
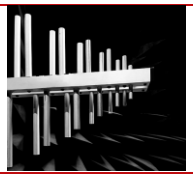
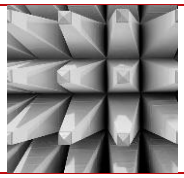

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consulting - testing - certification ➤➤➤

TEST REPORT

Test report no.: 1-1980/16-01-02-A

DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-01

Testing laboratory

CETECOM ICT Services GmbH
Untertuerkheimer Strasse 6 – 10
66117 Saarbruecken / Germany
Phone: + 49 681 5 98 - 0
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Accredited Testing Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-01

Applicant

RSI Video Technologies
Siège Social -Headquarters
25 rue Jacobi-Netter
67200 Strasbourg / FRANCE
Phone: +33 3 90 20 66 96
Fax: -/-
Contact: Geoffroy Eude
e-mail: geoffroy.eude@rsivideotech.com
Phone: +33 3 90 20 66 39

Manufacturer

RSI Video Technologies
Siège Social -Headquarters
25 rue Jacobi-Netter
67200 Strasbourg / FRANCE

Test standard/s

47 CFR Part 15	Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices
RSS - 247 Issue 1	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence - Exempt Local Area Network (LE-LAN) Devices

For further applied test standards please refer to section 3 of this test report.

Test Item

Kind of test item:	**Alarm System**
Model name:	**OUV601**
FCC ID:	**X46UV50**
IC:	**8816A-UV50**
Frequency:	902 MHz to 928 MHz
Technology tested:	Proprietary FHSS system
Antenna:	Integrated antenna
Power supply:	2.8 V to 5.0 V DC by battery
Temperature range:	-25°C to +70°C

This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Test report authorized:

cn=Stefan Boes, o=CETECOM ICT Services GmbH, ou=BOE-111011, email=Stefan.Boes@cetecom.com, c=DE
2016.07.05 10:53:42 +02'00'

Stefan Bös
Lab Manager
Radio Communications & EMC

Test performed:

p.o.

cn=Marco Bertolino, o=CETECOM ICT Services GmbH, ou=BTL-150828, email=marco.bertolino@cetecom.com, c=DE
2016.07.05 11:25:54 +02'00'

David Lang
Lab Manager
Radio Communications & EMC

1 Table of contents

2 General information

2.1 Notes and disclaimer

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This test report replaces the test report with the number 1-1980/16-01-02 and dated 2016-06-30

2.2 Application details

Date of receipt of order:	2016-06-06
Date of receipt of test item:	2016-06-06
Start of test:	2016-06-07
End of test:	2016-06-22
Person(s) present during the test:	-/-

3 Test standard/s and references

Test standard	Date	Description
47 CFR Part 15	-/-	Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices
RSS - 247 Issue 1	May 2015	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence - Exempt Local Area Network (LE-LAN) Devices

Guidance	Version	Description
DTS: KDB 558074 D01	v03r05	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247
ANSI C63.4-2014	-/-	American national standard for methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
ANSI C63.10-2013	-/-	American national standard of procedures for compliance testing of unlicensed wireless devices

4 Test environment

Temperature	:	T_{nom} T_{max} T_{min}	+20 °C during room temperature tests No extreme condition testing performed No extreme condition testing performed
Relative humidity content	:		55 %
Barometric pressure	:		not relevant for this kind of testing
Power supply	:	V_{nom} V_{max} V_{min}	2.8 V to 5.0 V DC by battery No extreme condition testing performed No extreme condition testing performed

5 Test item

5.1 General description

Kind of test item	:	Alarm System
Type identification	:	OUV601
HMN	:	OUV601
PMN	:	OUV601
HVIN	:	OUV601
FVIN	:	-/-
S/N serial number	:	Rad. 8C042116821B0001 Cond. 8C042116821B0002
HW hardware status	:	5CA1273E-0a
SW software status	:	V.05.49.90.73
Frequency band	:	902 MHz to 928 MHz Tested frequencies: 904.5 MHz, 915.3 MHz & 926.1 MHz
Type of radio transmission Use of frequency spectrum	: :	FHSS
Type of modulation	:	GFSK
Number of channels	:	25
Antenna	:	Integrated antenna
Power supply	:	2.8 V to 5.0 V DC by battery
Temperature range	:	-25°C to +70°C

5.2 Additional information

The content of the following annexes is defined in the QA. It may be that not all of the listed annexes are necessary for this report, thus some values in between may be missing.

Test setup- and EUT-photos are included in test report: 1-1980/16-01-01_AnnexA
1-1980/16-01-01_AnnexB
1-1980/16-01-01_AnnexD

6 Test laboratories sub-contracted

None

7 Description of the test setup

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, RF generating and signaling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

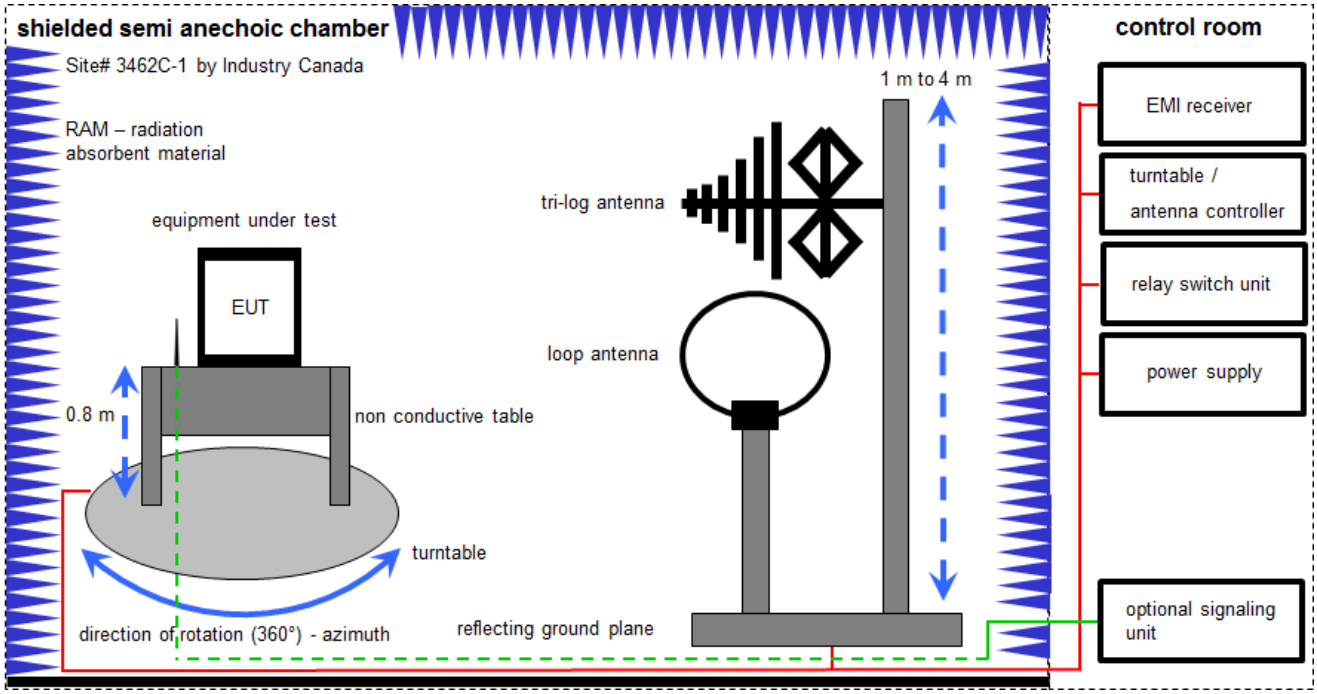
In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Lab/Item).

Agenda: Kind of Calibration

k	calibration / calibrated	EK	limited calibration
ne	not required (k, ev, izw, zw not required)	zw	cyclical maintenance (external cyclical maintenance)
ev	periodic self verification	izw	internal cyclical maintenance
Ve	long-term stability recognized	g	blocked for accredited testing
vlkl!	Attention: extended calibration interval		
NK!	Attention: not calibrated	*)	next calibration ordered / currently in progress

7.1 Shielded semi anechoic chamber

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 1 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are confirmed with specifications ANSI C63. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test setups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received. The wanted and unwanted emissions are received by spectrum analyzers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.



Measurement distance: tri-log & loop antenna 10 meter

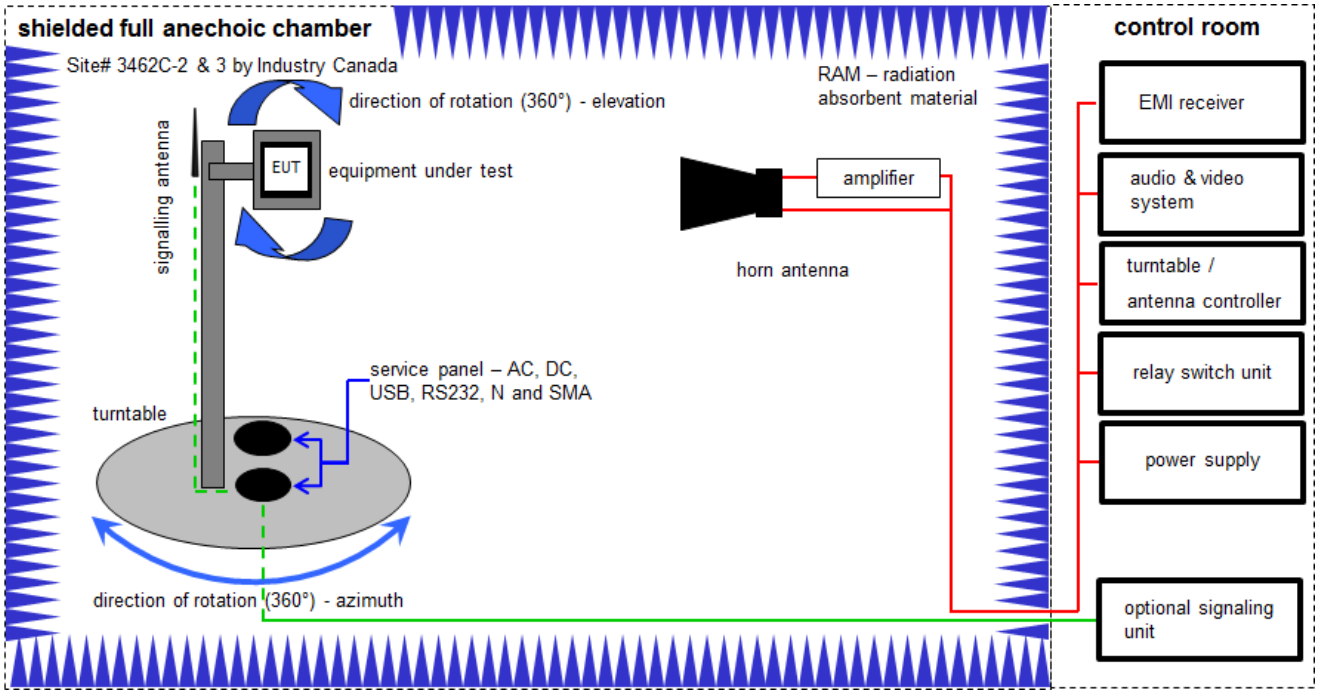
FS = UR + CL + AF
(FS-field strength; UR-voltage at the receiver; CL-loss of the cable; AF-antenna factor)

Example calculation:
FS [dBµV/m] = 12.35 [dBµV/m] + 1.90 [dB] + 16.80 [dB/m] = 31.05 [dBµV/m] (35.69 µV/m)

Equipment table:

No.	Lab / Item	Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	A+B	EMI Test Receiver	ESCI 3	R&S	100083	300003312	k	08.03.2016	08.03.2017
2	A	Antenna Tower	Model 2175	ETS-Lindgren	64762	300003745	izw	-/-	-/-
3	A+B	Positioning Controller	Model 2090	ETS-Lindgren	64672	300003746	izw	-/-	-/-
4	A+B	Turntable Interface-Box	Model 105637	ETS-Lindgren	44583	300003747	izw	-/-	-/-
5	A	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787	k	25.04.2016	25.04.2018
6	A+B	EMI Test Receiver	ESCI 3	R&S	100083	300003312	k	08.03.2016	08.03.2017
7	B	Active Loop Antenna 10 kHz to 30 MHz	6502	EMCO/2	8905-2342	300000256	k	24.06.2015	24.06.2017

7.2 Shielded fully anechoic chamber



Measurement distance: horn antenna 3 meter

FS = UR + CA + AF
(FS-field strength; UR-voltage at the receiver; CA-loss of the signal path; AF-antenna factor)

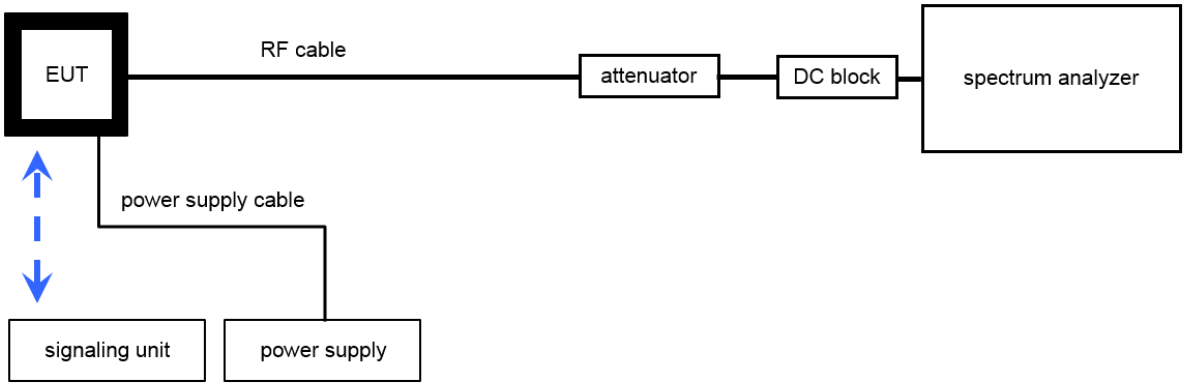
Example calculation:
FS [dBµV/m] = 40.0 [dBµV/m] + (-35.8) [dB] + 32.9 [dB/m] = 37.1 [dBµV/m] (71.61 µV/m)

Equipment table:

No.	Lab / Item	Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	A	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vIKI!	20.05.2015	20.05.2017
2	A	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev	-/-	-/-
3	A	Switch / Control Unit	3488A	HP	*	300000199	ne	-/-	-/-
4	A	Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143	ne	-/-	-/-
5	A	Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789	ne	-/-	-/-
6	A	4U RF Switch Platform	L4491A	Agilent Technologies	MY50000037	300004509	ne	-/-	-/-
7	A	EMI Test Receiver 9kHz-26,5GHz	ESR26	R&S	101376	300005063	k	04.09.2015	04.09.2016

7.3 Conducted measurements

Conducted measurements normal conditions



OP = AV + CA
(OP-output power; AV-analyzer value; CA-loss signal path)

Example calculation:
OP [dBm] = 6.0 [dBm] + 11.7 [dB] = 17.7 [dBm] (58.88 mW)

Equipment table:

No.	Lab / Item	Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	A	Signal Analyzer 40 GHz	FSV40	R&S	101353	300004819	k	24.08.2015	24.08.2016
2	A	RF-Cable WLAN-	ST18/SMAm/SMAm/48	Huber & Suhner	Batch no. 54877	400001217	ev	-/-	-/-

8 Sequence of testing

8.1 Sequence of testing radiated spurious 9 kHz to 30 MHz

Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- If the EUT is a tabletop system, a 2-axis positioner with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed directly on the turn table.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measurement distance is 3 m (see ANSI C 63.4) – see test details.
- EUT is set into operation.

Premeasurement

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna height is 1.5 m.
- At each turntable position the analyzer sweeps with positive-peak detector to find the maximum of all emissions.

Final measurement

- Identified emissions during the premeasurement are maximized by the software by rotating the turntable from 0° to 360°. In case of the 2-axis positioner is used the elevation axis is also rotated from 0° to 360°.
- The final measurement is done in the position (turntable and elevation) causing the highest emissions with quasi-peak (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. A plot with the graph of the premeasurement and the limit is stored.

8.2 Sequence of testing radiated spurious 30 MHz to 1 GHz

Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measurement distance is 10 m or 3 m (see ANSI C 63.4) – see test details.
- EUT is set into operation.

Premeasurement

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height changes from 1 m to 3 m.
- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement

- The final measurement is performed for at least six highest peaks according to the requirements of the ANSI C63.4.
- Based on antenna and turntable positions at which the peak values are measured the software maximize the peaks by changing turntable position ± 45° and antenna height between 1 and 4 m.
- The final measurement is done with quasi-peak detector (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit are recorded. A plot with the graph of the premeasurement with marked maximum final results and the limit is stored.

8.3 Sequence of testing radiated spurious 1 GHz to 18 GHz

Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- If the EUT is a tabletop system, a 2-axis positioner with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed directly on the turn table.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measurement distance is 3 m (see ANSI C 63.4) – see test details.
- EUT is set into operation.

Premeasurement

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height is 1.5 m.
- At each turntable position and antenna polarization the analyzer sweeps with positive peak detector to find the maximum of all emissions.

Final measurement

- The final measurement is performed for at least six highest peaks according to the requirements of the ANSI C63.4.
- Based on antenna and turntable positions at which the peak values are measured the software maximizes the peaks by rotating the turntable from 0° to 360°. This measurement is repeated for different EUT-table positions (0° to 150° in 30°-steps) and for both antenna polarizations.
- The final measurement is done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and RMS detector (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit are recorded. A plot with the graph of the premeasurement with marked maximum final results and the limit is stored.

9 Measurement uncertainty

Measurement uncertainty	
Test case	**Uncertainty**
Antenna gain	± 3 dB
Carrier frequency separation	± 21.5 kHz
Number of hopping channels	-/-
Time of occupancy	According BT Core specification
Spectrum bandwidth	± 21.5 kHz absolute; ± 15.0 kHz relative
Maximum output power	± 1 dB
Detailed conducted spurious emissions @ the band edge	± 1 dB
Band edge compliance radiated	± 3 dB
Spurious emissions conducted	± 3 dB
Spurious emissions radiated below 30 MHz	± 3 dB
Spurious emissions radiated 30 MHz to 1 GHz	± 3 dB
Spurious emissions radiated 1 GHz to 12.75 GHz	± 3.7 dB
Spurious emissions radiated above 12.75 GHz	± 4.5 dB
Spurious emissions conducted below 30 MHz (AC conducted)	± 2.6 dB

10 Summary of measurement results

☒	No deviations from the technical specifications were ascertained
☐	There were deviations from the technical specifications ascertained
☐	This test report is only a partial test report. The content and verdict of the performed test cases are listed below.

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	CFR Part 15 RSS - 247, Issue 1	See table!	2016-07-05	-/-

Test specification clause	Test case	Temperature conditions	Power source voltages	Mode	C	NC	NA	NP	Remark
§15.247(b)(4) RSS - 247 / 5.4 (2)	Antenna gain	Nominal	Nominal	GFSK	☒	☐	☐	☐	-/-
§15.247(a)(1) RSS - 247 / 5.1 (2)	Carrier frequency separation	Nominal	Nominal	GFSK	☒	☐	☐	☐	-/-
§15.247(a)(1) RSS - 247 / 5.1 (4)	Number of hopping channels	Nominal	Nominal	GFSK	☒	☐	☐	☐	-/-
§15.247(a)(1) (iii) RSS - 247 / 5.1 (4)	Time of occupancy (dwell time)	Nominal	Nominal	GFSK	☒	☐	☐	☐	-/-
§15.247(a)(1) RSS - 247 / 5.1 (1)	Spectrum bandwidth of a FHSS system bandwidth	Nominal	Nominal	GFSK	☒ ☒ ☒	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	-/-
§15.247(b)(1) RSS - 247 / 5.4 (2)	Maximum output power	Nominal	Nominal	GFSK	☒ ☒ ☒	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	-/-
§15.247(d) RSS - 247 / 5.5	Detailed spurious emissions @ the band edge - conducted	Nominal	Nominal	GFSK	☒ ☒ ☒	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	-/-
§15.205 RSS - 247 / 5.5 RSS - Gen	Band edge compliance radiated	Nominal	Nominal	GFSK	☒ ☒ ☒	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	-/-
§15.247(d) RSS - 247 / 5.5	Spurious emissions conducted	Nominal	Nominal	GFSK	☒ ☒ ☒	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	-/-
§15.209(a) RSS - Gen	Spurious emissions radiated below 30 MHz	Nominal	Nominal	GFSK	☒	☐	☐	☐	-/-
§15.247(d) RSS - 247 / 5.5 §15.109 RSS - Gen	Spurious emissions radiated 30 MHz to 1 GHz	Nominal	Nominal	GFSK RX mode	☒	☐	☐	☐	-/-
§15.247(d) RSS - 247 / 5.5 §15.109 RSS - Gen	Spurious emissions radiated above 1 GHz	Nominal	Nominal	GFSK RX mode	☒	☐	☐	☐	-/-
§15.107(a) §15.207	Conducted emissions below 30 MHz (AC conducted)	Nominal	Nominal	GFSK	☒	☐	☐	☐	-/-

Note: C = Compliant; NC = Not compliant; NA = Not applicable; NP = Not performed

11 Additional comments

Reference documents:	Customer Questionnaire 2016-06-13	
Special test descriptions:	None	
Configuration descriptions:	None	
Test mode:	☒	Special software is used. EUT is transmitting pseudo random data by itself

12 RF measurements

13 Measurement results

13.1 Antenna gain

The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module.

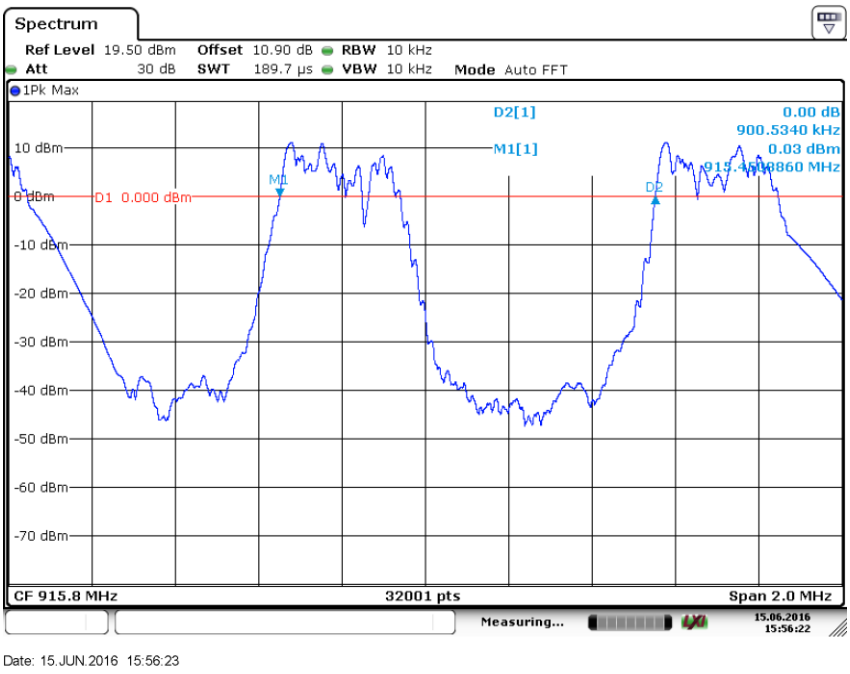
	Low channel 904.5 MHz	Middle channel 915.3 MHz	High channel 926.1 MHz
Conducted power [dBm]	16.92	16.80	16.67
Radiated power [dBm]	15.04	12.59	11.90
Gain [dBi] Calculated	-1.88	-4.21	-4.77

Limits:

FCC	IC
Antenna gain	
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	

13.2 Carrier Frequency Separation

Plot 1:

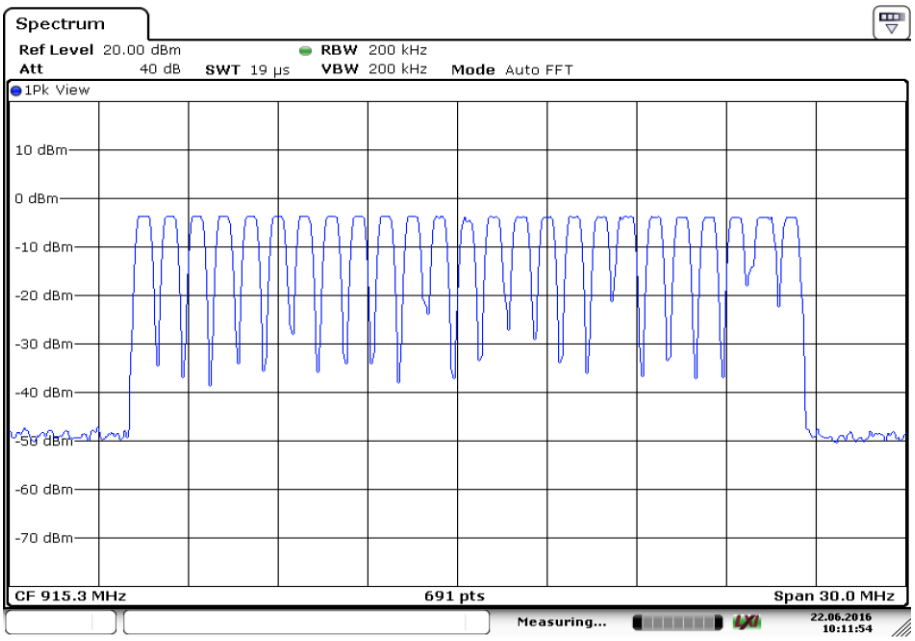


Result: The channel separation is: 900.5 kHz

Limits:

FCC	IC
Carrier Frequency Separation	
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.	

13.3 Number of Hopping Channels



Plot 1:

Result: The number of hopping channels is: 25

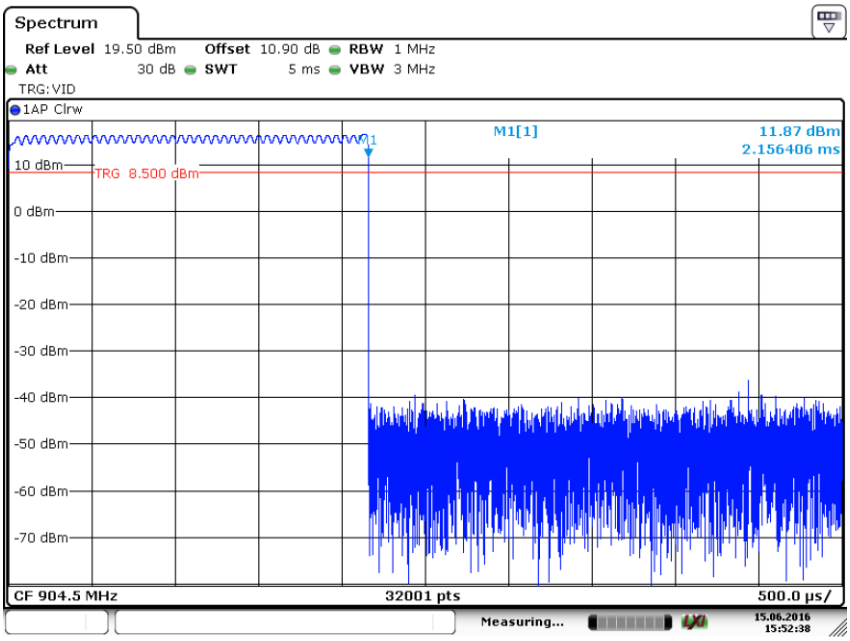
Limits:

FCC	IC
Number of Hopping Channels	
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 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.	

13.4 Average Time of Occupancy

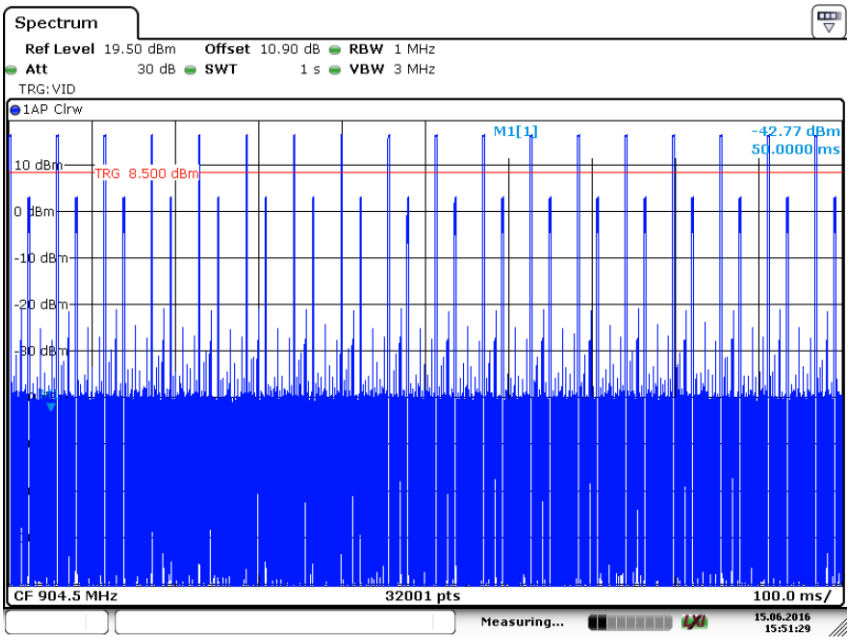
Plots:

Plot 1: Time slot length = 2.156 ms



Date: 15.JUN.2016 15:52:39

Plot 2: hops / channel @ 1s = 18



Date: 15.JUN.2016 15:51:30

Result: The time slot length is = 2.156 ms
Number of hops / channel @ 1s = 18

Within 10 s period, the average time of occupancy = 10 s * 18 * 2.156 ms

→ The average time of occupancy = 388.08 ms

Limits:

FCC	IC
Average time of occupancy	
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 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 10 second period.	

13.5 20 dB Bandwidth

Description:

Measurement of the 20 dB bandwidth of the modulated signal.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	10 kHz
Resolution bandwidth:	30 kHz
Span:	See plots
Trace-Mode:	Max Hold

Result:

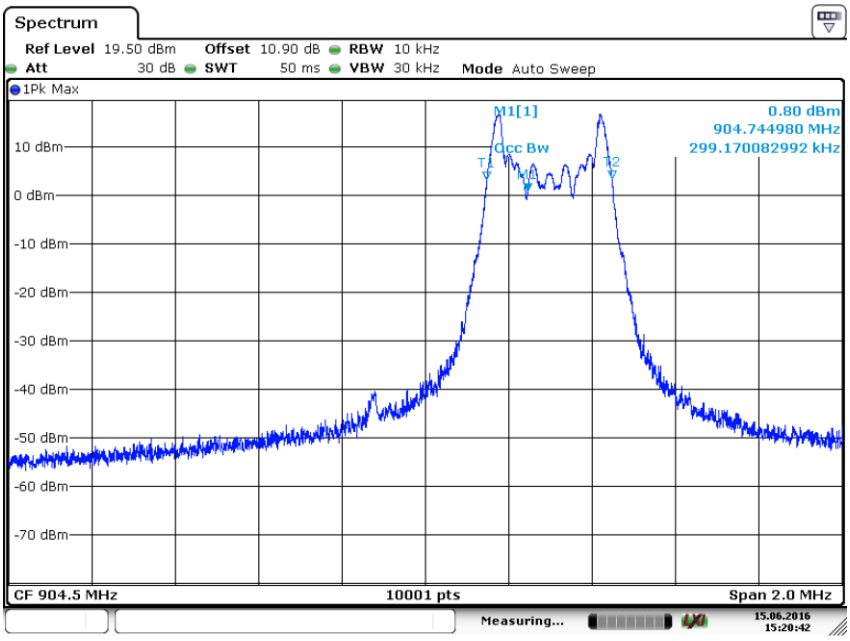
Test Conditions		20dB BANDWIDTH [kHz]		
		904.5 MHz	915.3 MHz	926.1 MHz
T_{nom}	V_{nom}	299.17	301.62	296.80

Limits:

FCC	IC
20dB Bandwidth	
The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.	

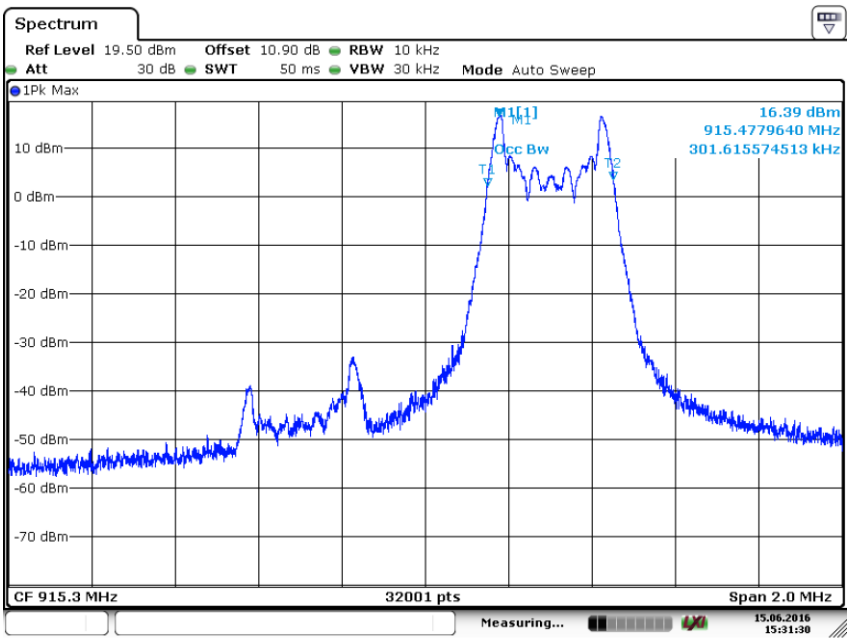
Plots:

Plot 1: Low Channel



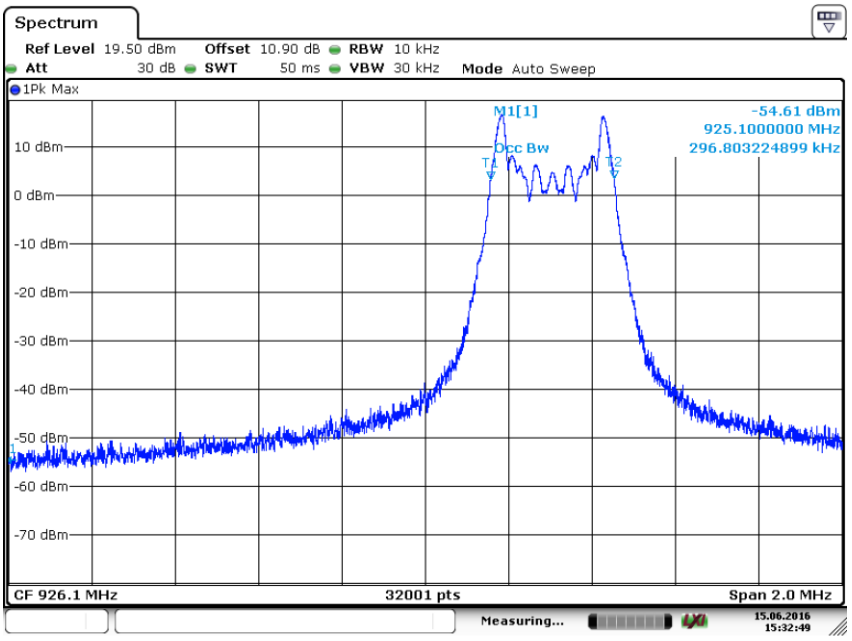
Date: 15.JUN.2016 15:20:42

Plot 2: Middle Channel



Date: 15.JUN.2016 15:31:30

Plot 3: High Channel



Date: 15.JUN.2016 15:32:49

13.6 Maximum Output Power Radiated

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	3 MHz
Video bandwidth:	10 MHz
Span:	5 MHz
Trace-Mode:	Max Hold

Result:

Test Conditions		EIRP [dBm]		
		904.5 MHz	915.3 MHz	926.1 MHz
T_{nom}	V_{nom}	15.0	12.6	11.9

Limits:

FCC	IC
EIRP	
For frequency hopping systems operating in the 902–928 MHz band: 1 watt (30 dBm) for systems employing at least 50 hopping channels; and, 0.25 watts (24 dBm) for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.	

13.7 Maximum Output Power Conducted

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	3 MHz
Video bandwidth:	10 MHz
Span:	See plot
Trace-Mode:	Max Hold

Result:

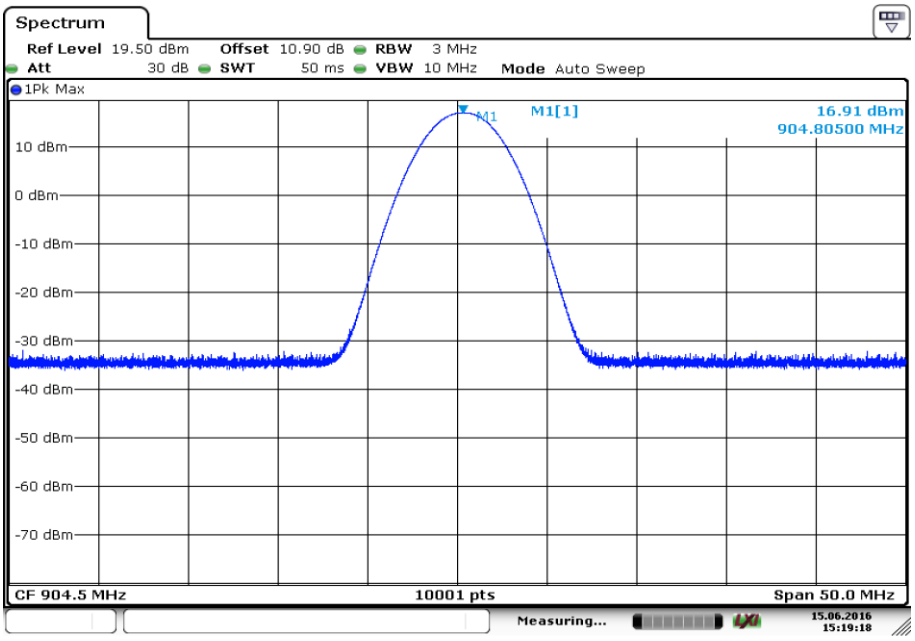
Test Conditions		Maximum Output Power Conducted [dBm]		
		904.5 MHz	915.3 MHz	926.1 MHz
T_{nom}	V_{nom}	16.9	16.8	16.7

Limits:

FCC	IC
Maximum Output Power Conducted	
For frequency hopping systems operating in the 902–928 MHz band: 1 watt (30 dBm) for systems employing at least 50 hopping channels; and, 0.25 watts (24 dBm) for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.	

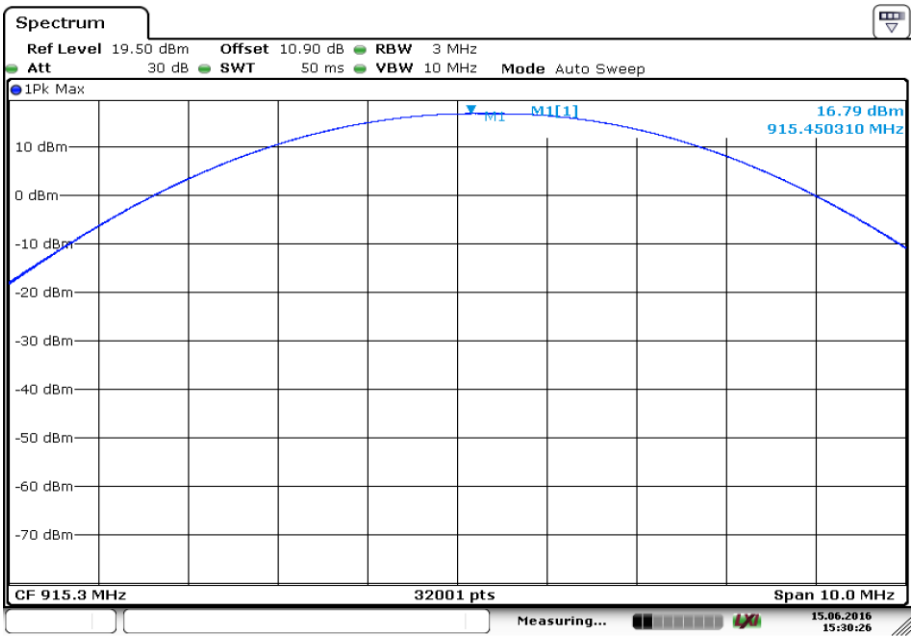
Plots:

Plot 1: Low Channel



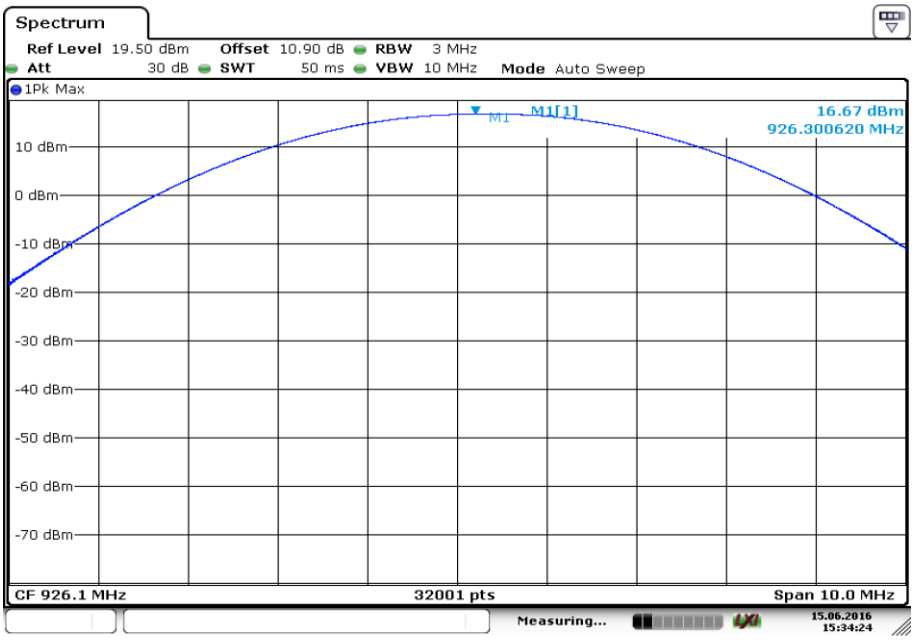
Date: 15.JUN.2016 15:19:18

Plot 2: Middle Channel



Date: 15.JUN.2016 15:30:26

Plot 3: High Channel



Date: 15.JUN.2016 15:34:25

13.8 Band-edge Compliance of conducted and radiated emissions

No restricted band in the range ± 2 channel bandwidths of the Band-edges of the specified emission band! (608 MHz – 614 MHz and 960 MHz – 1240 MHz).

Section 15.205 Restricted bands of operation.

(a) Except as shown in paragraph (d) of this section, 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			

Limits:

FCC	IC
Band-edge Compliance of conducted and radiated emissions	
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)).	

Result: See Results of spurious emissions conducted and radiated.

13.9 Spurious Emissions Conducted (Transmitter)

Description:

Measurement of the conducted spurious emissions in transmit mode. The measurement is performed at channel 00, 12 and 24.

Measurement:

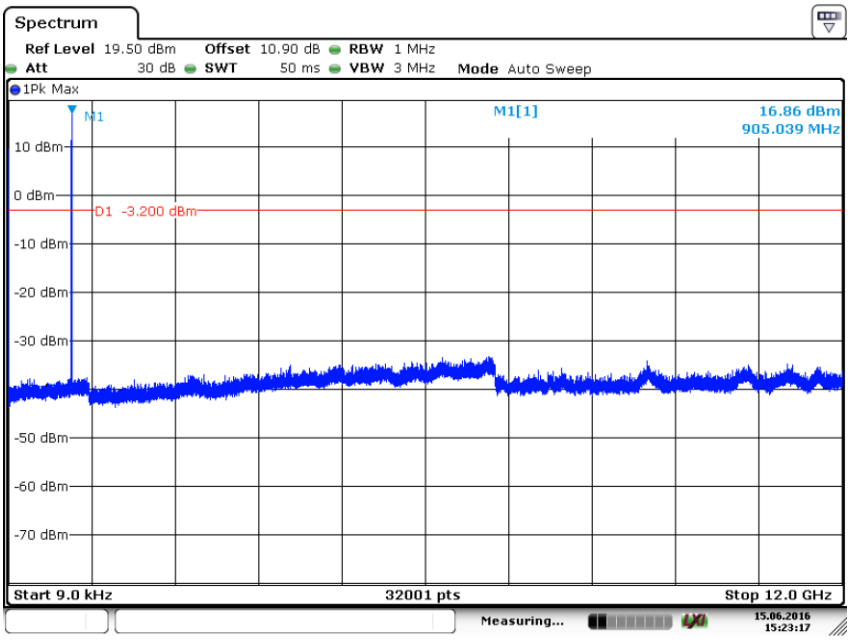
Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	F < 1 GHz: 1 MHz F > 1 GHz: 1 MHz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 100 kHz
Span:	9 kHz to 12.75 GHz
Trace-Mode:	Max Hold

Limits:

FCC	IC
Spurious emissions conducted	
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)).	

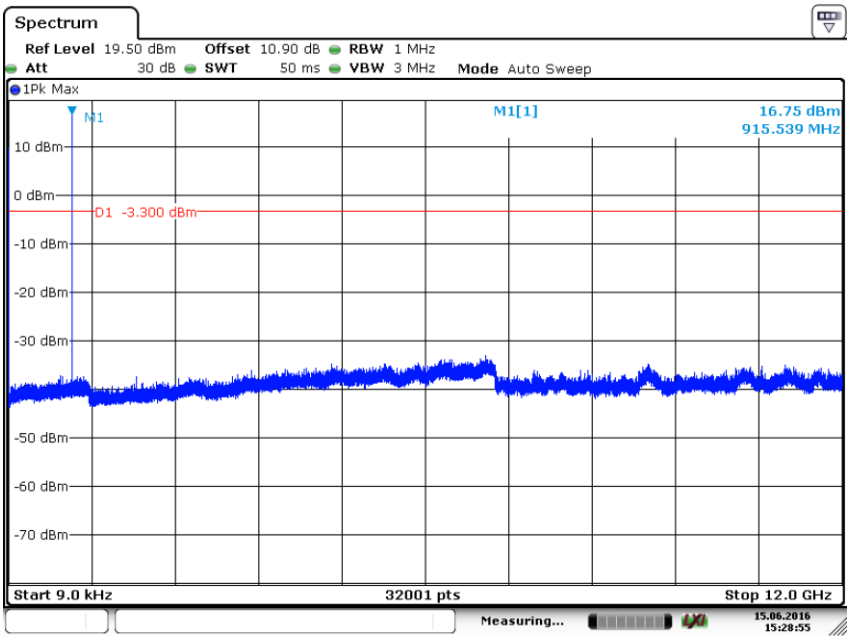
Plots:

Plot 1: Low channel



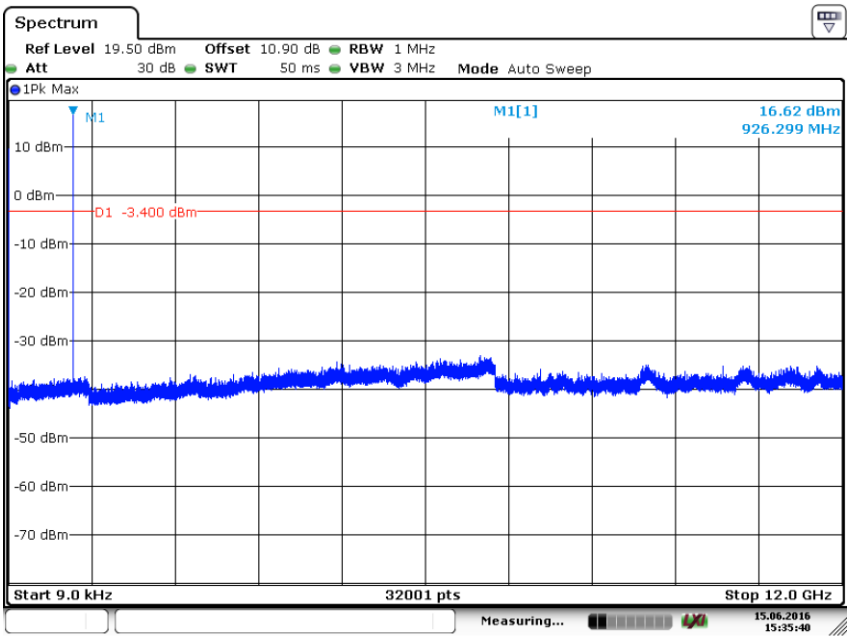
Date: 15.JUN.2016 15:23:18

Plot 2: Middle channel



Date: 15.JUN.2016 15:28:55

Plot 3: High channel



Result:

Emission Limitation					
Frequency [MHz]		Amplitude of emission [dBm]	Limit max. allowed emission power	actual attenuation below frequency of operation [dB]	Results
904.5		16.9	24 dBm	-/-	Operating frequency
No peaks detected! All detected emissions are more than 20 dB below the limit!			-20 dBc		
915.3		16.8	24 dBm	-/-	Operating frequency
No peaks detected! All detected emissions are more than 20 dB below the limit!			-20 dBc		
926.1		16.62	24 dBm	-/-	Operating frequency
No peaks detected! All detected emissions are more than 20 dB below the limit!			-20 dBc		
Measurement uncertainty		± 3dB			

Limits:

FCC	IC
Spurious emissions conducted	
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)).	

13.10 Spurious Emissions Radiated < 30 MHz

Description:

Measurement of the radiated spurious emissions in transmit mode below 30 MHz. The EUT is set to channel 12. This measurement is representative for all channels and modes. If any peaks are found channel 00 and channel 24 will be measured too. The limits are recalculated to a measurement distance of 3 m with 40 dB/decade according CFR Part 2.

Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	F < 150 kHz: 200 Hz F > 150 kHz: 9 kHz
Resolution bandwidth:	F < 150 kHz: 1 kHz F > 150 kHz: 100 kHz
Span:	9 kHz to 30 MHz
Trace-Mode:	Max Hold

Limits:

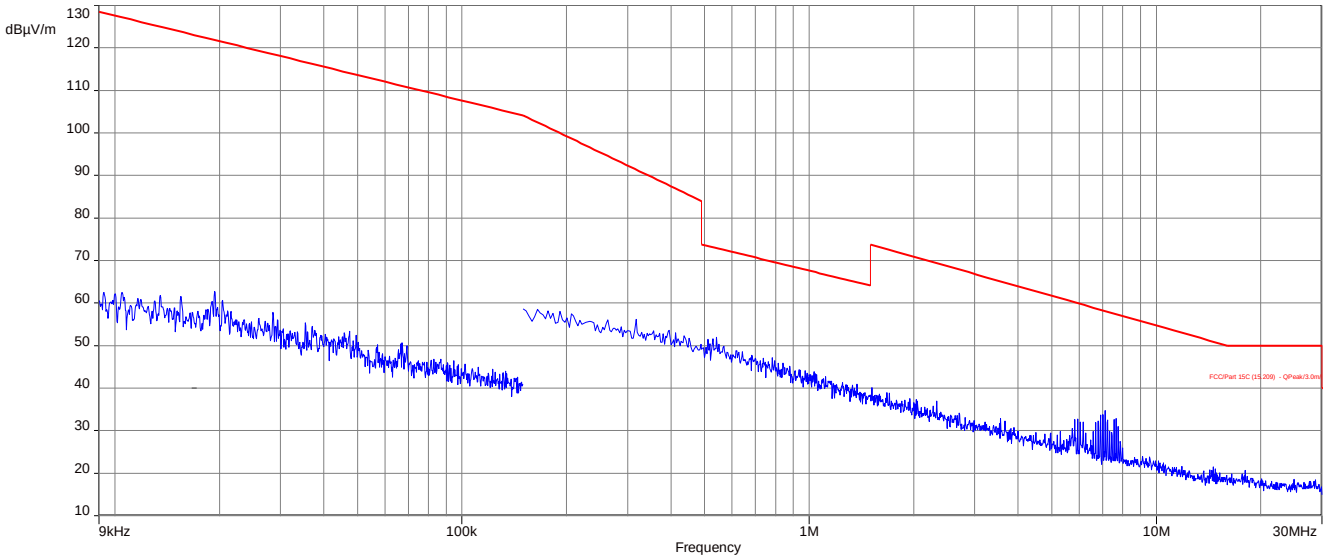
FCC		IC
TX spurious emissions radiated < 30 MHz		
Frequency (MHz)	Field strength (dBµV/m)	Measurement distance
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Results:

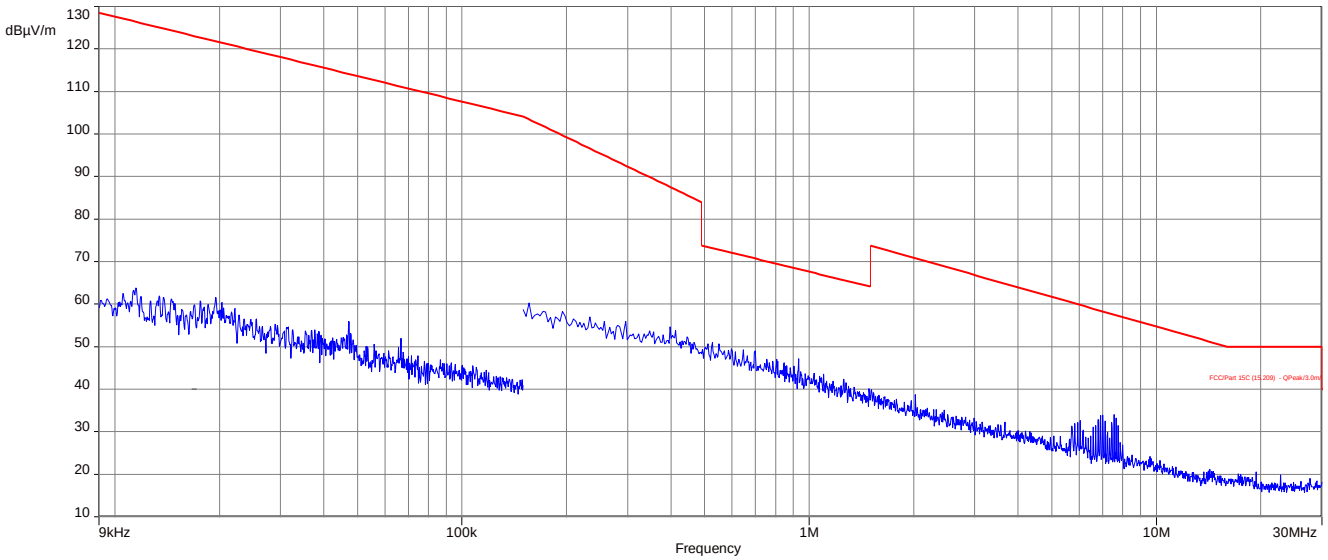
TX Spurious Emissions Radiated < 30 MHz [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
All detected peaks are more than 20 dB below the limit.		

Plots:

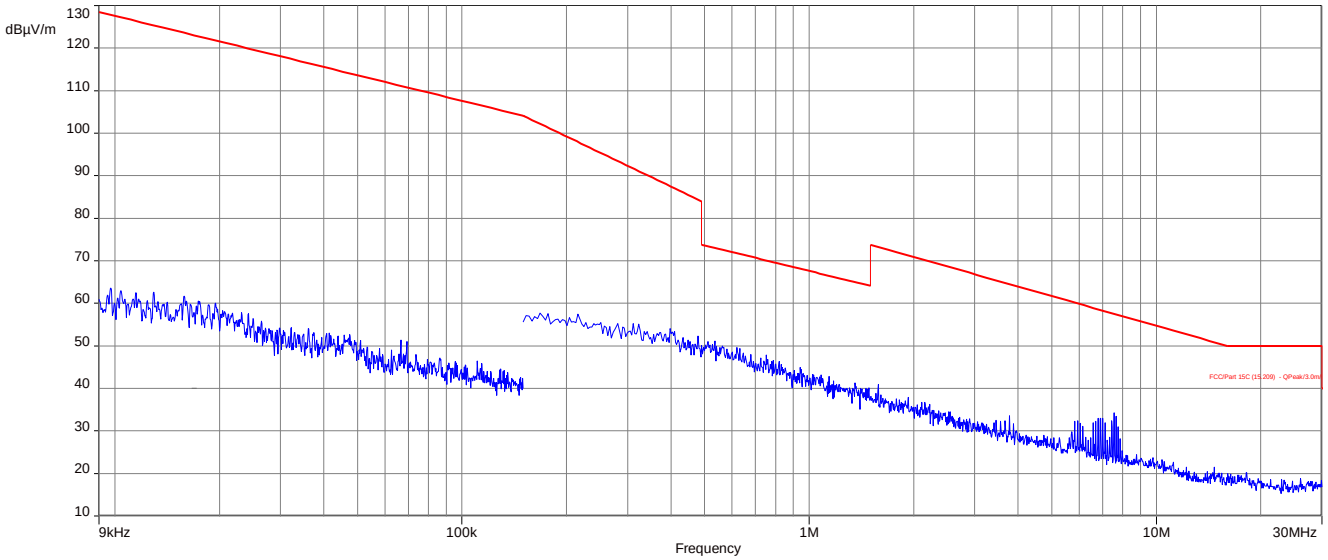
Plot 1: TX-Mode – low channel



Plot 2: TX-Mode – mid channel



Plot 3: TX-Mode – high channel



13.11 Spurious Emissions Radiated (Transmitter) > 30 MHz

Description:

Measurement of the radiated spurious emissions in transmit mode. The measurement is performed at channel 00, 12 and 24.

Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	3 x RBW Remeasurement: 10 Hz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Span:	30 MHz to 25 GHz
Trace-Mode:	Max Hold
Measured Modulation	FSK

Limits:

ANSI C63.10 – FCC Public Notice DA 00-705
The average emission shall be determined by using Video averaging (VBW = 10 Hz). If the dwell time of the hopping signal is less than 100 ms (per channel), the VBW=10 Hz reading may be adjusted by a factor: F = 20log (dwell time/100 ms)

FCC		IC
Band-edge Compliance of conducted and radiated emissions		
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)).		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

Note: The limit was recalculated with 20 dB / decade (Part 15.31) for all radiated spurious emissions 30 MHz to 1 GHz from 3 meter limit to a 10 meter distance. (40dB/decade for emissions < 30MHz)

Results:

For radiated spurious emission the limits of 15.209 applies for all frequencies mentioned in 15.205. According to FCC Public Notice DA 00-705 (ANSI C63.10) the average emission shall be determined by using Video averaging (VBW = 10 Hz). If the dwell time of the hopping signal is less than 100 ms (per channel), the VBW=10 Hz reading may be adjusted by a factor:

F = 20*log (dwell time/100 ms)

In a period of 100 ms, we have a maximum of 2 transmissions and that gives the correction factor for spurious measurement.

F = 20*log (2*2.156/100) = -27.3 dB

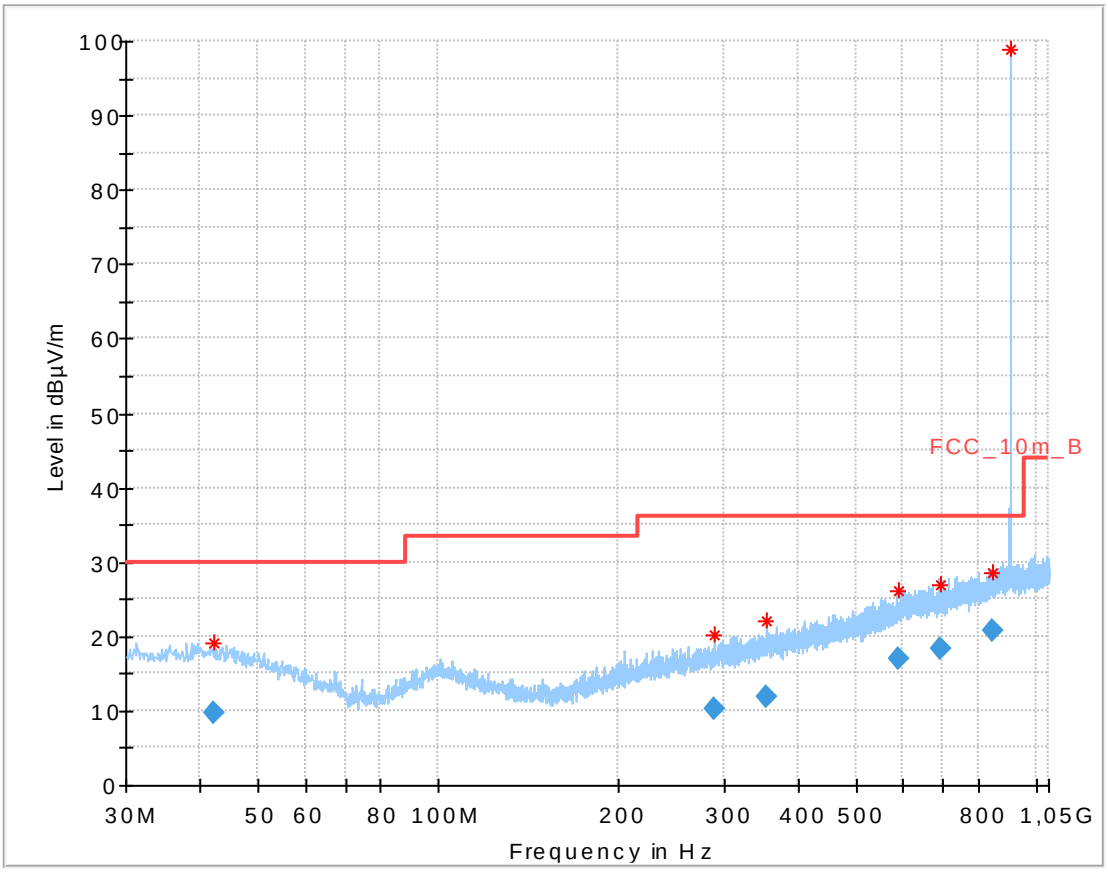
For timing plots see Plot 7 & 8 below.

SPURIOUS EMISSIONS LEVEL [dBµV/m]								
904.5 MHz			915.3 MHz			926.1 MHz		
Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz see result table below plots.								
1808.8	Peak	64.7	1830.7	Peak	66.4	1851.9	Peak	66.3
1808.8	AVG	37.4	1830.7	AVG	39.1	1851.9	AVG	39.0
2713.5	Peak	69.1	2745.9	Peak	69.3	2778.3	Peak	68.8
2713.5	AVG	41.8	2745.9	AVG	42.0	2788.3	AVG	41.5
3618.0	Peak	65.2	3661.2	Peak	64.9	3704.4	Peak	64.8
3618.0	AVG	37.9	3661.2	AVG	41.2	3704.4	AVG	37.5
4522.5	Peak	58.3	4576.5	Peak	46.1	4630.5	Peak	56.1
4522.5	AVG	31.0	4576.5	AVG	18.8	4630.5	AVG	28.8
Measurement uncertainty			±3 dB					

***AVG:** Detector Average corrected with the correction factor F = -27.2 dB

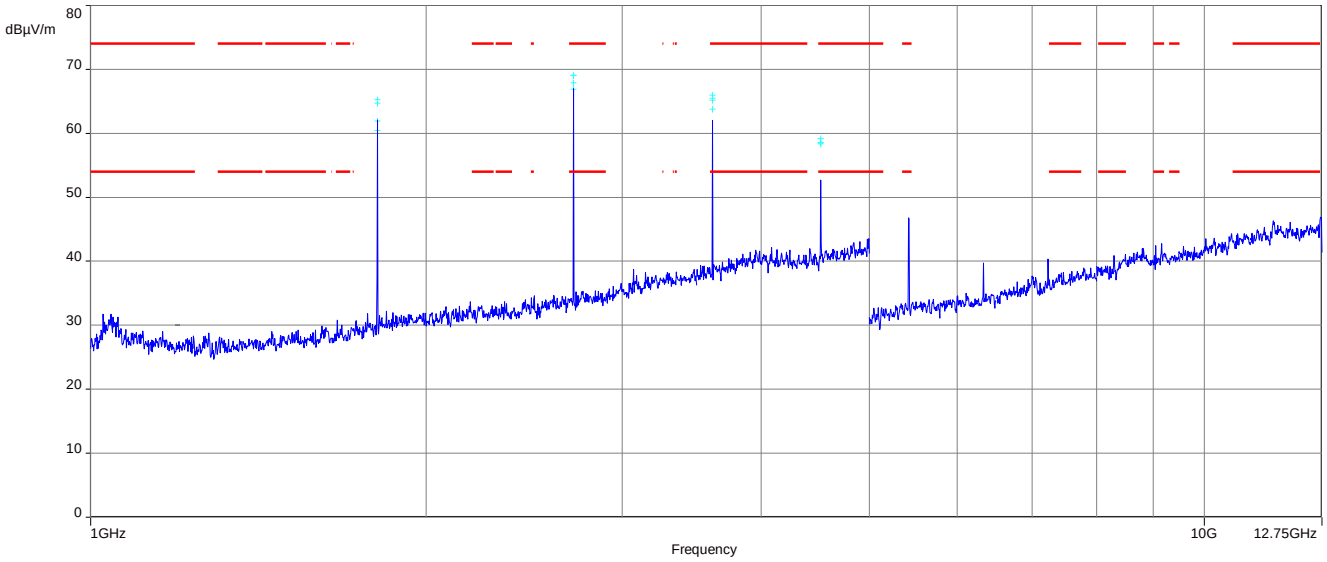
Plots:

Plot 1: 30 MHz – 1 GHz, horizontal & vertical polarisation (lowest channel)

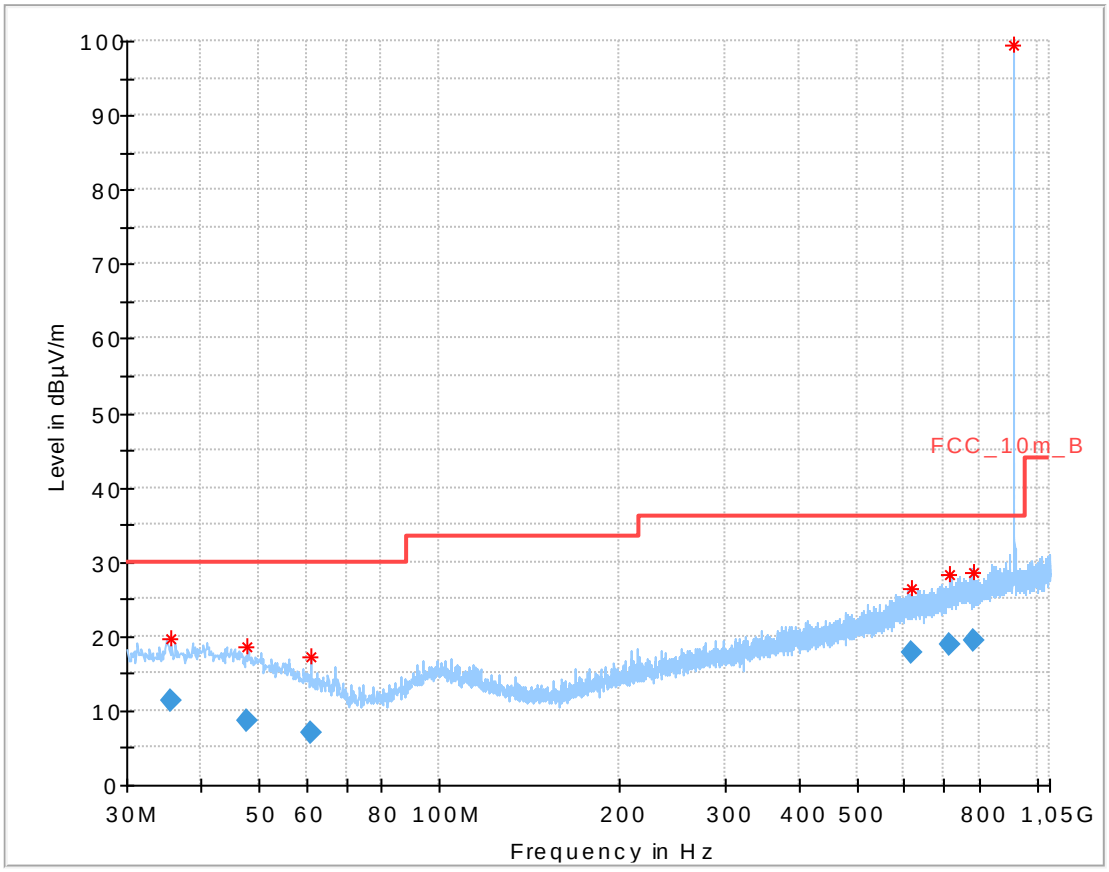


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
42.084900	9.69	30.00	20.31	1000.0	120.000	400.0	H	29.0	14.0
290.591100	10.12	36.00	25.88	1000.0	120.000	349.0	H	5.0	14.2
354.590400	11.75	36.00	24.25	1000.0	120.000	173.0	H	143.0	16.1
591.057900	16.87	36.00	19.13	1000.0	120.000	102.0	H	252.0	20.5
690.106350	18.44	36.00	17.56	1000.0	120.000	98.0	V	50.0	21.4
844.082550	20.85	36.00	15.15	1000.0	120.000	98.0	H	5.0	23.4

Plot 2: 1 GHz – 12.75 GHz, horizontal & vertical polarisation (lowest channel)

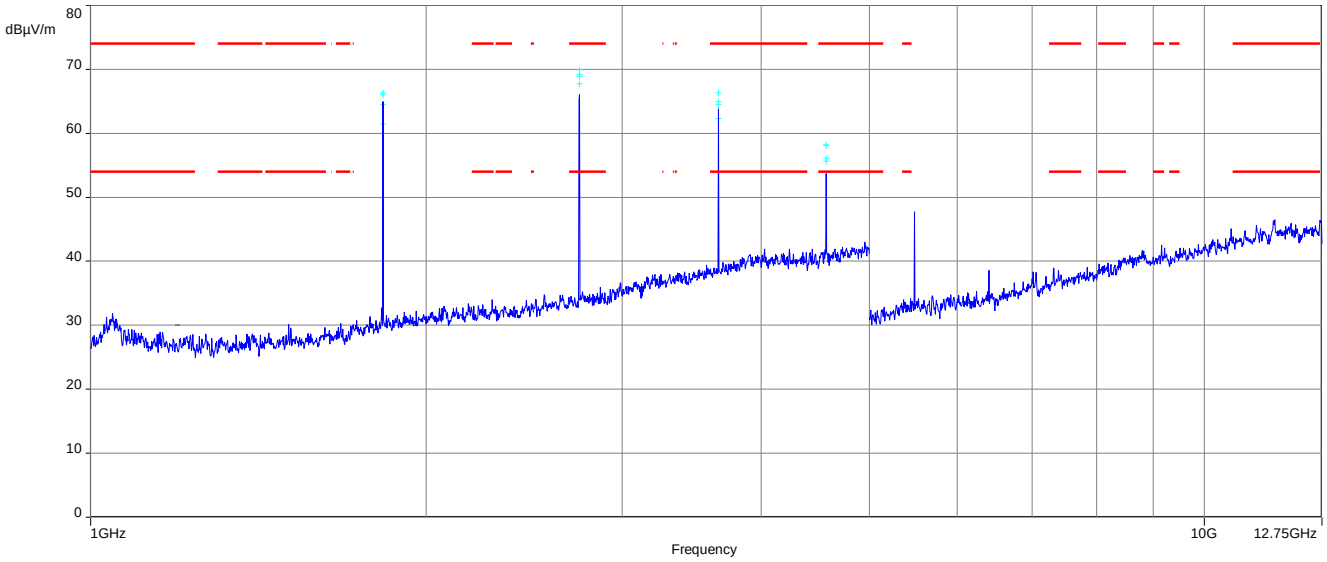


Plot 3: 30 MHz – 1 GHz, horizontal & vertical polarisation (middle channel)

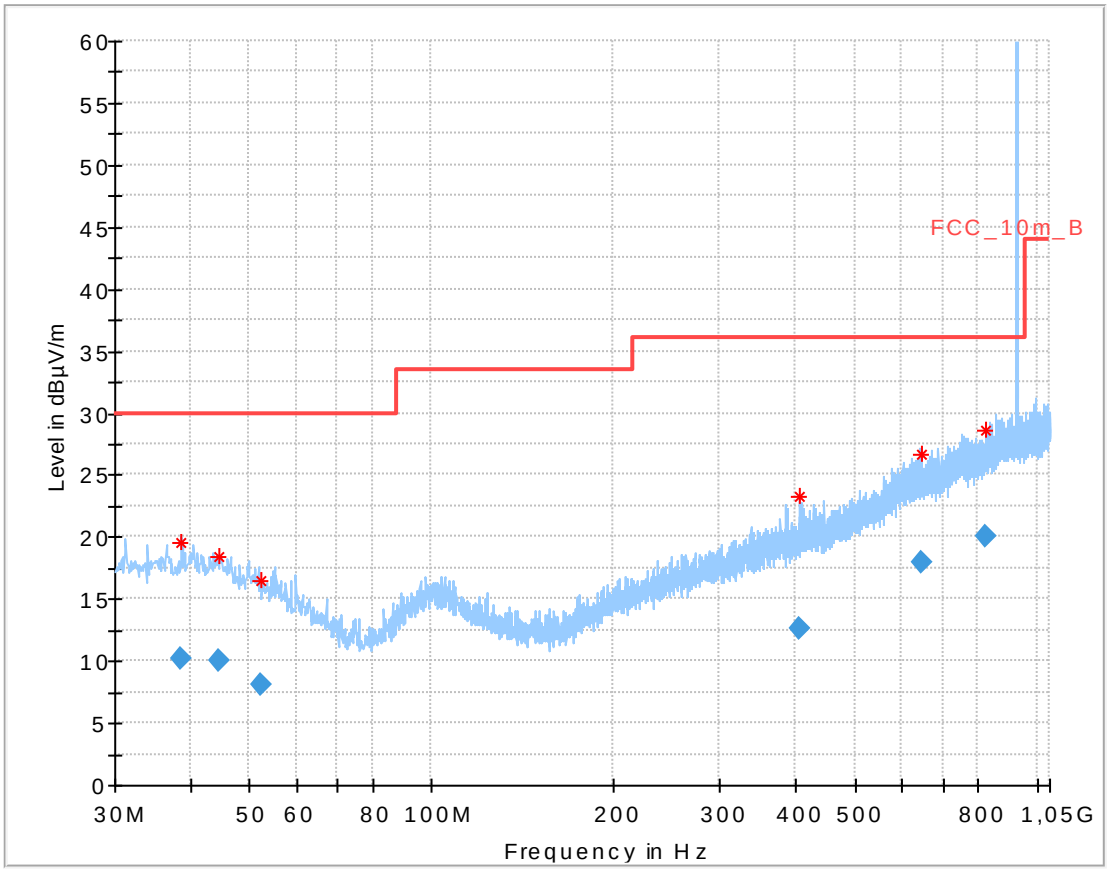


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.520000	11.29	30.00	18.71	1000.0	120.000	172.0	V	175.0	13.8
47.596350	8.73	30.00	21.27	1000.0	120.000	400.0	V	97.0	13.2
60.839700	6.90	30.00	23.10	1000.0	120.000	274.0	V	320.0	10.4
615.831600	17.75	36.00	18.25	1000.0	120.000	400.0	H	276.0	20.8
715.697400	18.85	36.00	17.15	1000.0	120.000	400.0	V	-13.0	21.9
781.760850	19.54	36.00	16.46	1000.0	120.000	200.0	H	320.0	22.7

Plot 4: 1 GHz – 12.75 GHz, horizontal & vertical polarisation (middle channel)

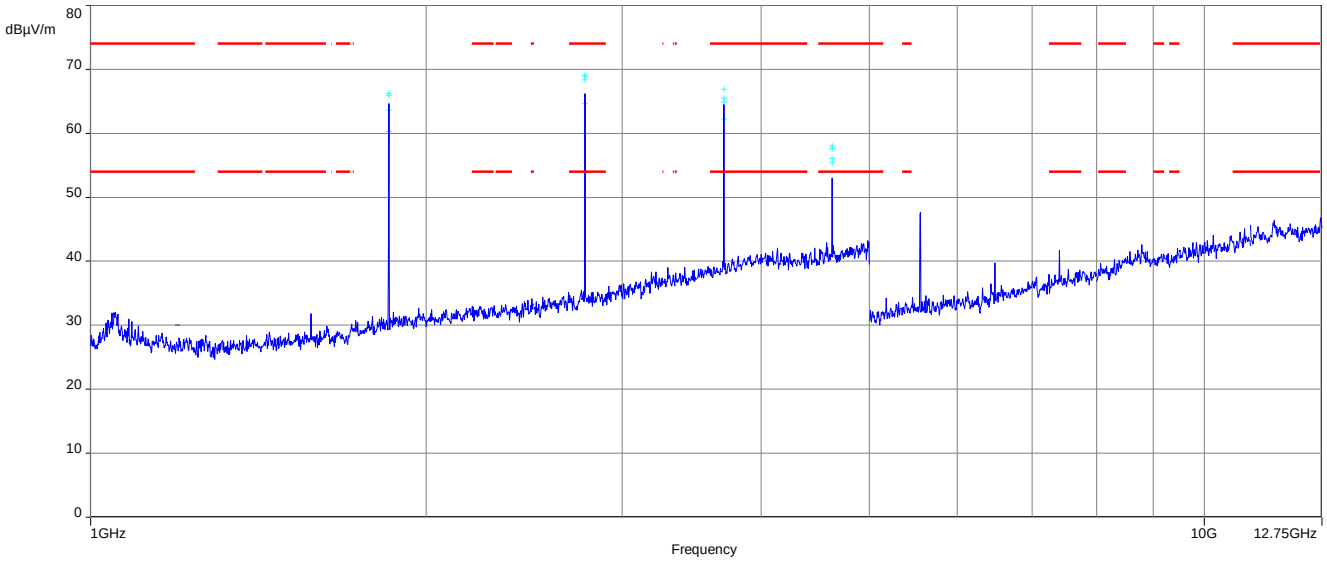


Plot 5: 30 MHz – 1 GHz, horizontal & vertical polarisation (highest channel)

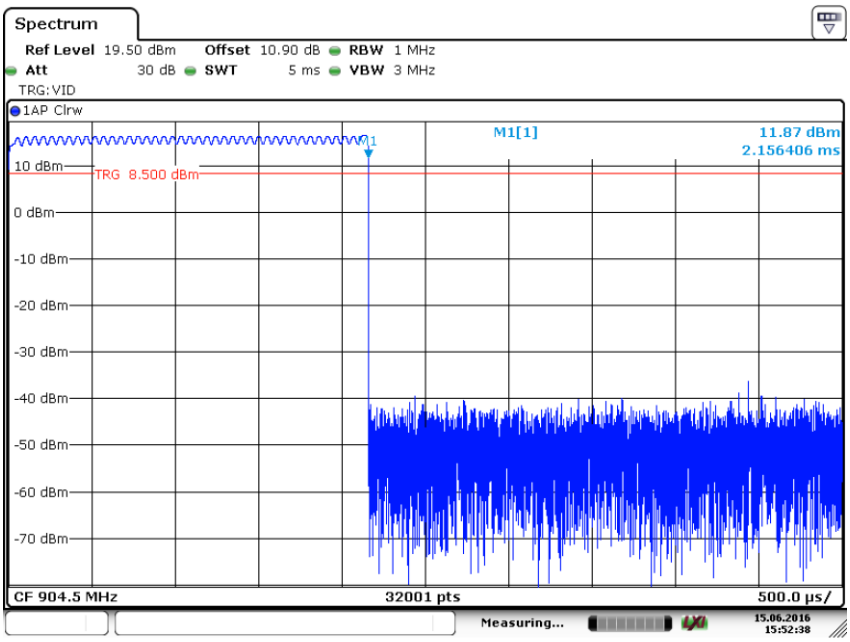


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.698050	10.24	30.00	19.76	1000.0	120.000	175.0	H	95.0	14.0
44.535000	10.08	30.00	19.92	1000.0	120.000	200.0	V	117.0	13.9
52.123350	8.16	30.00	21.84	1000.0	120.000	274.0	V	188.0	12.3
404.120100	12.61	36.00	23.39	1000.0	120.000	103.0	V	275.0	16.9
643.399350	17.93	36.00	18.07	1000.0	120.000	400.0	H	-5.0	21.1
823.065600	19.99	36.00	16.01	1000.0	120.000	400.0	H	71.0	23.1

Plot 6: 1 GHz – 12.75 GHz, horizontal & vertical polarisation (highest channel)



Plot 7: Time slot length = 2.156 ms



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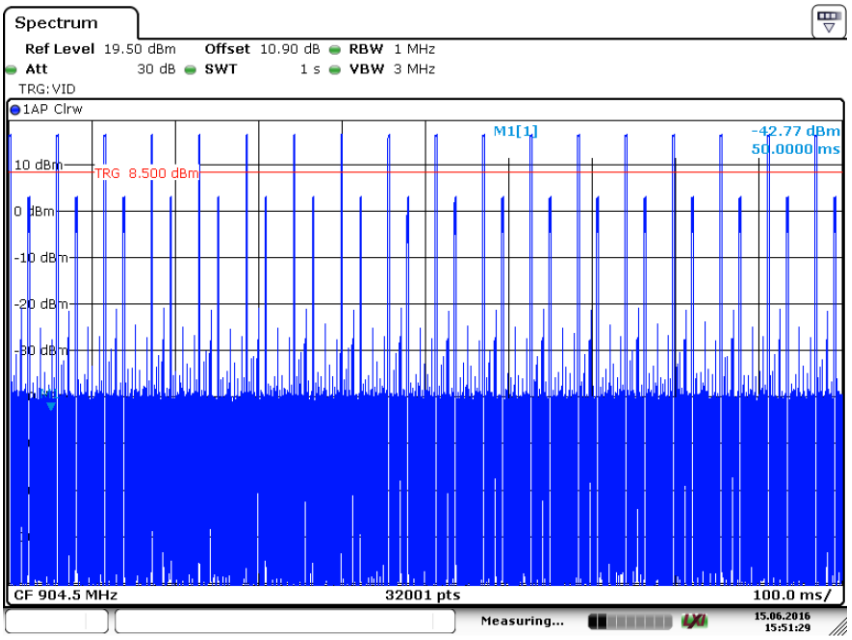
Plot 8: Number of hopping channels in 1s = 18



13.12 RX spurious emissions radiated

Description:

Measurement of the radiated spurious emissions in idle/receive mode.

Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	3 x RBW Remeasurement: 10 Hz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Span:	30 MHz to 26 GHz
Trace-Mode:	Max Hold

Limits:

FCC		IC
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	40	3
88 – 216	43.5	3
216 – 960	46.0	3
Above 960	54.0	3

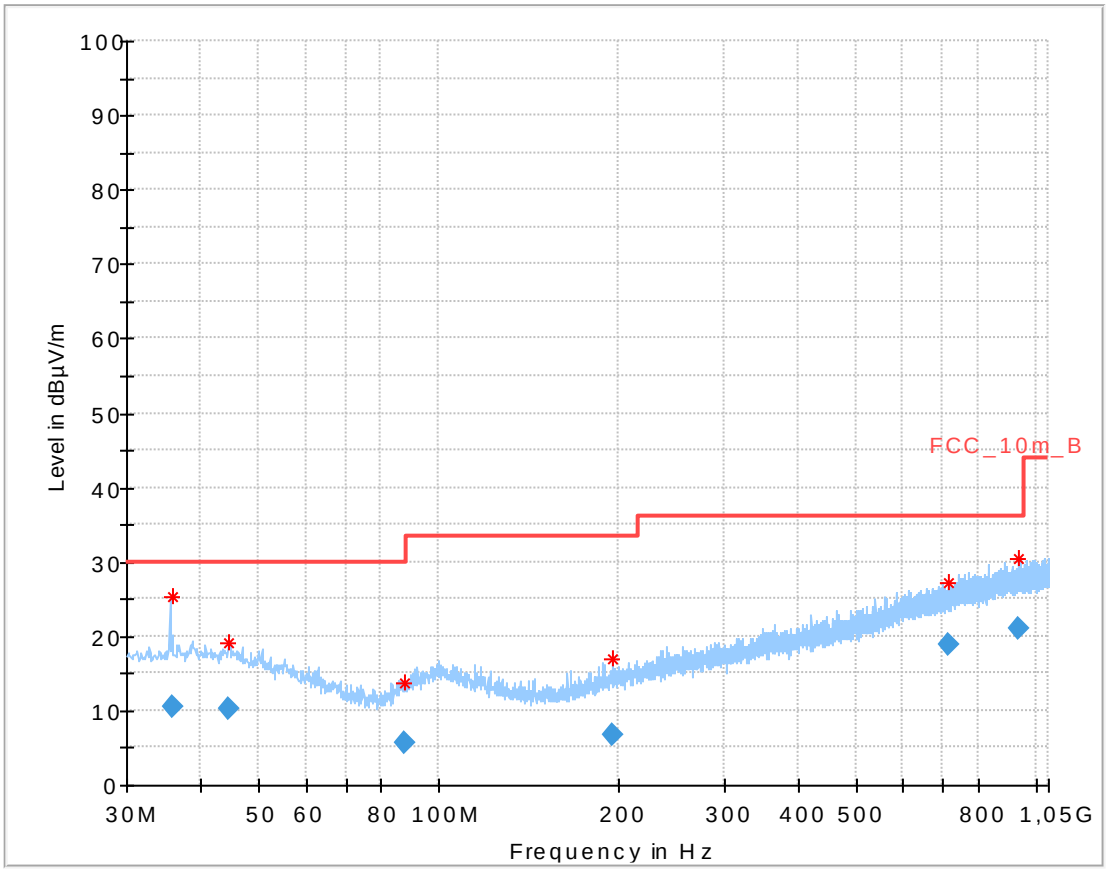
Result:

SPURIOUS EMISSIONS LEVEL [dBµV/m]								
RX			-/-			-/-		
Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]
For results below 1 GHz see below plots			-/-	-/-	-/-	-/-	-/-	-/-
All peaks > 10 dB below limit for frequencies > 1 GHz								
-/-	-/-	-/-						
Measurement uncertainty			±3 dB					

Note: The limit was recalculated with 20 dB / decade (Part 15.31) for all radiated spurious emissions 30 MHz to 1 GHz from 3 meter limit to a 10 meter distance. (40dB/decade for emissions < 30MHz)

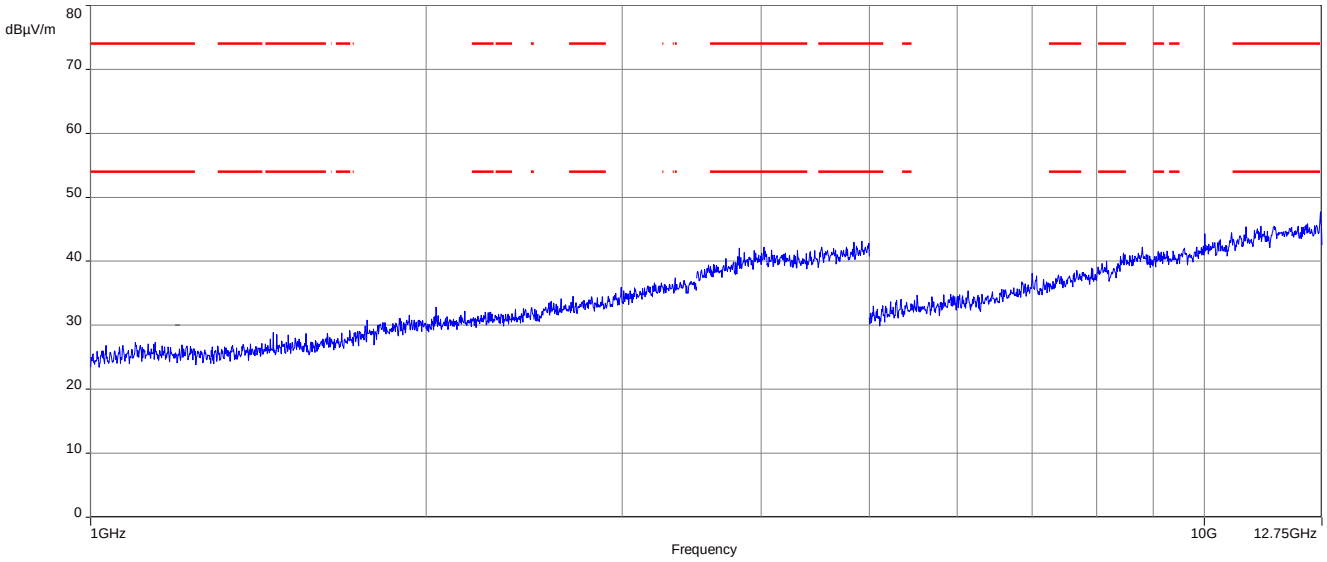
Plots:

Plot 1: 30 MHz – 1 GHz, RX-Mode, horizontal & vertical polarisation



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.713800	10.44	30.00	19.56	1000.0	120.000	273.0	H	256.0	13.8
44.409750	10.19	30.00	19.81	1000.0	120.000	103.0	V	208.0	13.9
87.960150	5.77	30.00	24.23	1000.0	120.000	98.0	V	277.0	10.0
195.872400	6.82	33.50	26.68	1000.0	120.000	200.0	H	5.0	11.4
715.662600	18.85	36.00	17.15	1000.0	120.000	200.0	V	230.0	21.9
934.825350	21.01	36.00	14.99	1000.0	120.000	200.0	V	40.0	24.2

Plot 2: 1GHz – 12.75 GHz, RX-Mode, horizontal & vertical polarisation



14 Test equipment and ancillaries used for tests

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, rf-generating and signalling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Lab/Item).

No.	Lab / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	n. a.	Switch / Control Unit	3488A	HP		300000929	ne	-/-	-/-
2	n. a.	Power Supply	NGSM 32/10	R&S	3939	400000192	vlKl!	22.01.2015	22.01.2017
3	n. a.	USB/GPIB interface	82357B	Agilent Technologies	MY52103346	300004390	ne	-/-	-/-
4	n. a.	Labormessplatzrechner 19" Servergehäuse	Intel Core i3 3225/3,3 GHz, Prozessor	Agilent Technologies	35230157A0370	300004646	ne	-/-	-/-
5	n. a.	Signal Analyzer 30GHz	FSV30	R&S	103170	300004855	k	25.01.2016	25.01.2017
6	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vlKl!	20.05.2015	20.05.2017
7	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev	-/-	-/-
8	n. a.	Switch / Control Unit	3488A	HP	*	300000199	ne	-/-	-/-
9	90	Active Loop Antenna 10 kHz to 30 MHz	6502	EMCO/2	8905-2342	300000256	k	24.06.2015	24.06.2017
10	90	Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143	ne	-/-	-/-
11	90	Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351	ev	-/-	-/-
12	90	Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789	ne	-/-	-/-
13	90	4U RF Switch Platform	L4491A	Agilent Technologies	MY50000037	300004509	ne	-/-	-/-
14	90	EMI Test Receiver 9kHz-26,5GHz	ESR26	R&S	101376	300005063	k	04.09.2015	04.09.2016
15	n. a.	Two-line V-Network (LISN) 9 kHz to 30 MHz	ESH3-Z5	R&S	892475/017	300002209	k	17.06.2014	17.06.2016
16	45	Switch-Unit	3488A	HP	2719A14505	300000368	ev	-/-	-/-
17	50	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP	2920A04466	300000580	ne	-/-	-/-
18	50	EMI Test Receiver	ESCI 3	R&S	100083	300003312	k	08.03.2016	08.03.2017
19	50	Antenna Tower	Model 2175	ETS-Lindgren	64762	300003745	izw	-/-	-/-
20	50	Positioning Controller	Model 2090	ETS-Lindgren	64672	300003746	izw	-/-	-/-
21	50	Turntable Interface-Box	Model 105637	ETS-Lindgren	44583	300003747	izw	-/-	-/-
22	50	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787	k	25.04.2016	25.04.2018
23	50	Spectrum-Analyzer	FSU26	R&S	200809	300003874	k	29.01.2016	29.01.2017
24	50	MXE EMI Receiver 20 Hz to 26,5 GHz	N9038A	Agilent Technologies	MY51210197	300004405	k	04.02.2016	04.02.2017

Agenda: Kind of Calibration

k	calibration / calibrated	EK	limited calibration
ne	not required (k, ev, izw, zw not required)	zw	cyclical maintenance (external cyclical maintenance)
ev	periodic self verification	izw	internal cyclical maintenance
Ve	long-term stability recognized	g	blocked for accredited testing
vlkl!	Attention: extended calibration interval		
NK!	Attention: not calibrated	*)	next calibration ordered / currently in progress

15 Observations

No observations except those reported with the single test cases have been made.

Annex A Document history

Version	Applied changes	Date of release
	Initial release	2016-06-30
A	New EUT information – voltage range	2016-07-05

Annex B Further information

Glossary

AVG - Average
DUT - Device under test
EMC - Electromagnetic Compatibility
EN - European Standard
EUT - Equipment under test
ETSI - European Telecommunications Standard Institute
FCC - Federal Communication Commission
FCC ID - Company Identifier at FCC
HW - Hardware
IC - Industry Canada
Inv. No. - Inventory number
N/A - Not applicable
PP - Positive peak
QP - Quasi peak
S/N - Serial number
SW - Software
PMN - Product marketing name
HMN - Host marketing name
HVIN - Hardware version identification number
FVIN - Firmware version identification number

Annex C Accreditation Certificate

Front side of certificate

DAkkS
Deutsche Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

Beliehene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV
Unterzeichnerin der Multilateralen Abkommen
von EA, ILAC und IAF zur gegenseitigen Anerkennung

Akkreditierung

Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

CETECOM ICT Services GmbH
Untertürkheimer Straße 6-10, 66117 Saarbrücken

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

Funk
Mobilfunk (GSM / DCS) + OTA
Elektromagnetische Verträglichkeit (EMV)
Produktsicherheit
SAR / EMF
Umwelt
Smart Card Technology
Bluetooth*
Automotive
WI-FI-Services
Kanadische Anforderungen
US-Anforderungen
Akustik
Near Field Communication (NFC)

Die Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 04.05.2016 mit der Akkreditierungsnummer D-PL-12076-01 und ist gültig bis 17.01.2018. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 63 Seiten.

Registrierungsnummer der Urkunde: **D-PL-12076-01-01**

Frankfurt, 04.05.2016

Im Auftrag Dipl.-Ing. (FH) Ralf Egner
Abteilungsleiter

Siehe Hinweise auf der Rückseite

Back side of certificate

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Die DAkkS ist Unterzeichnerin der Multilateralen Abkommen zur gegenseitigen Anerkennung der European co-operation for Accreditation (EA), des International Accreditation Forum (IAF) und der International Laboratory Accreditation Cooperation (ILAC). Die Unterzeichner dieser Abkommen erkennen ihre Akkreditierungen gegenseitig an.

Der aktuelle Stand der Mitgliedschaft kann folgenden Webseiten entnommen werden:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

Note:
The current certificate including annex can be received from CETECOM ICT Services GmbH on request.