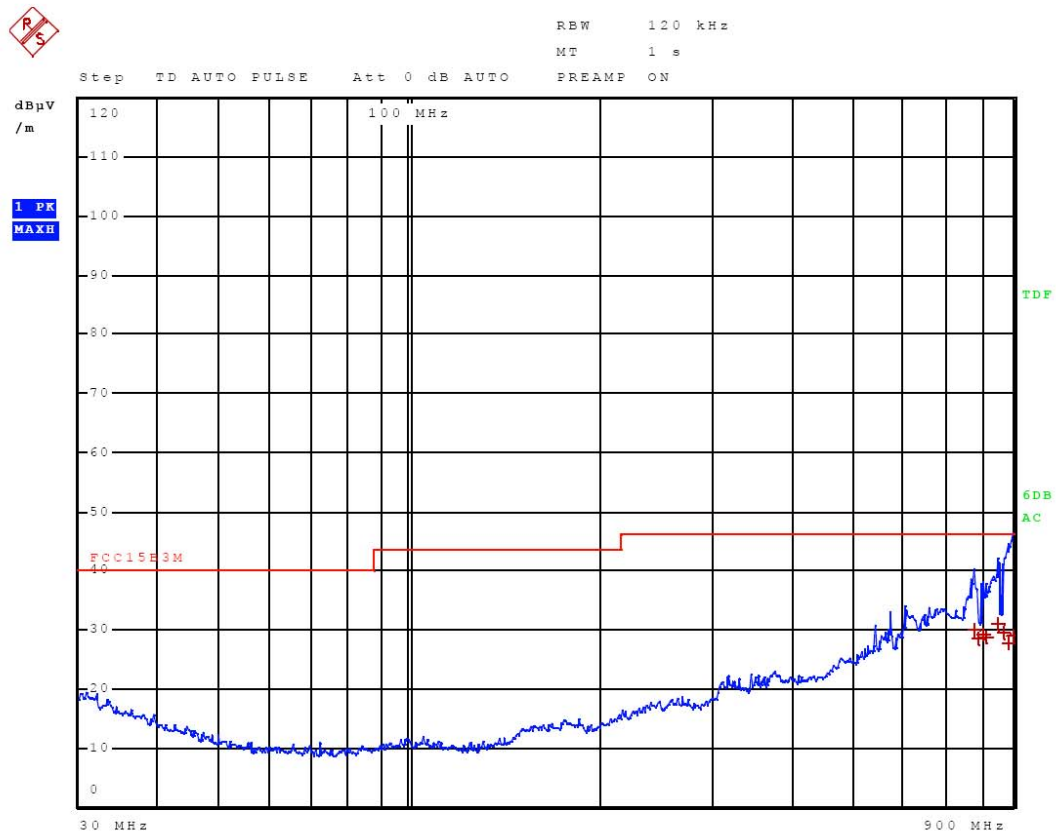
03.Jan 17 10:15

**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	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 10:15

**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 $\mu$ 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



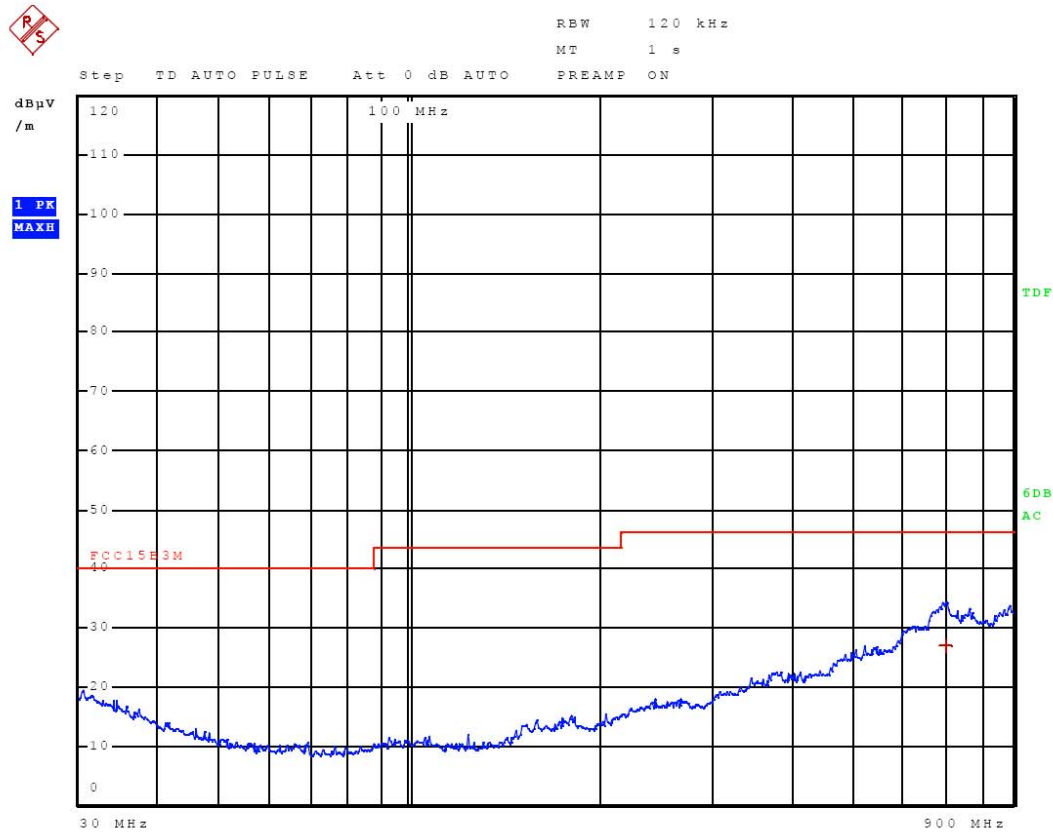
03.Jan 17 10:18

**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	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 10:18

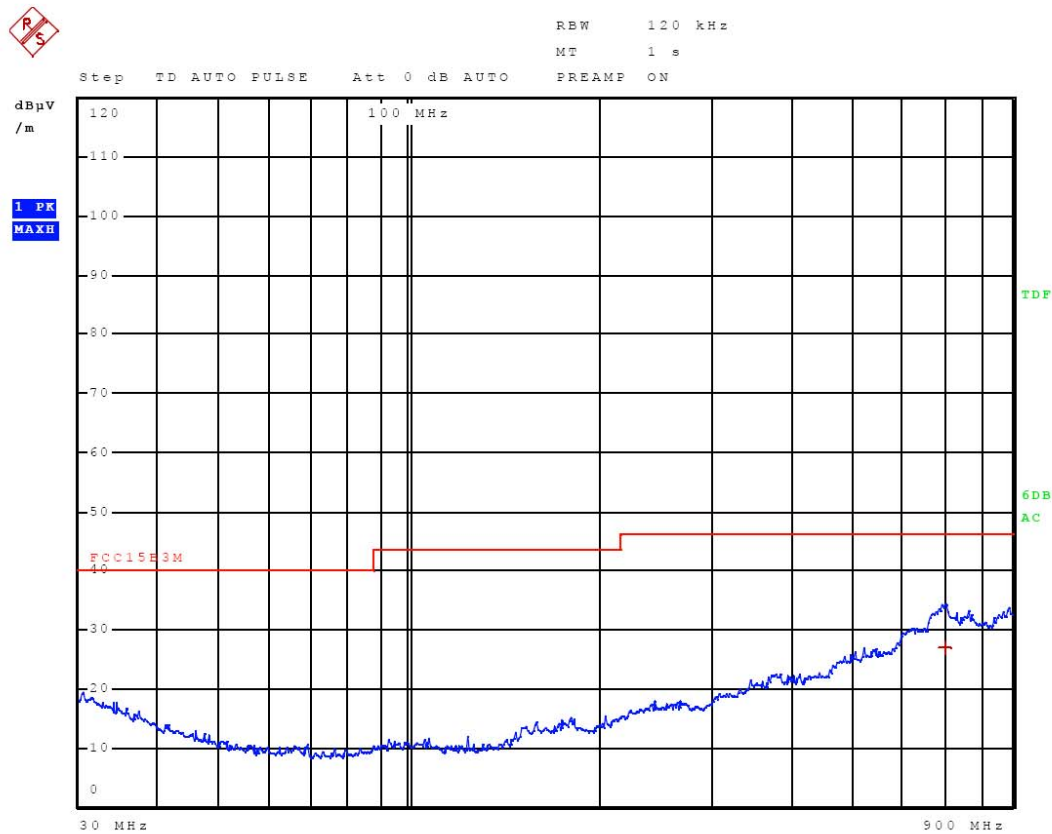
**Meas Type** RADIATED EMISSION, 30 MHz - 900 MHz  
**Equipment under Test** WSD 011-2  
**Manufacturer** NAVIS ELEKTRONIKA D.O.O.  
**OP Condition** Hopping mode  
**Operator** Andrej Skof

**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





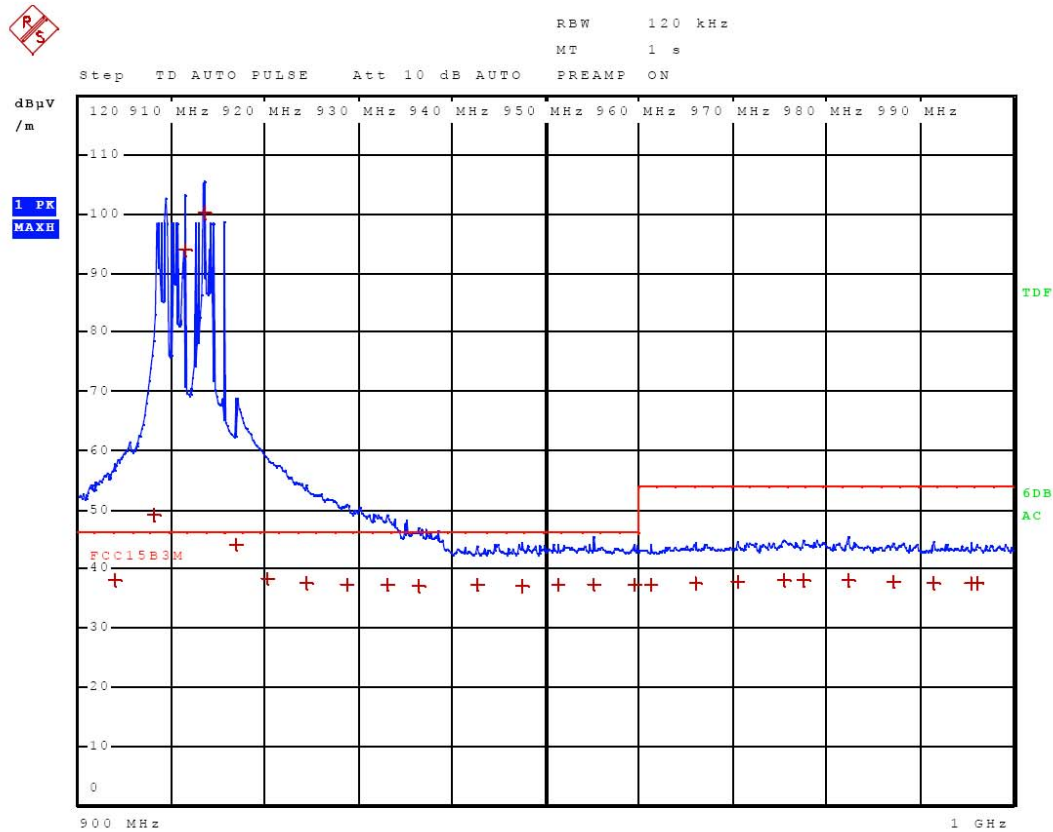
03.Jan 17 10:23

**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	Res BW	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 10:23

**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 (dBµV/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



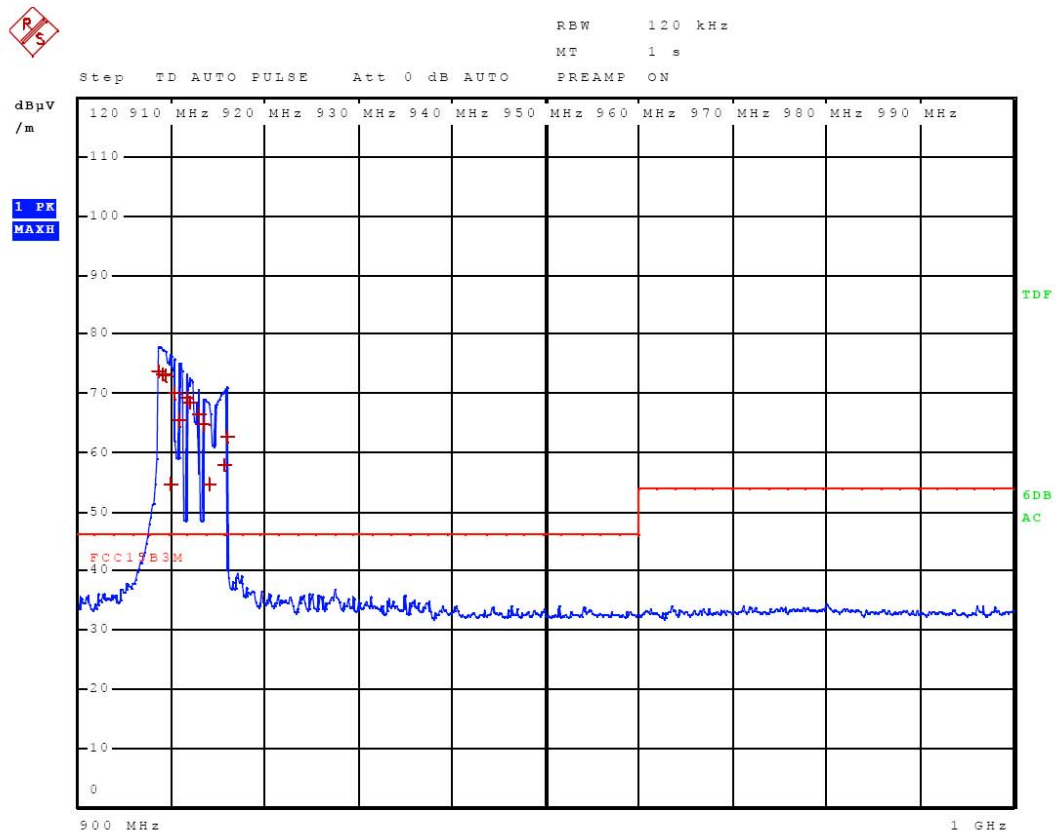
03.Jan 17 10:19

**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	Res BW	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 (dBµV/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



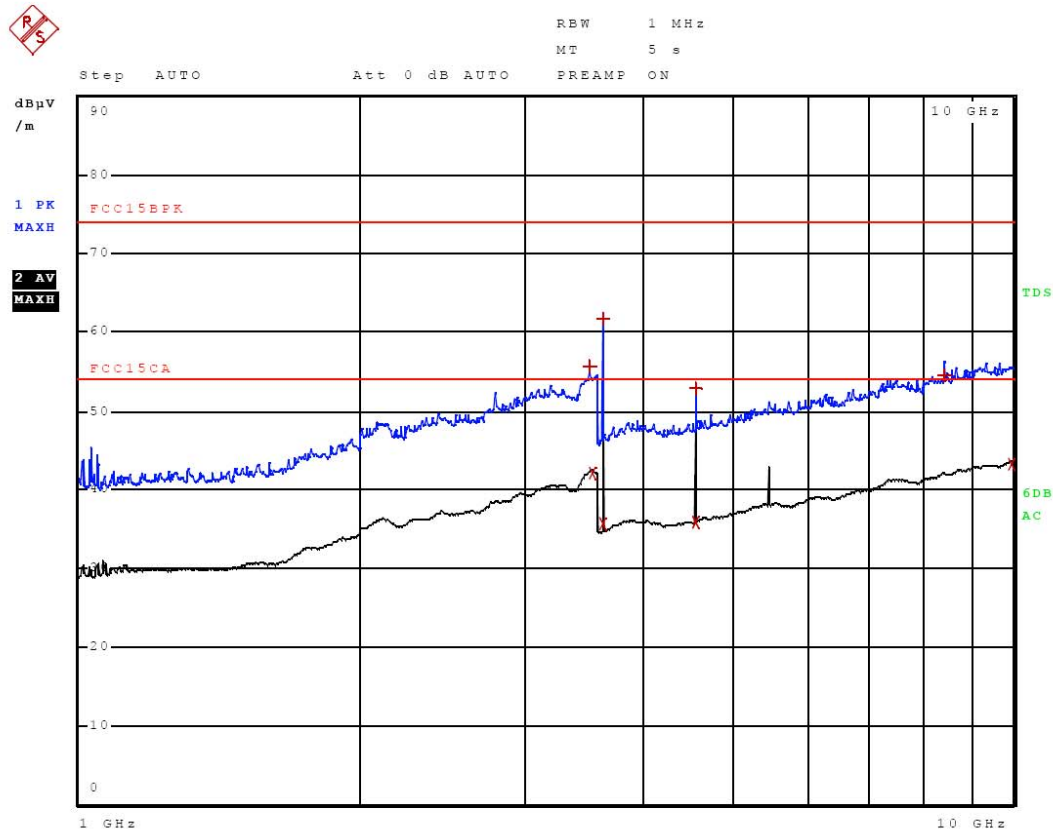
13.Jan 17 16:23

**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 (dBµV/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

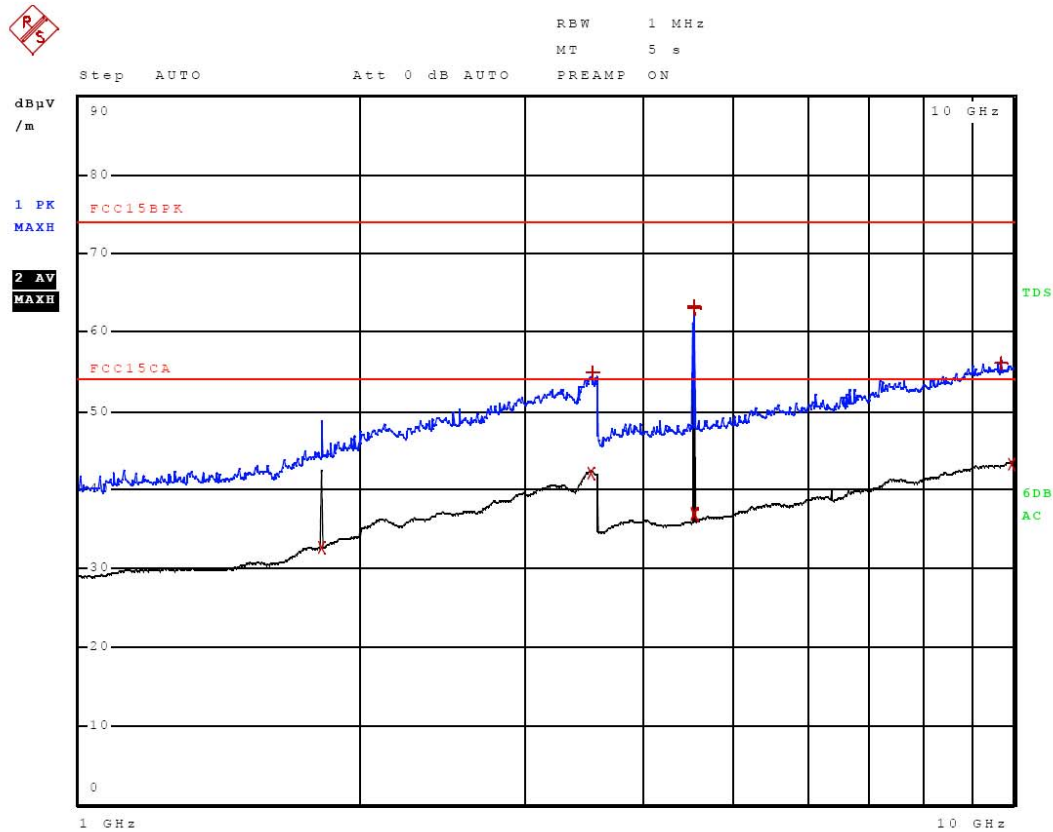
Meas Type RADIATED EMISSION  
 Equipment under Test WSD 011-2  
 Manufacturer NAVIS ELEKTRONIKA D.O.O.  
 OP Condition Hopping mode  
 Operator Andrej Skof

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	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 16:26

**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 $\mu$ 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



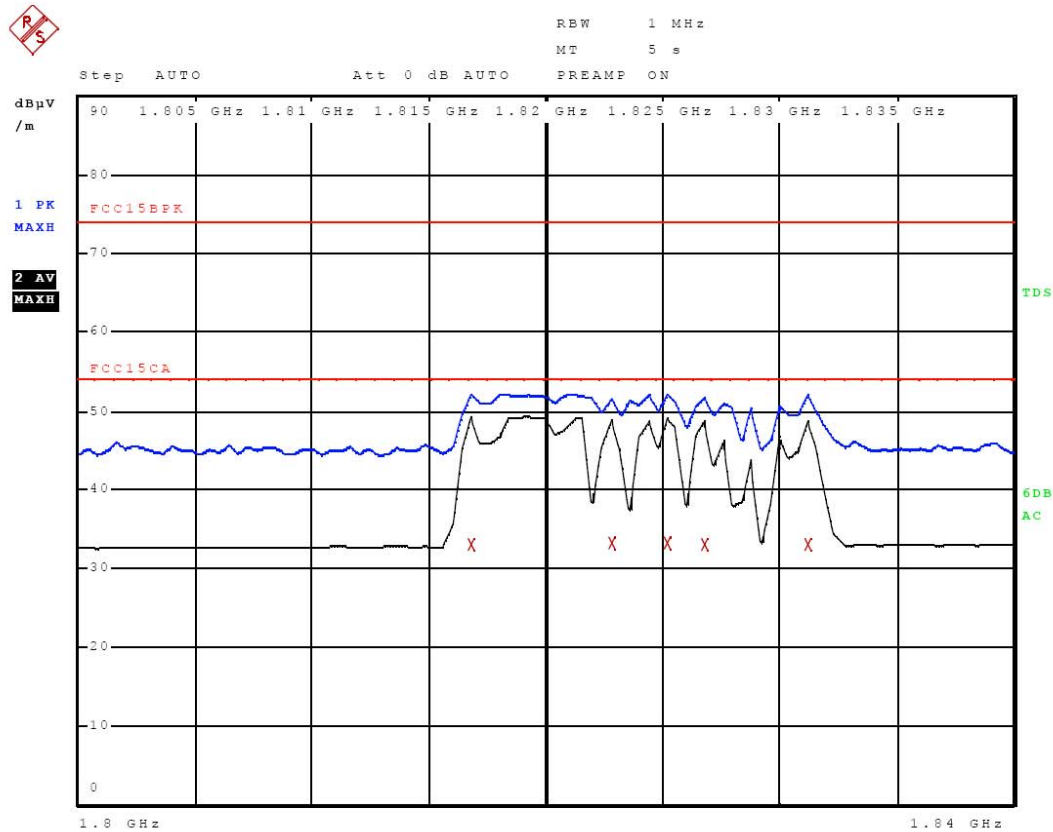
13.Jan 17 15:53

**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 $\mu$ 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



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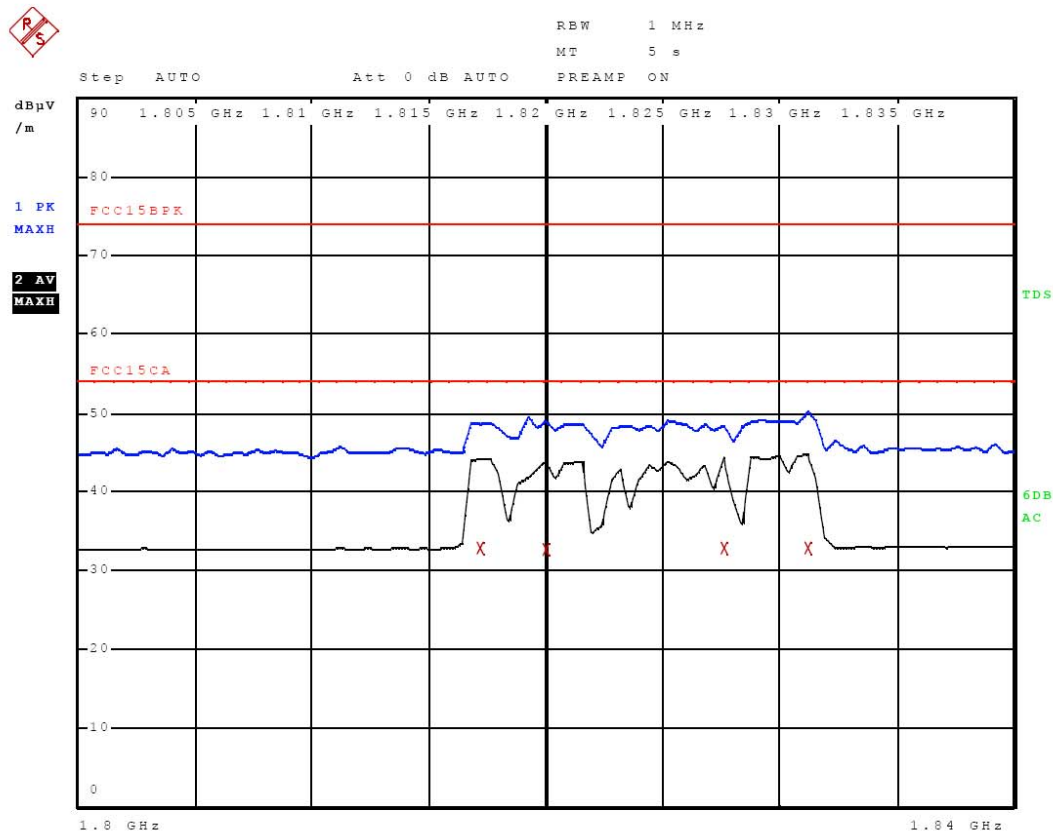
Meas Type RADIATED EMISSION  
 Equipment under Test WSD 011-2  
 Manufacturer NAVIS ELEKTRONIKA D.O.O.  
 OP Condition Hopping mode  
 Operator Andrej Skof

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	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





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**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 $\mu$ 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



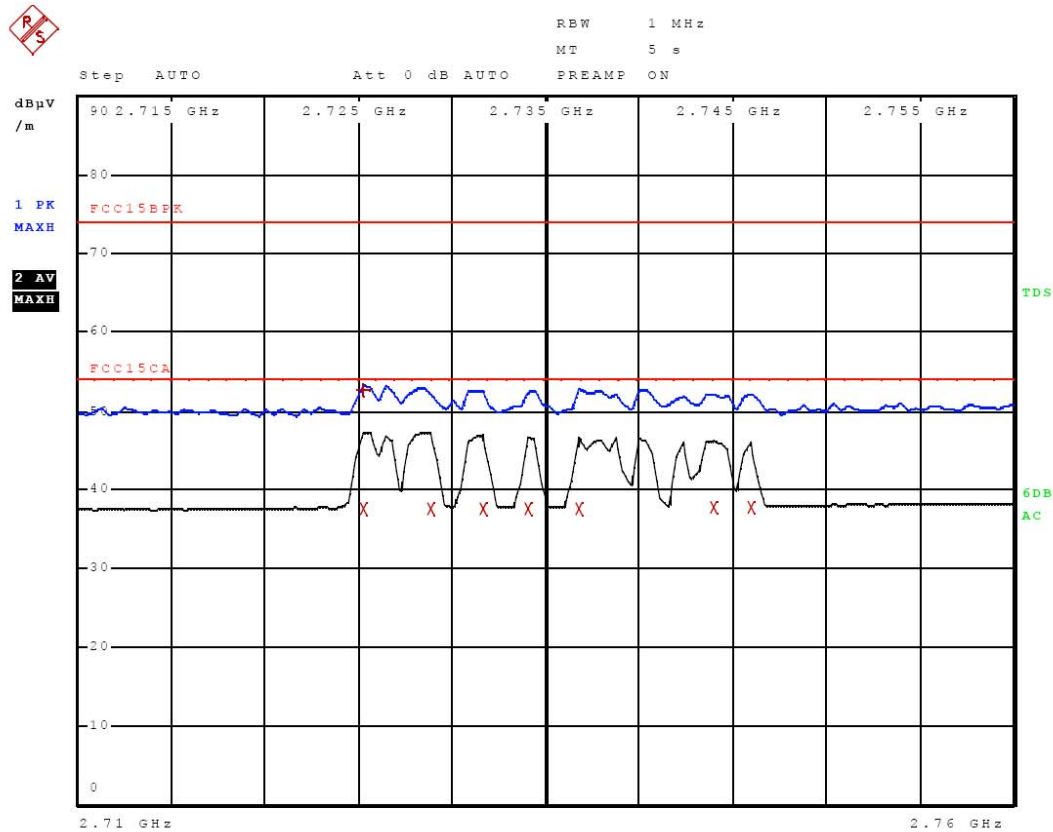
13.Jan 17 15:47

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	Res BW	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 $\mu$ 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