



Report Reference ID:	190873-3TRFCC
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Test specification:	Title 47 - Telecommunication Chapter I - Federal Communications Commission Subchapter A - General Part 15 - Radio Frequency Devices Subpart C - Intentional Radiators  §15.247 - Operation within the bands 2400–2483.5 MHz
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Applicant:	Telsey Srl Via Mattei, 29 – 31055 Quinto di Treviso (TV) – Italy
Apparatus:	Set Top Box for IP television with WiFi
Model:	STNH4C7A82GDL (STMH4C1A82T2M)
FCC ID:	A2L-TELSEY3070

Testing laboratory:	Nemko Spa Via del Carroccio, 4 20853 Biassono (MB) – Italy
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	Name and title	Date
Tested by:	 Paolo Barbieri, Wireless/EMC Specialist	2011-12-28
Reviewed by:	 Gabriele Curioni Wireless/EMC Specialist	2011-12-28

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 <b>Nemko</b> Nemko Spa Via del Carroccio, 4 20853 Bissone (MB) – Italy	<b>Section 1: Report summary</b>	<b>Product:</b> STNH4C7A82GDL
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## Section 1: Report summary

### 1.1 Test specification

<b>Specifications</b>	<b>FCC Part 15 Subpart C, 15.247</b> Operation within the bands 2400–2483.5 MHz
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### 1.2 Statement of compliance

<b>Compliance</b>	In the configuration tested the EUT was found compliant Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> This report contains an assessment of apparatus against specifications based upon tests carried out on samples submitted at Nemko Canada Inc. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15; Subpart C. Radiated tests were conducted in accordance with ANSI C63.4-2003.
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### 1.3 Exclusions

<b>Exclusions</b>	None
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### 1.4 Registration number

<b>Test site</b> <b>FCC ID number</b>	481407
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### 1.5 Test report revision history

<b>Revision #</b>	<b>Details of changes made to test report</b>
TRF	Original report issued

### 1.6 Limits of responsibility

The date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

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 <b>Nemko</b> Nemko Spa Via del Carroccio, 4 20853 Biassono (MB) – Italy	<b>Section 2: Summary of test results</b>	<b>Product: STNH4C7A82GDL</b>
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## Section 2: Summary of test results

### 2.1 FCC Part 15 Subpart C – Intentional Radiators, test results

#### General requirements for FCC Part 15

Part	Test description	Verdict
§15.31(e)	Variation of power source	Pass
§15.31(m)	Number of operating frequencies	Pass
§15.203	Antenna requirement	Pass
§15.207(a)	Conducted limits	Pass

#### Specific requirements for FCC Part 15 Subpart C, 15.247

Part	Test description	Verdict
§15.247(a)(1)(i)	Frequency hopping systems operating in the 902–928 MHz band	N/A
§15.247(a)(1)(ii)	Frequency hopping systems operating in the 5725–5850 MHz band	N/A
§15.247(a)(1)(iii)	Frequency hopping systems operating in the 2400–2483.5 MHz band	N/A
§15.247(a)(2)	Minimum 6 dB bandwidth for systems using digital modulation techniques	Pass
§15.247(b)(1)	Maximum peak output power of frequency hopping systems operating in the 2400–2483.5 MHz band	N/A
§15.247(b)(2)	Maximum peak output power of Frequency hopping systems operating in the 902–928 MHz band	N/A
§15.247(b)(3)	Maximum peak output power of systems using digital modulation in the 2400–2483.5 MHz	Pass
§15.247(b)(4)	Maximum peak output power	Pass
§15.247(c)(1)	Fixed point-to-point operation with directional antenna gains greater than 6 dBi	N/A
§15.247(c)(2)	Transmitters operating in the 2400–2483.5 MHz band that emit multiple directional beams	N/A
§15.247(d)	Spurious emissions	Pass
§15.247(e)	Power spectral density for digitally modulated devices	Pass
§15.247(f)	Time of occupancy for hybrid systems	N/A

Notes: None

**Section 3: EUT and application details****Product: STNH4C7A82GDL****Section 3: Equipment under test (EUT) and application details****3.1 Applicant details**

<b>Applicant complete business name</b>	Name:	Telsey Srl
	Federal Registration Number (FRN):	0021301346
	Grantee code	A2L
<b>Mailing address</b>	Address: City: Province/State: Post code: Country:	Via Mattei, 29 Quinto di Treviso Treviso/Italy 31055 Italy

**3.2 Modular equipment**

<b>a) Single modular approval</b>	Single modular approval Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>b) Limited single modular approval</b>	Limited single modular approval Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

**3.3 Product details**

<b>FCC ID</b>	Grantee code:	A2L
	Product code:	TELSEY3070
<b>Equipment class</b>	DTS – Digital Transmission system	
<b>Description of product as it is marketed</b>	Set Top Box for IP television with WiFi	
	Model name/number:	STNH4C7A82GDL (STMH4C1A82T2M)
	Serial number:	NA

**3.4 Application purpose**

<b>Type of application</b>	<input checked="" type="checkbox"/> Original certification
	<input type="checkbox"/> Change in identification of presently authorized equipment
	Original FCC ID: _____ Grant date: _____
	<input type="checkbox"/> Class II permissive change or modification of presently authorized equipment

**3.5 Composite/related equipment**

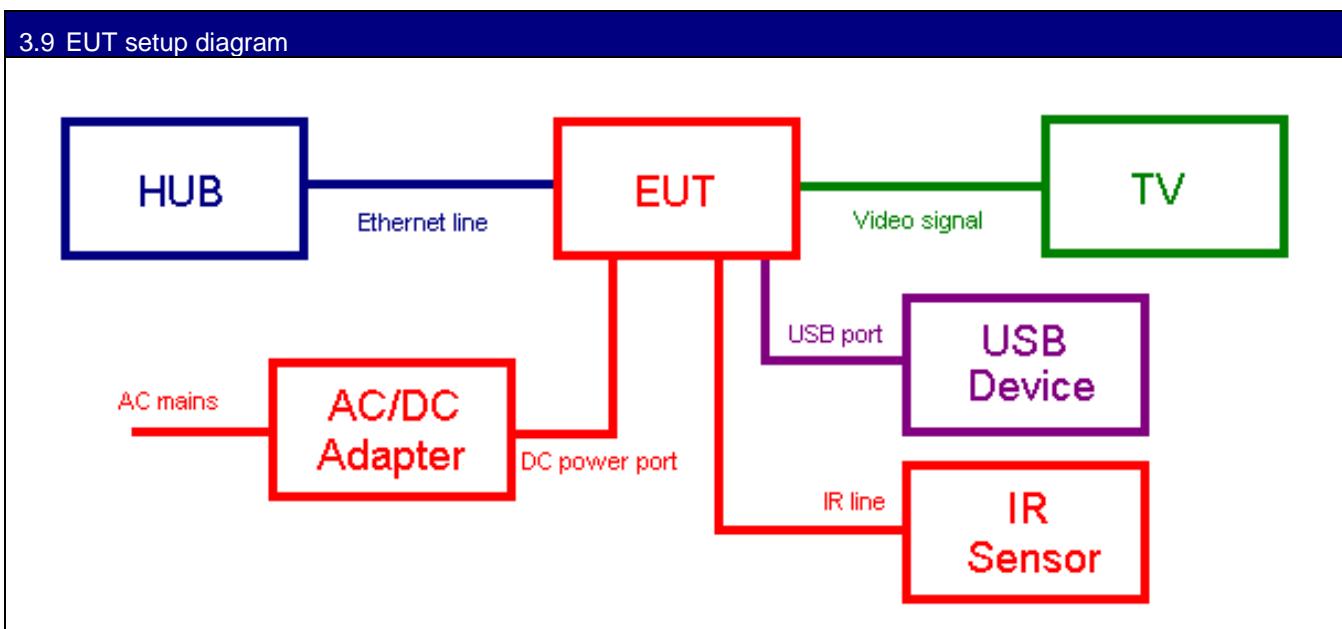
<b>a) Composite equipment</b>	The EUT is a composite device subject to an additional equipment authorization Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>b) Related equipment</b>	The EUT is part of a system that operates with, or is marketed with, another device that requires an equipment authorization Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>c) Related FCC ID</b>	If either of the above is "yes": <input type="checkbox"/> has been granted under the FCC ID(s) listed below: <input type="checkbox"/> is in the process of being filled under the FCC ID(s) listed below: <input type="checkbox"/> is pending with the FCC ID(s) listed below: <input type="checkbox"/> has a mix of pending and granted statuses under the FCC ID(s) listed below: i FCC ID: ii FCC ID:

 <b>Nemko</b> Nemko Spa Via del Carroccio, 4 20853 Bissone (MB) – Italy	<b>Section 3: EUT and application details</b> <b>Product: STNH4C7A82GDL</b>
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<b>3.6 Sample information</b>	
<b>Receipt date:</b>	2011-12-12
<b>Nemko sample ID number:</b>	198073

<b>3.7 EUT technical specifications</b>	
<b>Operating band:</b>	2400 MHz ÷ 2483.5 MHz
<b>Operating frequency:</b>	2412 MHz ÷ 2462 MHz
<b>Modulation type:</b>	Protocol 802.11b use modulation technology DSSS and modulation type DBPSK Protocol 802.11g use modulation technology OFDM and modulation type BPSK Protocol 802.11n use modulation technology OFDM and modulation type BPSK
<b>Occupied bandwidth:</b>	20 MHz
<b>Channel spacing:</b>	20 MHz
<b>Emission designator:</b>	20M00X7F
<b>Antenna type:</b>	Integral, 2.5 dBi gain maximum
<b>Power source:</b>	120 V, 60 Hz

<b>3.8 Operation of the EUT during testing</b>	
<b>Details:</b>	Transmitting to maximum power at 2412 MHz, 2437 MHz, 2462 MHz with the following modulation: Protocol 802.11b, use modulation technology DSSS and modulation type DBPSK; Protocol 802.11g use modulation technology OFDM and modulation type BPSK; Protocol 802.11n use modulation technology OFDM and modulation type BPSK.



 <b>Nemko</b> Nemko Spa Via del Carroccio, 4 20853 Bissone (MB) – Italy	<b>Section 4: Engineering considerations</b>	<b>Product:</b> STNH4C7A82GDL
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## Section 4: Engineering considerations

### 4.1 Modifications incorporated in the EUT

<b>Modifications</b>	Modifications performed to the EUT during this assessment None <input checked="" type="checkbox"/> Yes <input type="checkbox"/> , performed by Client <input type="checkbox"/> or Nemko <input type="checkbox"/> Details:
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### 4.2 Deviations from laboratory tests procedures

<b>Deviations</b>	Deviations from laboratory test procedures None <input checked="" type="checkbox"/> Yes <input type="checkbox"/> - details are listed below:
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### 4.3 Technical judgment

<b>Judgment</b>	None
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 <b>Nemko</b> Nemko Spa Via del Carroccio, 4 20853 Biassono (MB) – Italy	<b>Section 5: Test conditions</b>	<b>Product:</b> STNH4C7A82GDL
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## Section 5: Test conditions

5.1 Power source and ambient temperatures	
<b>Normal temperature, humidity and air pressure test conditions</b>	Temperature: 15–30 °C Relative humidity: 20–75 % Air pressure: 86–106 kPa  When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.
<b>Power supply range:</b>	The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages $\pm 5\%$ , for which the equipment was designed.

 <b>Nemko</b> Nemko Spa Via del Carroccio, 4 20853 Biassono (MB) – Italy	<b>Section 6: Measurement uncertainty</b>	<b>Product: STNH4C7A82GDL</b>
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## Section 6: Measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to CISPR 16-4-2 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4-2: Uncertainties, statistics and limit modeling – Uncertainty in EMC measurements" and is documented in the Nemko Spa Technical Procedure WML1002. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

 <b>Nemko</b> Nemko Spa Via del Carroccio, 4 20853 Biassono (MB) – Italy	<b>Section 7: Test equipment</b>	<b>Product: STNH4C7A82GDL</b>
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## Section 7: Test equipment

### 7.1 Test equipment list

Equipment	Manufacturer	Model No.	Serial No.	Next cal.
Emi Test Receiver	R&S	ESU8	100202	09/2012
Spectrum Analyzer 9 KHz ÷ 40 GHz	R&S	FSEK	848255/005	09/2012
Trilog Broad Band Antenna	Schwarzbeck	VULB 9168	VULB 9168-242	08/2013
Semi-anechoic chamber	Nemko	10m semi-anechoic chamber	530	08/2013
Shielded room	Siemens	10m control room	1947	08/2013
Broadband preamplifier	Schwarzbeck	BBV 9718	9718-137	05/2012
Bilog antenna 1 ÷18 GHz	Schwarzbeck	STLP 9148-123	123	09/2012
Double Ridged Waveguide Horn	RF SPIN	DRH40	061106a40	08/2013
Wide band Amplifier 18 ÷ 40 GHz	MITEQ	JS44-18004000-35-8P-R	1648665	10/2012

Note: N/A = Not applicable, NCR = No cal required, COU = Cal on use



<b>Section 8: Testing data</b>	<b>Product:</b> STNH4C7A82GDL	
<b>Test name:</b> Clause 15.31(e) Variation of power source		
<b>Test date:</b> 2011-12-27	<b>Test engineer:</b> Paolo Barbieri	<b>Verdict:</b> Pass
<b>Specification:</b> FCC Part 15 Subpart A		

## Section 8: Testing data

### 8.1 Clause 15.31(e) Variation of power source

#### § 15.31 Measurement standards.

(e) For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85 % and 115 % of the nominal rated supply voltage. For battery-operated equipment, the equipment tests shall be performed using a new battery.

#### Special notes

None

#### Test data

Transmit output power was measured while supply voltage was varied from 102 VAC to 138 VAC (85 % to 115 % of the nominal rated supply voltage). No change in transmit output power was observed.



<b>Section 8: Testing data</b>	<b>Product: STNH4C7A82GDL</b>	
<b>Test name:</b> Clause 15.31(m) Number of operating frequencies		
<b>Test date:</b> 2011-12-27	<b>Test engineer:</b> Paolo Barbieri	<b>Verdict:</b> Pass
Specification: FCC Part 15 Subpart A		

## 8.2 Clause 15.31(m) Number of operating frequencies

### § 15.31 Measurement standards.

(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

Frequency range over which device operates	Number of frequencies	Location in the range of operation
1 MHz and less	1	Middle
1 to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

### Special notes

The frequency range over which the device operates is greater than 10 MHz. The tests were performed on three operating channels (low, mid, high)

### Test data

The frequency band is 2412 MHz (channel 1) to 2462 MHz (channel 11) MHz therefore number of operating frequencies is 3.

Low frequency / channel 1	2412 MHz
Mid frequency / channel 6	2437 MHz
High frequency / channel 11	2462 MHz



<b>Section 8: Testing data</b>	<b>Product:</b> STNH4C7A82GDL	
<b>Test name:</b> Clause 15.203 Antenna requirement		
<b>Test date:</b> 2011-12-27	<b>Test engineer:</b> Paolo Barbieri	<b>Verdict:</b> Pass
<b>Specification:</b> FCC Part 15 Subpart C		

## 8.3 Clause 15.203 Antenna requirement

### § 15.203 Antenna 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.

### Special notes

None

### Test data

- The EUT uses a non-detachable antenna to the intentional radiator.

Detailed photo of RF connector:

E.U.T didn't have antenna connector but integral antenna.



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.207(a) Conducted limits		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

## 8.4 Clause 15.207(a) Conducted limits

### § 15.207 Conducted limits.

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

\*Decreases with the logarithm of the frequency.

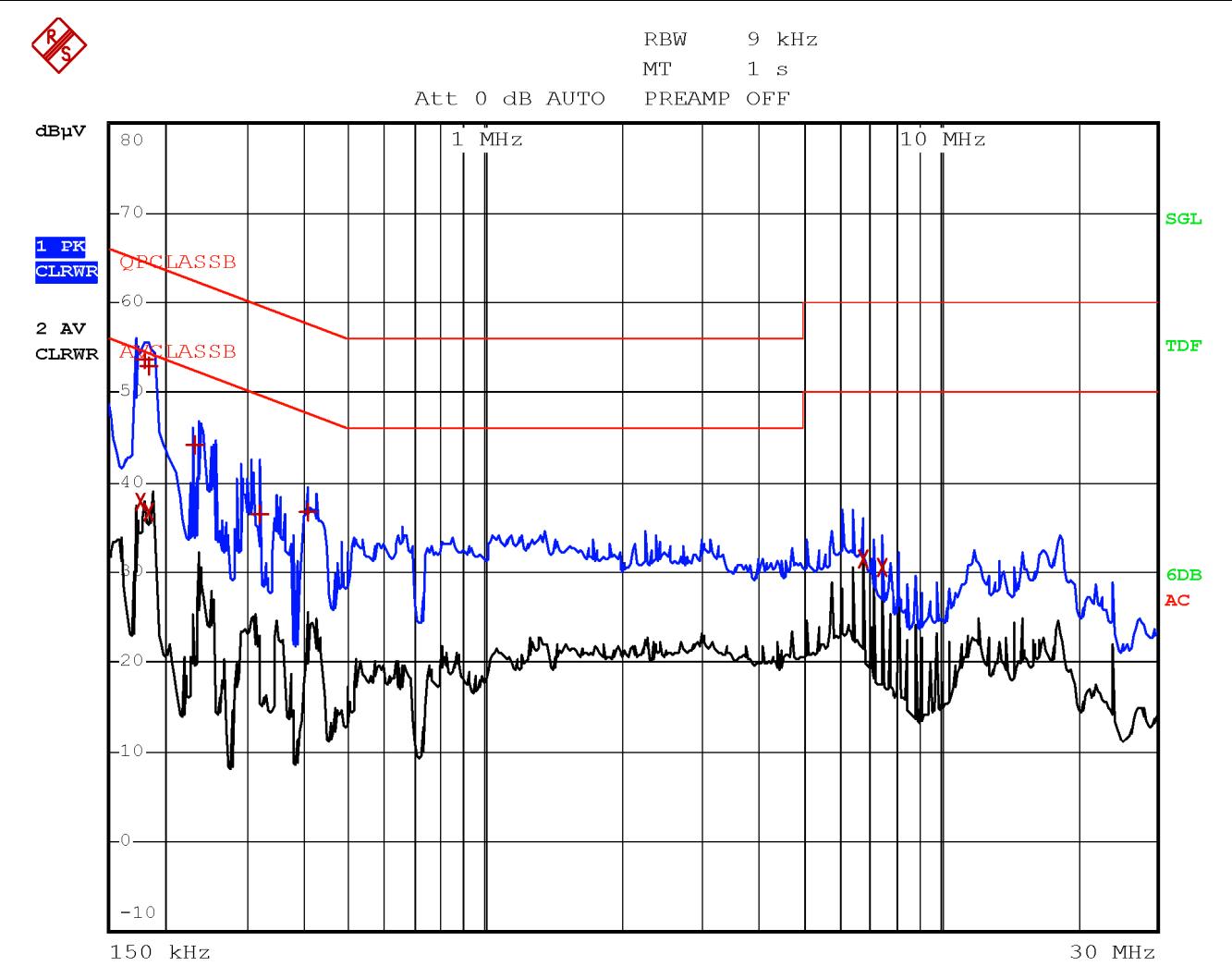
### Special notes

None



Section 8: Testing data	Product: STNH4C7A82GDL
Test name: Clause 15.207(a) Conducted limits	
Test date: 2011-12-12	Test engineer: Paolo Barbieri
Verdict: Pass	Supply input: 120 Vac, 60 Hz
Temperature: 22 °C	Air pressure: 1008 mbar
Specification: FCC Part 15 Subpart C	Relative humidity: 45 %

## Test data



The spectral scan has been corrected with transducer factors (i.e. cable loss, LISN factors, and attenuators) for determination of compliance.

A preview measurement was generated with the receiver in continuous scan mode. Emissions detected within 6 dB or above limit were re-measured with the appropriate detector against the correlating limit and recorded as the final measurement.

Receiver/Spectrum analyzer settings:	
0.15 MHz to 30 MHz	
<b>Preview measurements</b>	<b>Final measurement</b>
Receiver: 9 kHz RBW, Peak and Average detector, max hold	Receiver: 9 kHz RBW, Quasi-peak and Average detector
Measurement time 100 ms	



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.207(a) Conducted limits		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

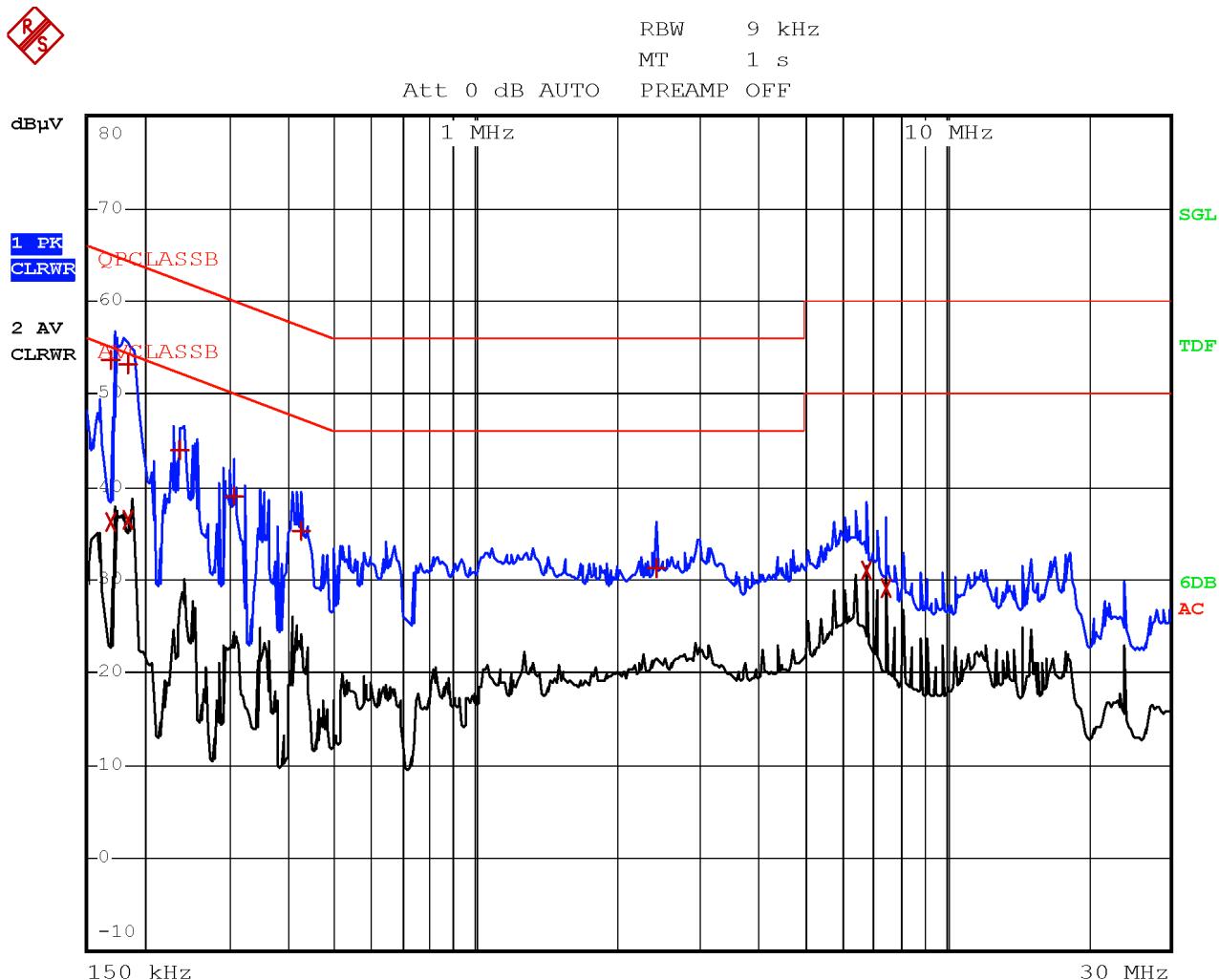
Frequency (MHz)	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Detector
0.1780	37.9	54.6	-16.7	AV
0.1820	53.6	64.4	-10.8	QP
0.1860	52.9	64.2	-11.3	QP
0.1860	36.5	54.2	-17.7	AV
0.2340	44.3	62.3	-18.0	QP
0.3180	36.5	59.8	-23.2	QP
0.4060	36.6	57.7	-21.1	QP
6.7940	31.5	50.0	-18.5	AV
7.4740	30.5	50.0	-19.5	AV

Note:



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.207(a) Conducted limits		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued



#### Phase line

The spectral scan has been corrected with transducer factors (i.e. cable loss, LISN factors, and attenuators) for determination of compliance.

A preview measurement was generated with the receiver in continuous scan mode. Emissions detected within 6 dB or above limit were re-measured with the appropriate detector against the correlating limit and recorded as the final measurement.

#### Receiver/Spectrum analyzer settings:

0.15 MHz to 30 MHz

#### Preview measurements

Receiver: 9 kHz RBW, Peak and Average detector, max hold

#### Final measurement

Receiver: 9 kHz RBW, Quasi-peak and Average detector

Measurement time 100 ms



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.207(a) Conducted limits		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Detector
0.1700	53.6	65.0	-11.4	QP
0.1700	36.1	55.0	-18.9	AV
0.1860	53.1	64.2	-11.1	QP
0.1860	36.5	54.2	-17.7	AV
0.2380	44.0	62.2	-18.2	QP
0.3060	39.0	60.1	-21.0	QP
0.4220	35.2	57.4	-22.2	QP
2.4380	31.1	56.0	-24.9	QP
6.7980	31.0	50.0	-19.0	AV
7.4780	29.2	50.0	-20.8	AV

Note:



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(a)(2) Minimum 6 dB bandwidth for systems using digital modulation techniques		
<b>Test date:</b> 2011-12-28	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 23 °C	<b>Air pressure:</b> 1026 mbar	<b>Relative humidity:</b> 57 %
<b>Specification:</b> FCC Part 15 Subpart C		

## 8.5 Clause 15.247(a)(2) Minimum 6 dB bandwidth for systems using digital modulation techniques

### § 15.247 Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.

(a) Operation under the provisions of this Section is limited to frequency hopping and digitally modulated intentional radiators that comply with the following provisions:

(2) Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

### Special notes

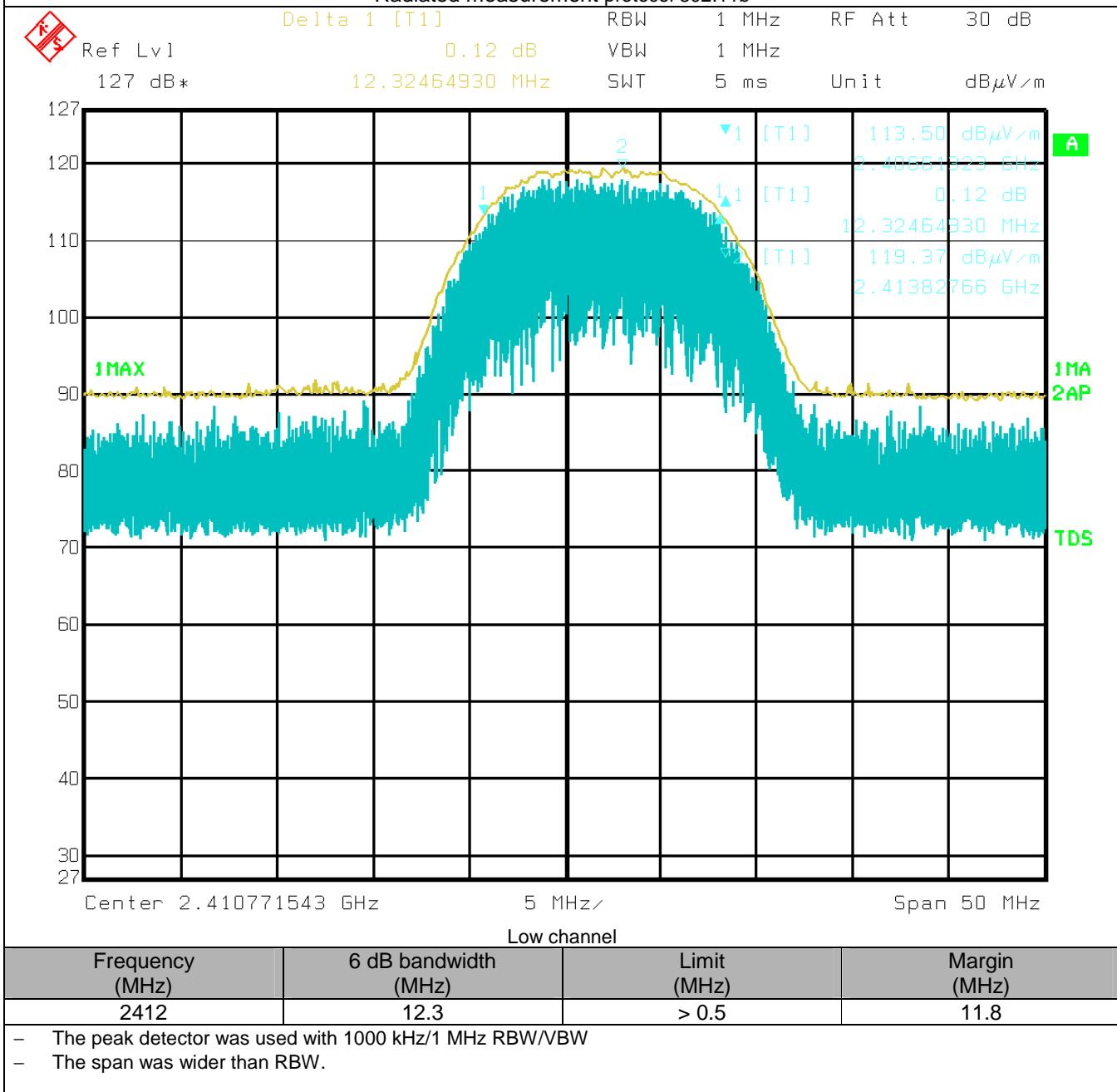
None



Section 8: Testing data		Product: STNH4C7A82GDL
Test name: Clause 15.247(a)(2) Minimum 6 dB bandwidth for systems using digital modulation techniques		
Test date: 2011-12-28	Test engineer: Paolo Barbieri	
Verdict: Pass		Supply input: 120 Vac, 60 Hz
Temperature: 23 °C	Air pressure: 1026 mbar	Relative humidity: 57 %
Specification: FCC Part 15 Subpart C		

## Test data

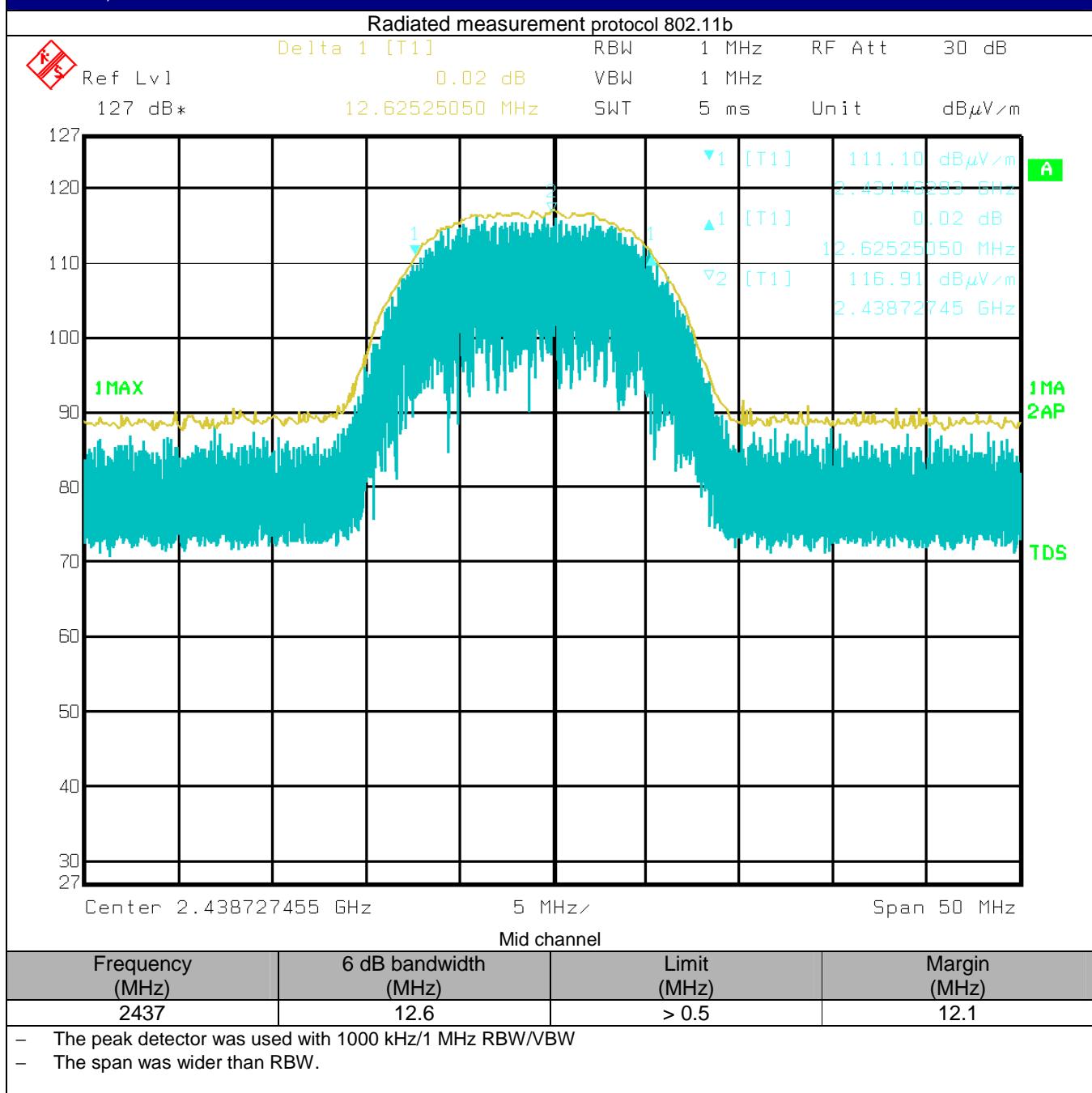
### Radiated measurement protocol 802.11b





Section 8: Testing data		Product: STNH4C7A82GDL
Test name: Clause 15.247(a)(2) Minimum 6 dB bandwidth for systems using digital modulation techniques		
Test date: 2011-12-28		Test engineer: Paolo Barbieri
Verdict: Pass		Supply input: 120 Vac, 60 Hz
Temperature: 23 °C	Air pressure: 1026 mbar	Relative humidity: 57 %
Specification: FCC Part 15 Subpart C		

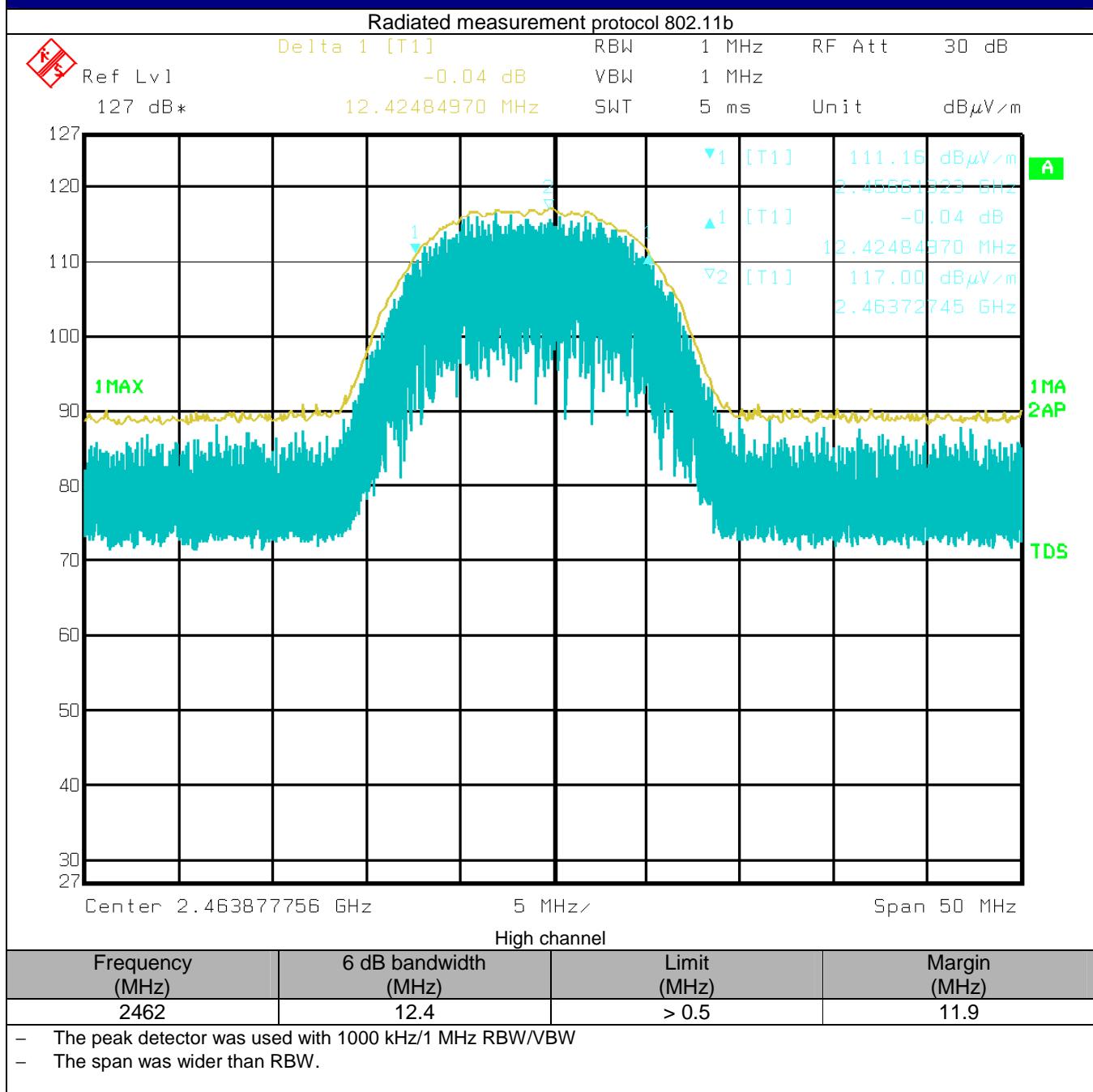
### Test data, continued





Section 8: Testing data		Product: STNH4C7A82GDL
Test name: Clause 15.247(a)(2) Minimum 6 dB bandwidth for systems using digital modulation techniques		
Test date: 2011-12-28		Test engineer: Paolo Barbieri
Verdict: Pass		Supply input: 120 Vac, 60 Hz
Temperature: 23 °C	Air pressure: 1026 mbar	Relative humidity: 57 %
Specification: FCC Part 15 Subpart C		

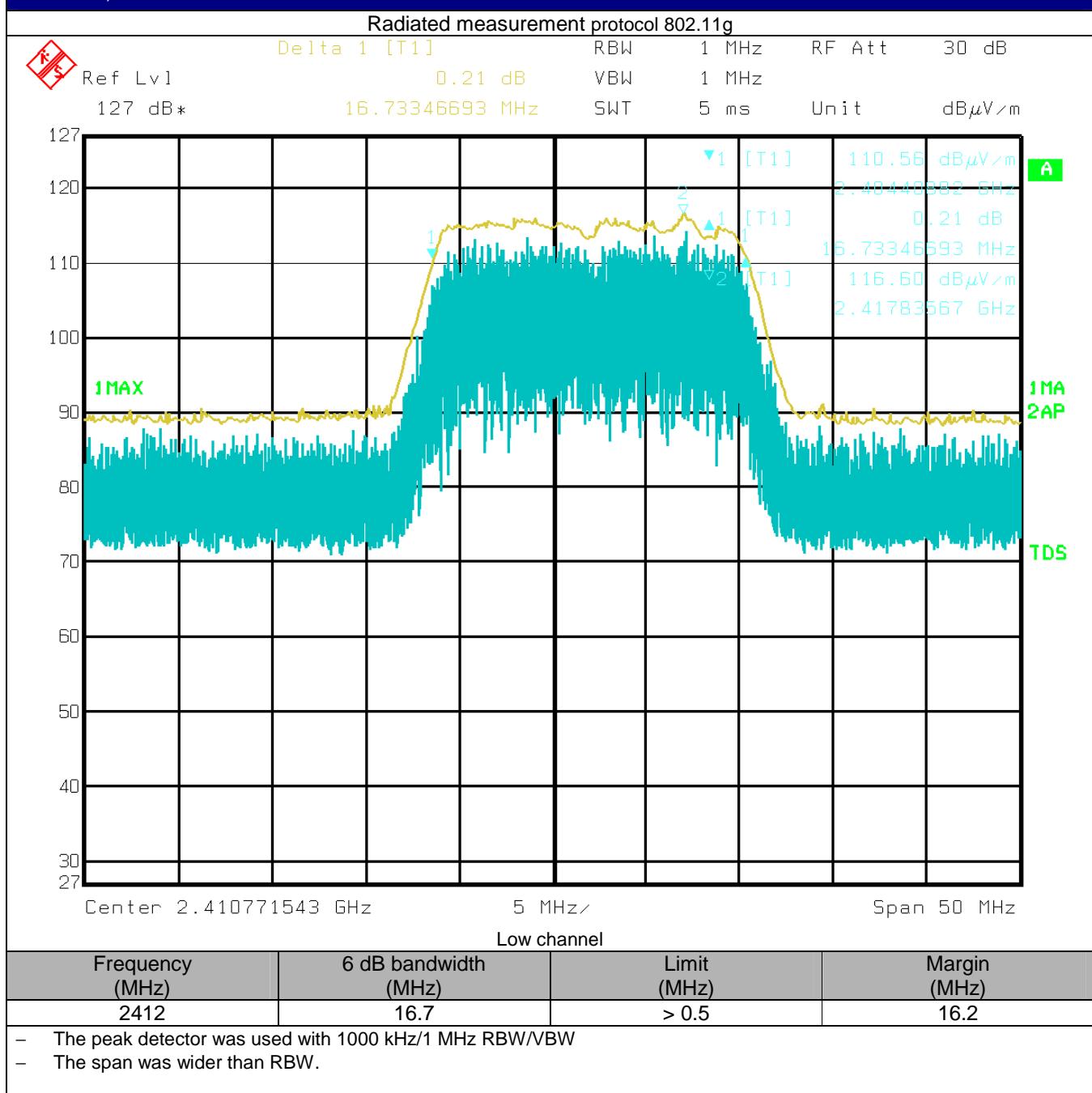
### Test data, continued





Section 8: Testing data		Product: STNH4C7A82GDL
Test name: Clause 15.247(a)(2) Minimum 6 dB bandwidth for systems using digital modulation techniques		
Test date: 2011-12-28		Test engineer: Paolo Barbieri
Verdict: Pass		Supply input: 120 Vac, 60 Hz
Temperature: 23 °C	Air pressure: 1026 mbar	Relative humidity: 57 %
Specification: FCC Part 15 Subpart C		

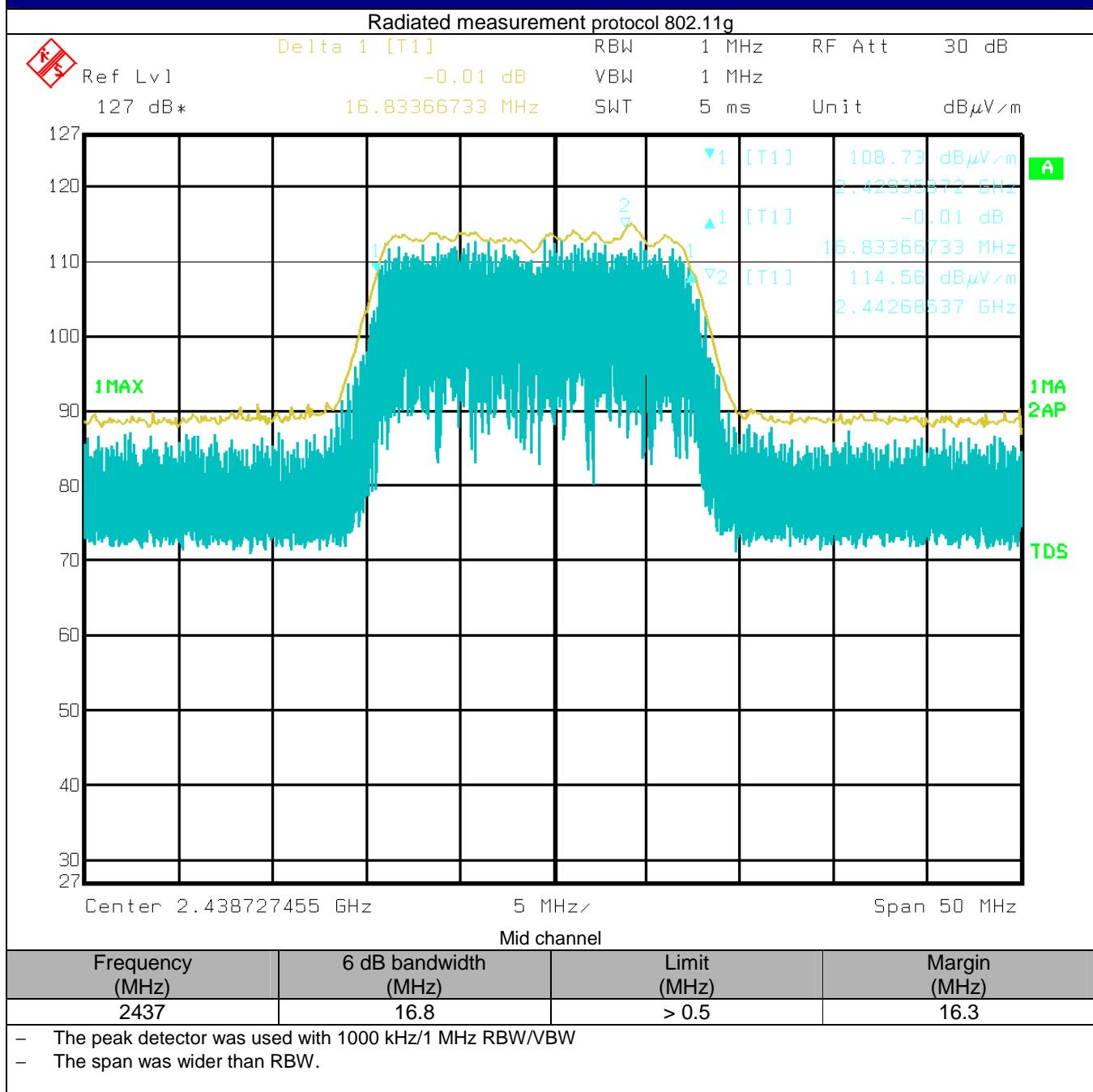
### Test data, continued





Section 8: Testing data		Product: STNH4C7A82GDL
Test name: Clause 15.247(a)(2) Minimum 6 dB bandwidth for systems using digital modulation techniques		
Test date: 2011-12-28		Test engineer: Paolo Barbieri
Verdict: Pass		Supply input: 120 Vac, 60 Hz
Temperature: 23 °C	Air pressure: 1026 mbar	Relative humidity: 57 %
Specification: FCC Part 15 Subpart C		

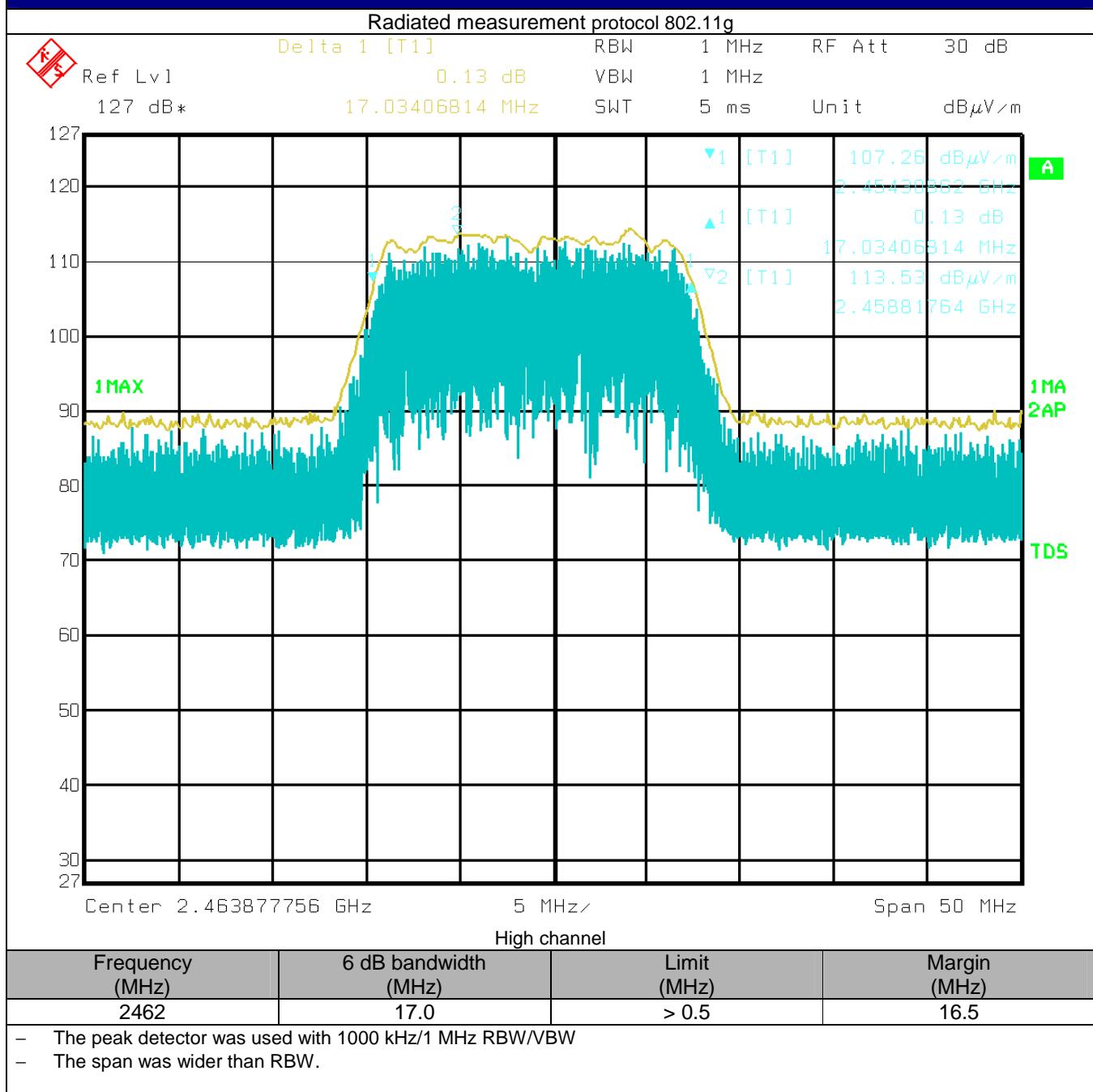
### Test data, continued





Section 8: Testing data		Product: STNH4C7A82GDL
Test name: Clause 15.247(a)(2) Minimum 6 dB bandwidth for systems using digital modulation techniques		
Test date: 2011-12-28		Test engineer: Paolo Barbieri
Verdict: Pass		Supply input: 120 Vac, 60 Hz
Temperature: 23 °C	Air pressure: 1026 mbar	Relative humidity: 57 %
Specification: FCC Part 15 Subpart C		

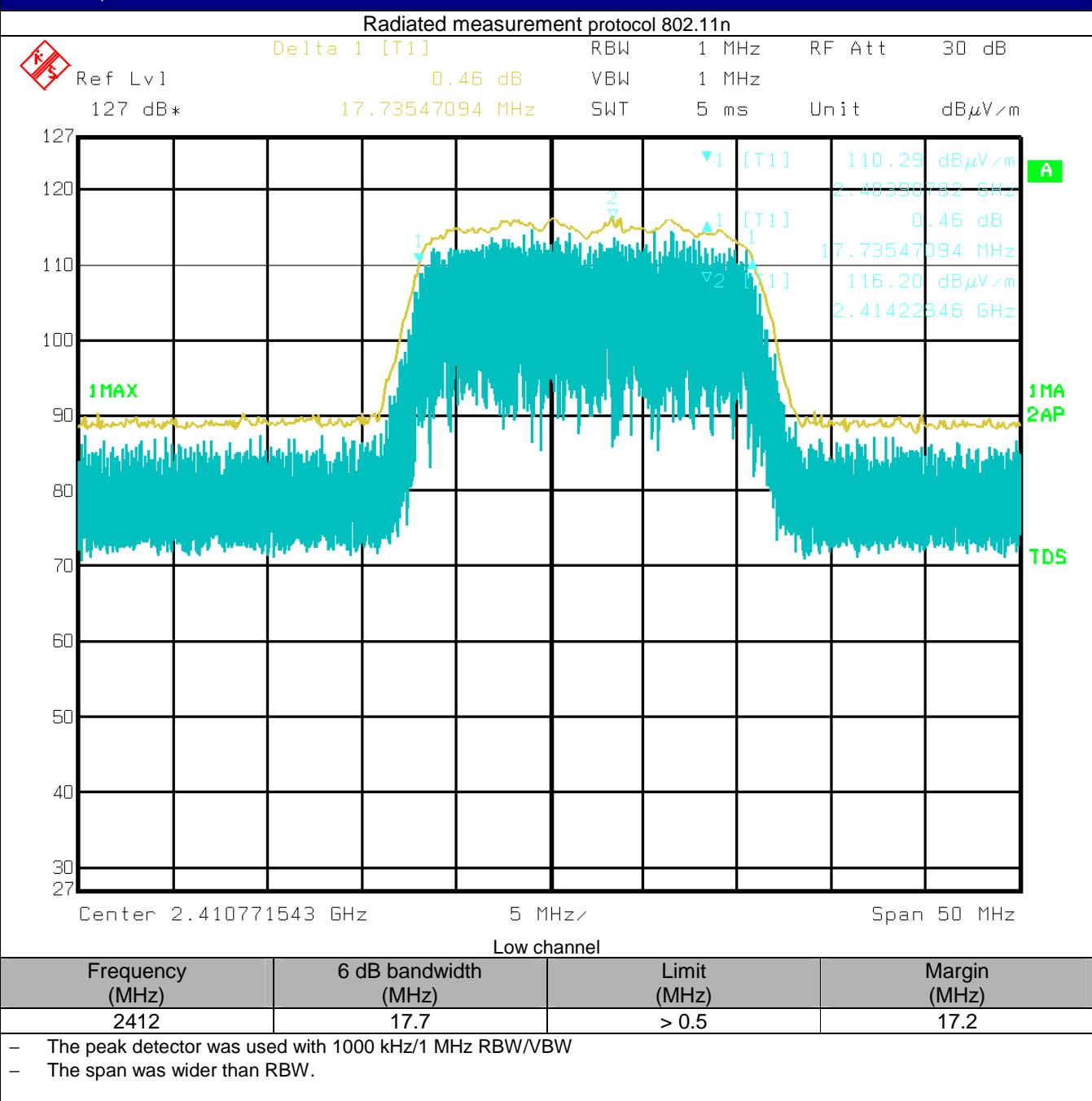
### Test data, continued





<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(a)(2) Minimum 6 dB bandwidth for systems using digital modulation techniques		
<b>Test date:</b> 2011-12-28	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 23 °C	<b>Air pressure:</b> 1026 mbar	<b>Relative humidity:</b> 57 %
<b>Specification:</b> FCC Part 15 Subpart C		

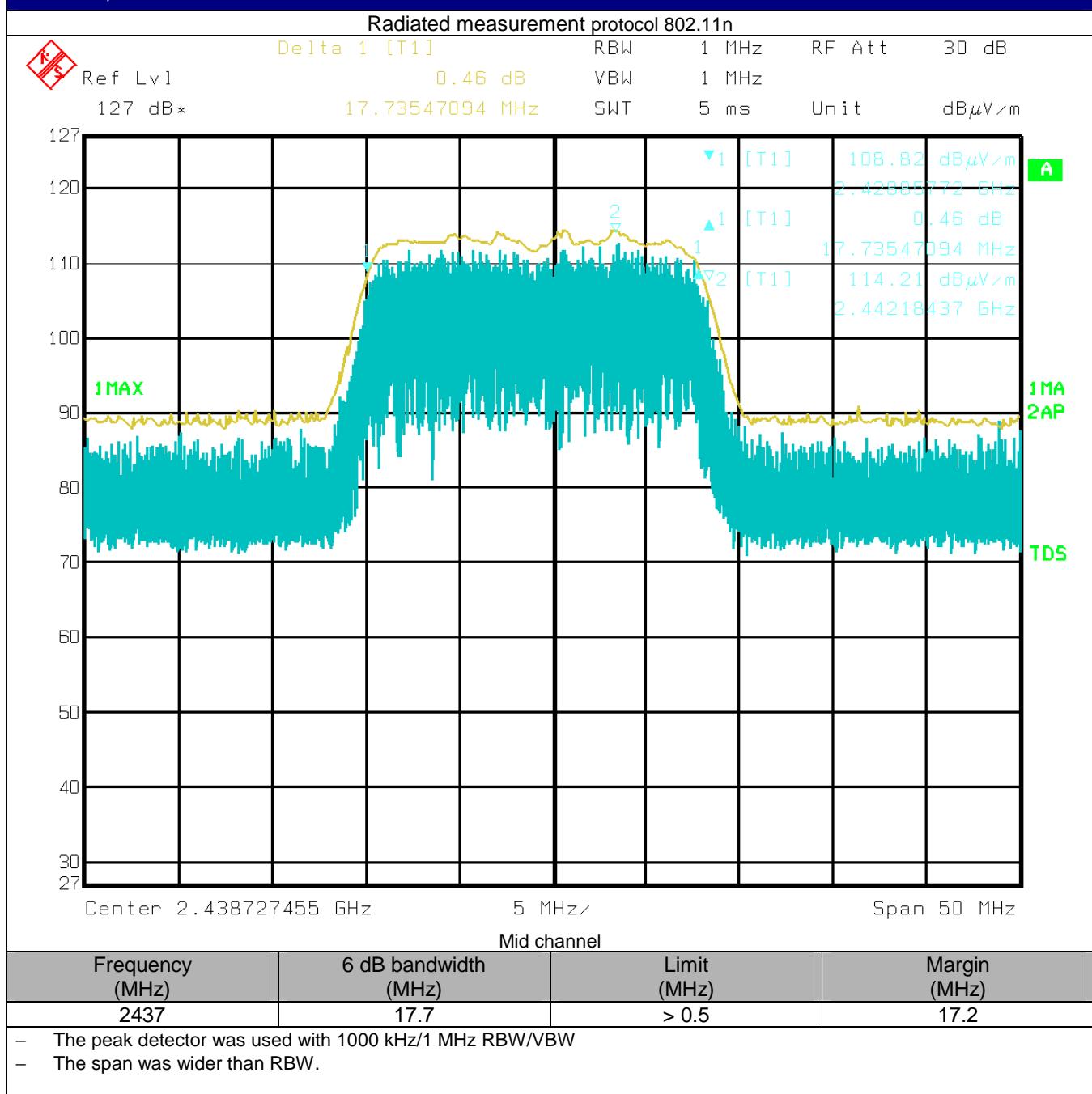
### Test data, continued





Section 8: Testing data		Product: STNH4C7A82GDL
Test name: Clause 15.247(a)(2) Minimum 6 dB bandwidth for systems using digital modulation techniques		
Test date: 2011-12-28		Test engineer: Paolo Barbieri
Verdict: Pass		Supply input: 120 Vac, 60 Hz
Temperature: 23 °C	Air pressure: 1026 mbar	Relative humidity: 57 %
Specification: FCC Part 15 Subpart C		

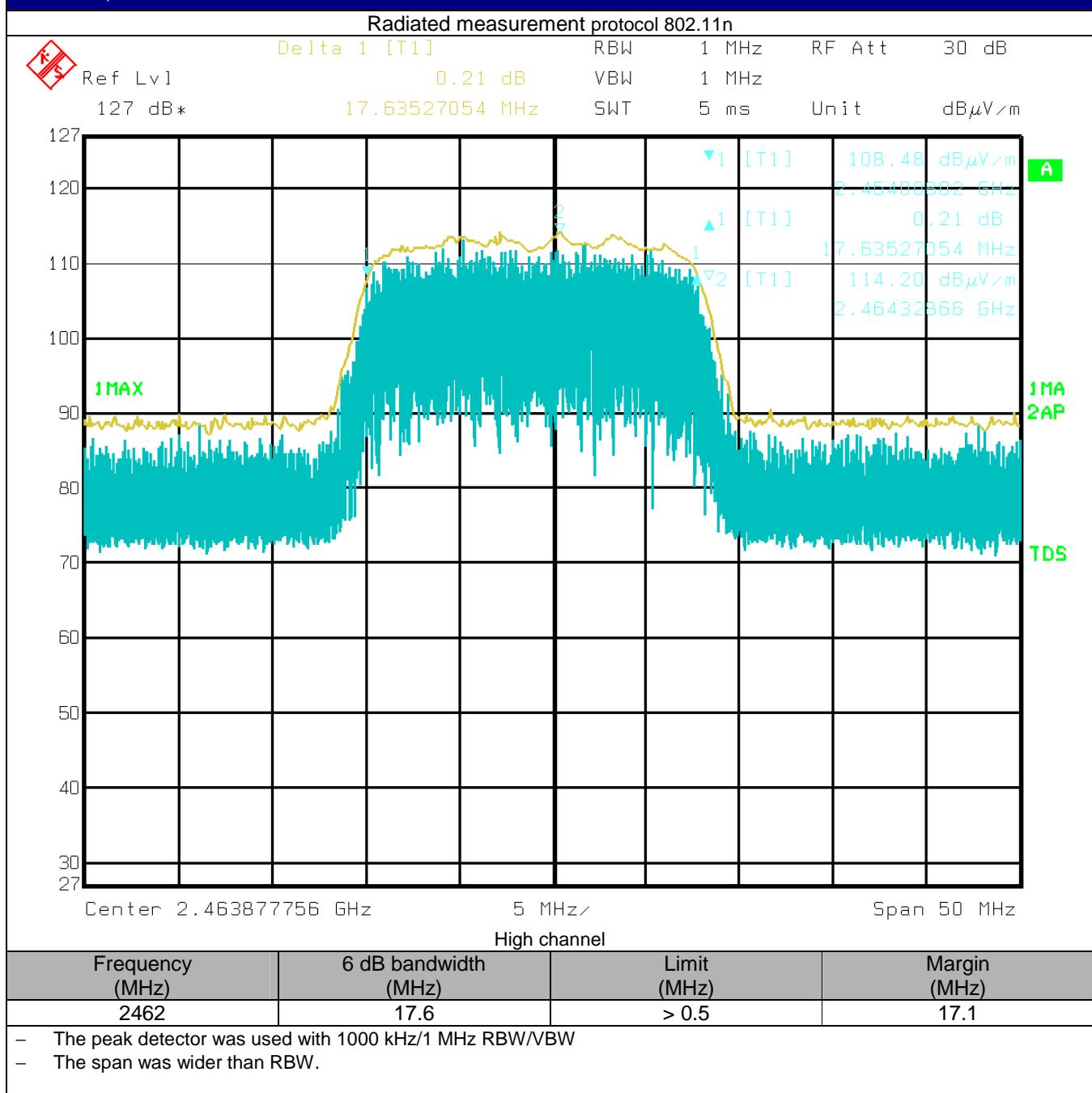
### Test data, continued





Section 8: Testing data		Product: STNH4C7A82GDL
Test name: Clause 15.247(a)(2) Minimum 6 dB bandwidth for systems using digital modulation techniques		
Test date: 2011-12-28		Test engineer: Paolo Barbieri
Verdict: Pass		Supply input: 120 Vac, 60 Hz
Temperature: 23 °C	Air pressure: 1026 mbar	Relative humidity: 57 %
Specification: FCC Part 15 Subpart C		

### Test data, continued





Section 8: Testing data		Product: STNH4C7A82GDL
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass		Supply input: 120 Vac, 60 Hz
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

## 8.6 Clause 15.247(b) Maximum peak conducted output power

### § 15.247 Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.

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

- (1) For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.
- (2) For frequency hopping systems operating in the 902–928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.
- (3) For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
- (4) 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.
  - (i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.
  - (ii) Systems operating in the 5725–5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter peak output power.
  - (iii) Fixed, point-to-point operation, as used in paragraphs (b)(3)(i) and (b)(3)(ii) of this section, excludes the use of point-to-multipoint systems, omnidirectional applications, and multiple co-located intentional radiators transmitting the same information. The operator of the spread spectrum intentional radiator or, if the equipment is professionally installed, the installer is responsible for ensuring that the system is used exclusively for fixed, point-to-point operations. The instruction manual furnished with the intentional radiator shall contain language in the installation instructions informing the operator and the installer of this responsibility.

### Special notes

None



Section 8: Testing data	Product: STNH4C7A82GDL
Test name: Clause 15.247(d) Spurious emissions	
Test date: 2011-12-12	Test engineer: Paolo Barbieri
Verdict: Pass	Supply input: 120 Vac, 60 Hz
Temperature: 22 °C	Air pressure: 1008 mbar
Specification: FCC Part 15 Subpart C	Relative humidity: 45 %

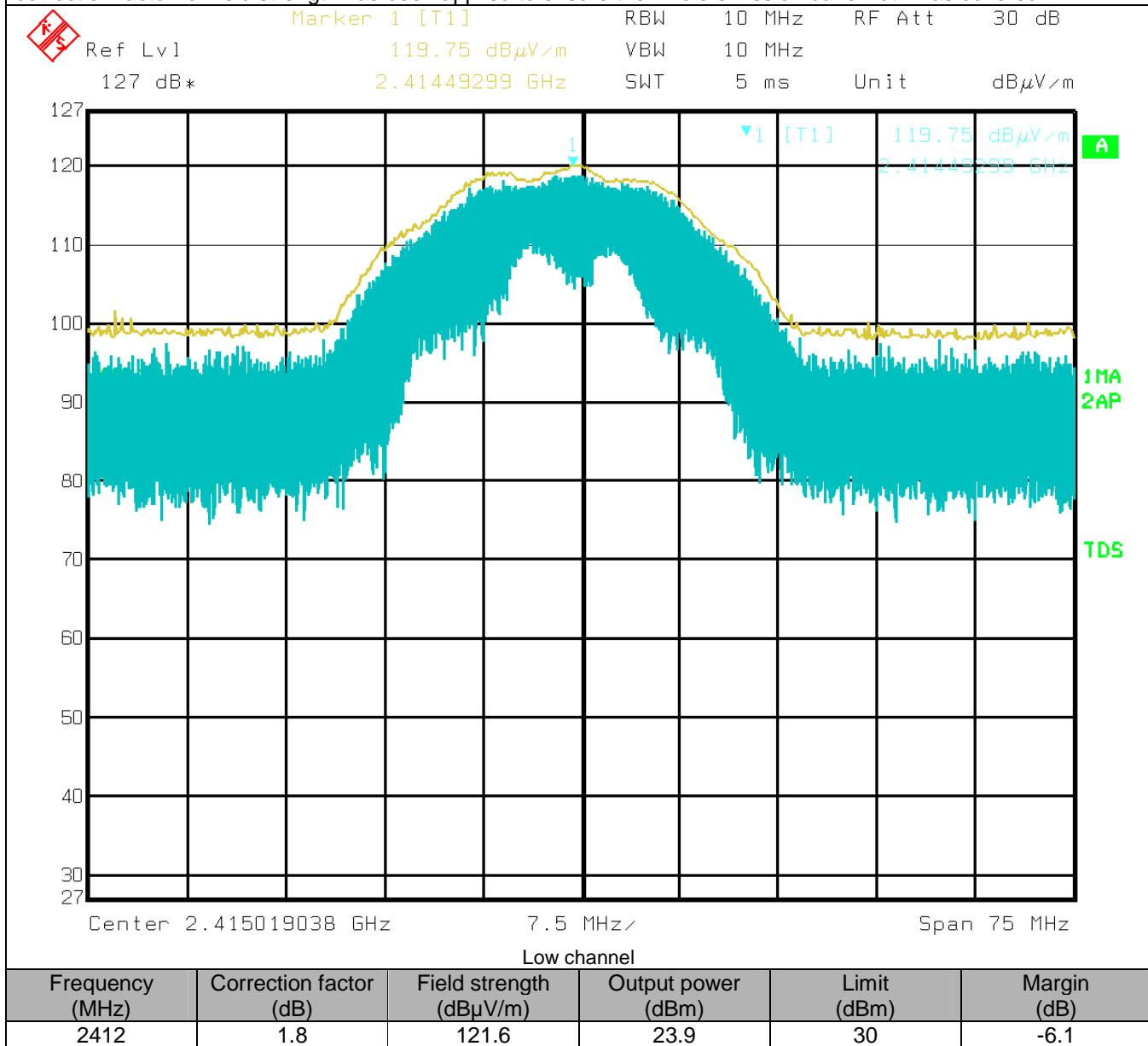
## Test data,

## Radiated measurements protocol 802.11b

Radiated measurements were performed:

- The EUT was measured on three orthogonal axes.
- All measurements were performed at a distance of 3 m.
- All measurements were performed using a peak detector with RBW 10 MHz: (\*)
- Only the worst data presented in the test report.

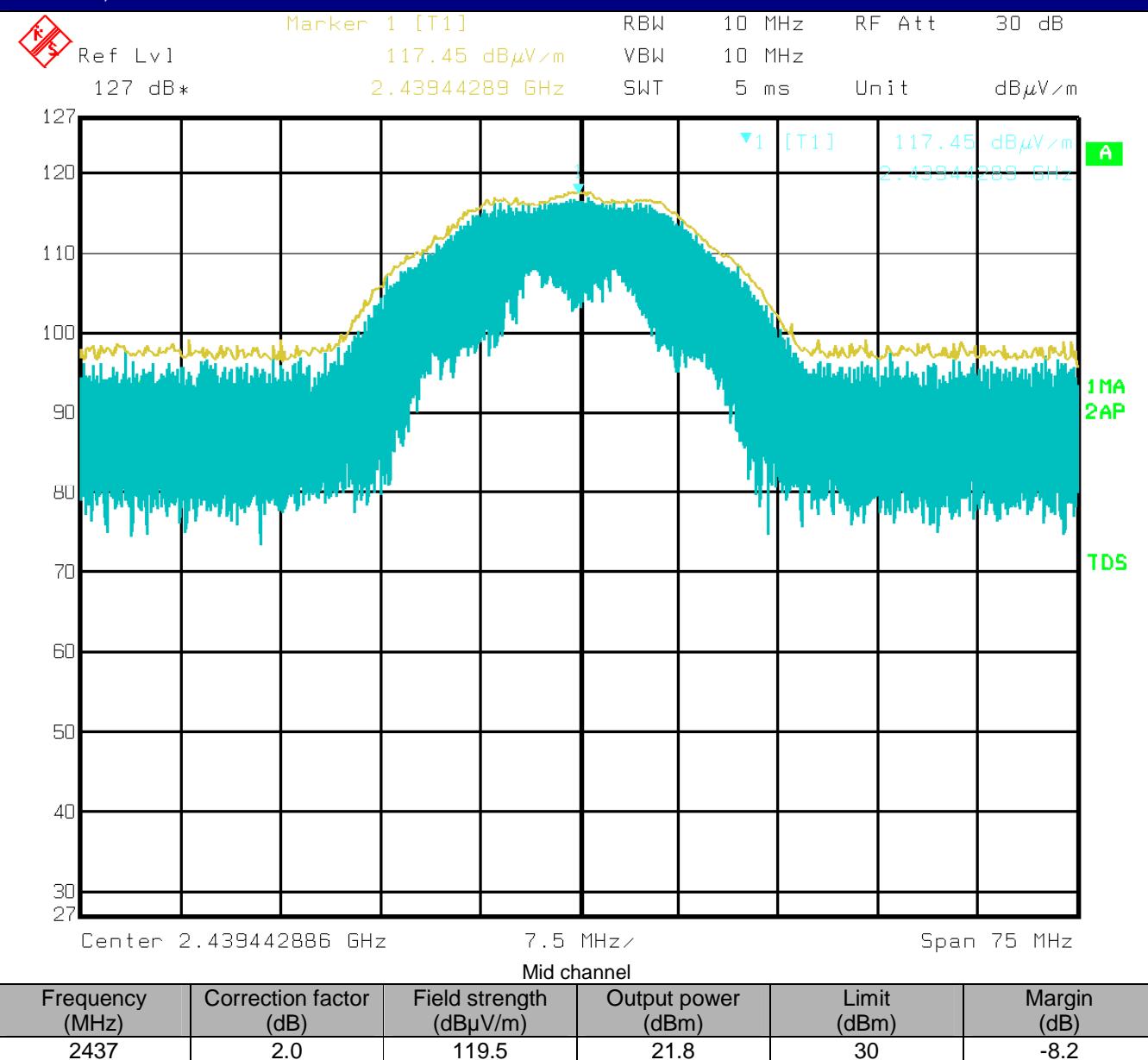
\*Notes: RBW of 10 MHz is less than the main lobe width (20 MHz). A  $20\log(10M/\text{measured 6dB bandwidth})$  correction factor for field strength has been applied to ensure the whole emission bandwidth was covered





<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

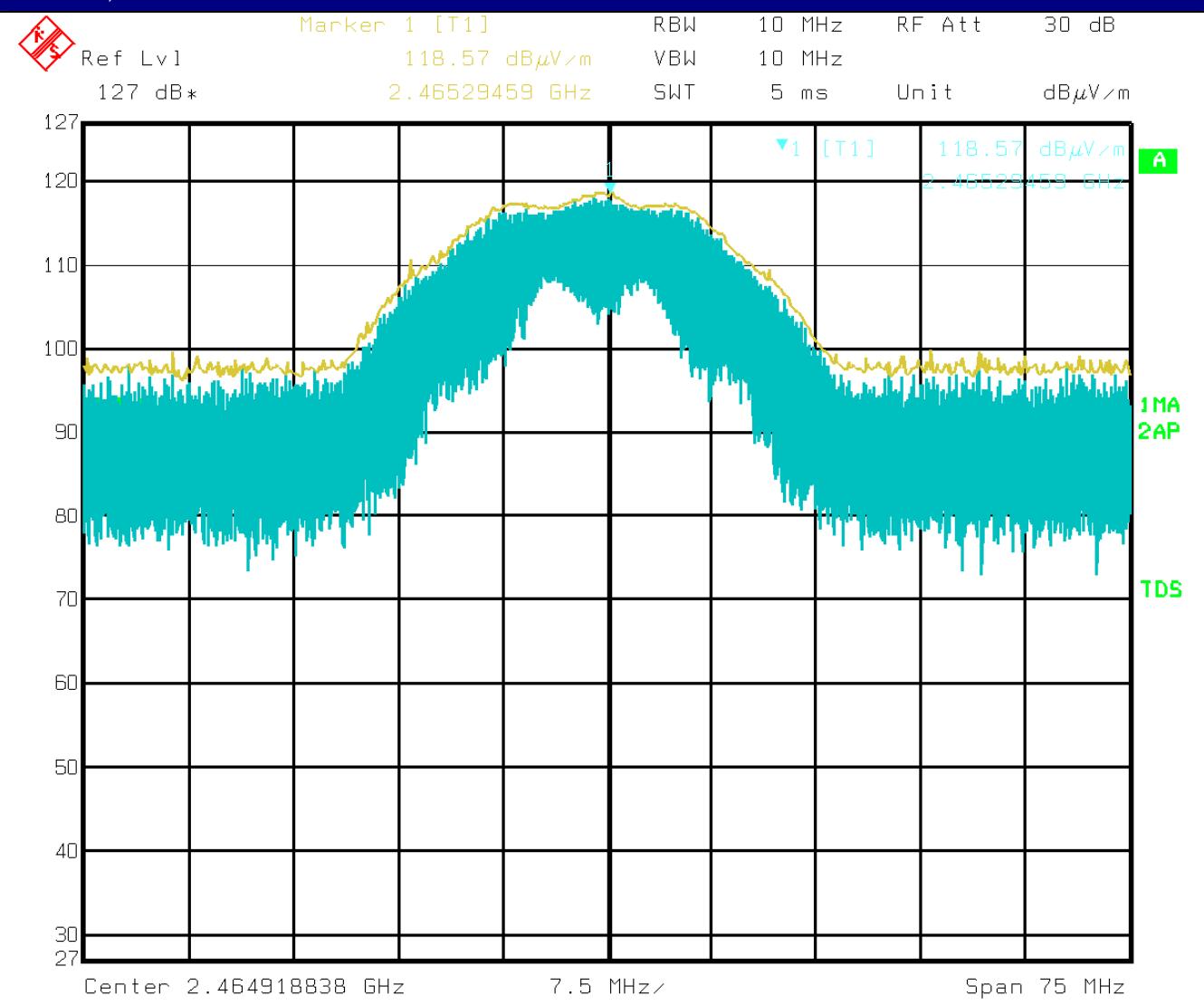
### Test data, continued





Section 8: Testing data	Product: STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions	
Test date: 2011-12-12	Test engineer: Paolo Barbieri
Verdict: Pass	Supply input: 120 Vac, 60 Hz
Temperature: 22 °C	Air pressure: 1008 mbar
Relative humidity: 45 %	
<b>Specification:</b> FCC Part 15 Subpart C	

## Test data, continued



High channel					
Frequency (MHz)	Correction factor (dB)	Field strength (dB $\mu$ V/m)	Output power (dBm)	Limit (dBm)	Margin (dB)
2462	1.8	120.4	22.7	30	-7.3



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

Theoretical conversion from Field Strength measured at 3 m to power conducted from the intentional radiator to the antenna:

$$P (W) = \frac{E^2 R^2}{30G}$$

$E$  = Measured field strength value (V/m)

$R$  = Measurement distance (m)

$G$  = Antenna Gain (numeric)

Therefore  $dBW = dB\mu V/m + 20\log(3) - 10\log(30) - 10\log(G)$

From which we obtain

$$dBmW = dB\mu V/m - 120 + 20\log(3) - 10\log(30) - 10\log(G) + 30 = dB\mu V/m - 95.23 - 10\log(G)$$

Output power [dBm] = Field Strength [dB $\mu$ V/m] – 95.23 [dB] – Antenna gain [dBi]

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
2412	26.4	36	-9.6
2437	24.3	36	-11.7
2462	25.2	36	-10.8

$$\text{EIRP [dBm]} = \text{Output power [dBm]} + \text{Antenna gain [dBi]}$$



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

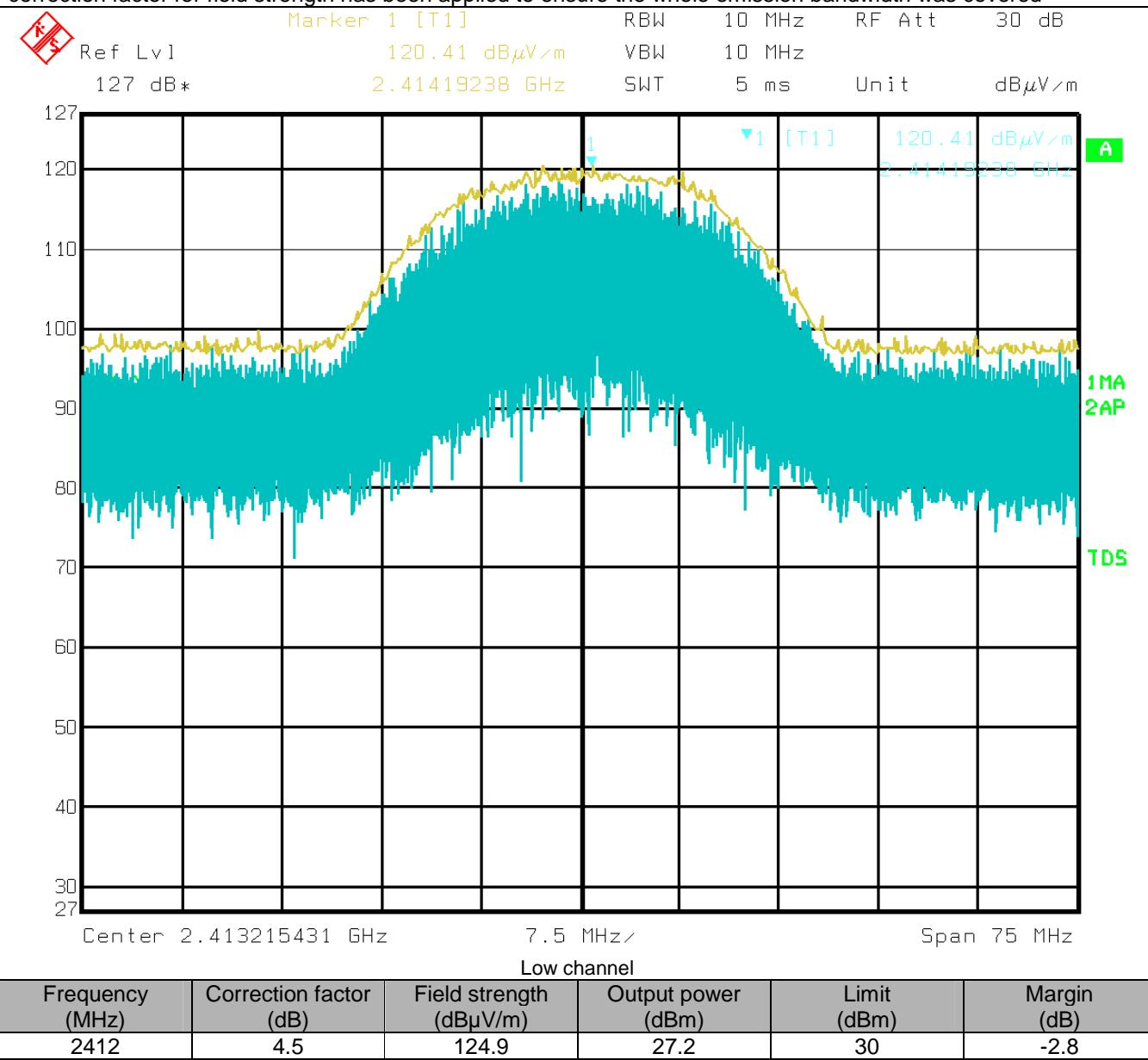
## Test data, continued

### Radiated measurements protocol 802.11g

Radiated measurements were performed:

- The EUT was measured on three orthogonal axes.
- All measurements were performed at a distance of 3 m.
- All measurements were performed using a peak detector with RBW 10 MHz: (\*)
- Only the worst data presented in the test report.

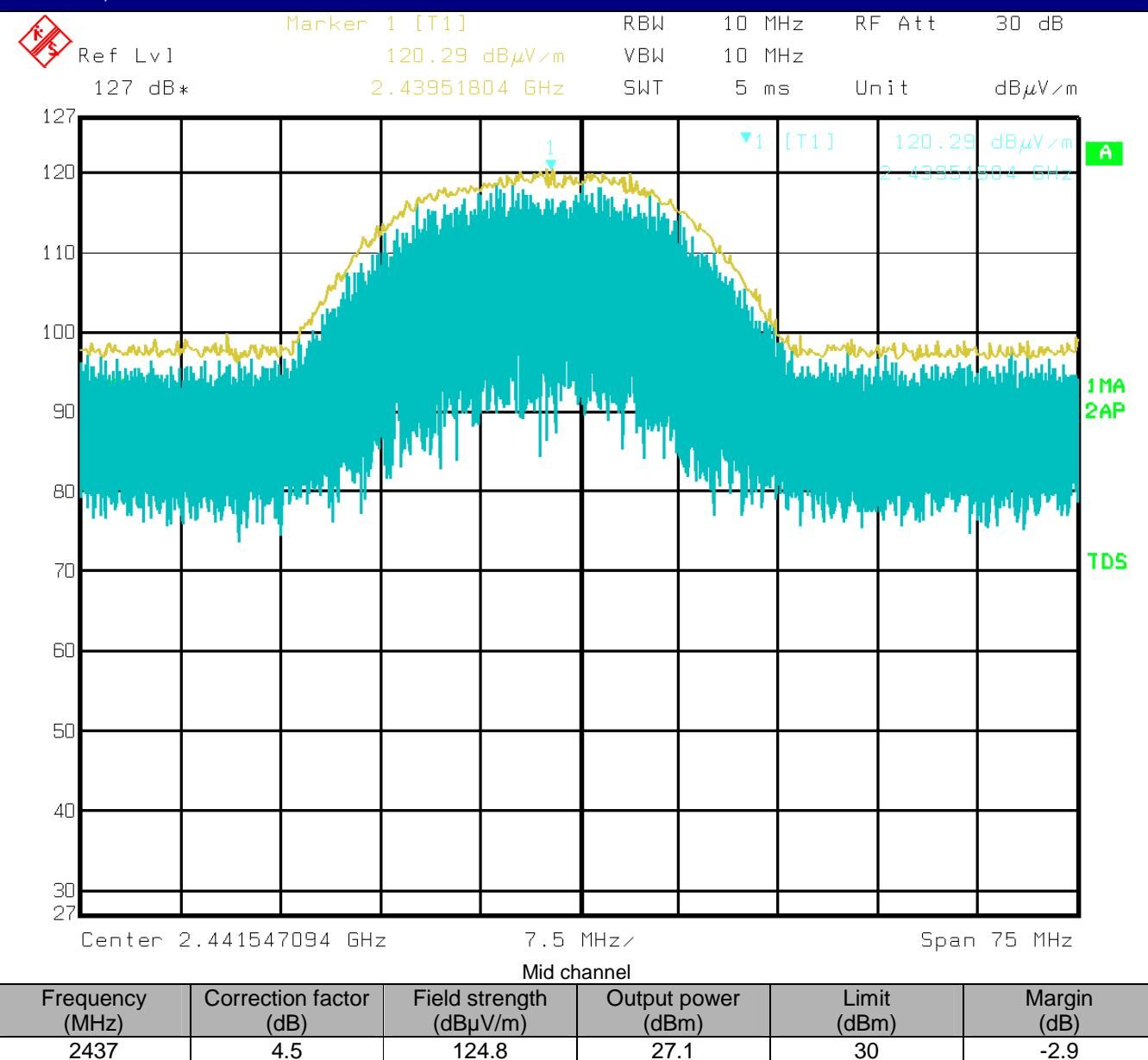
\*Notes: RBW of 10 MHz is less than the main lobe width (20 MHz). A  $20\log(10M/\text{measured 6dB bandwidth})$  correction factor for field strength has been applied to ensure the whole emission bandwidth was covered





<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

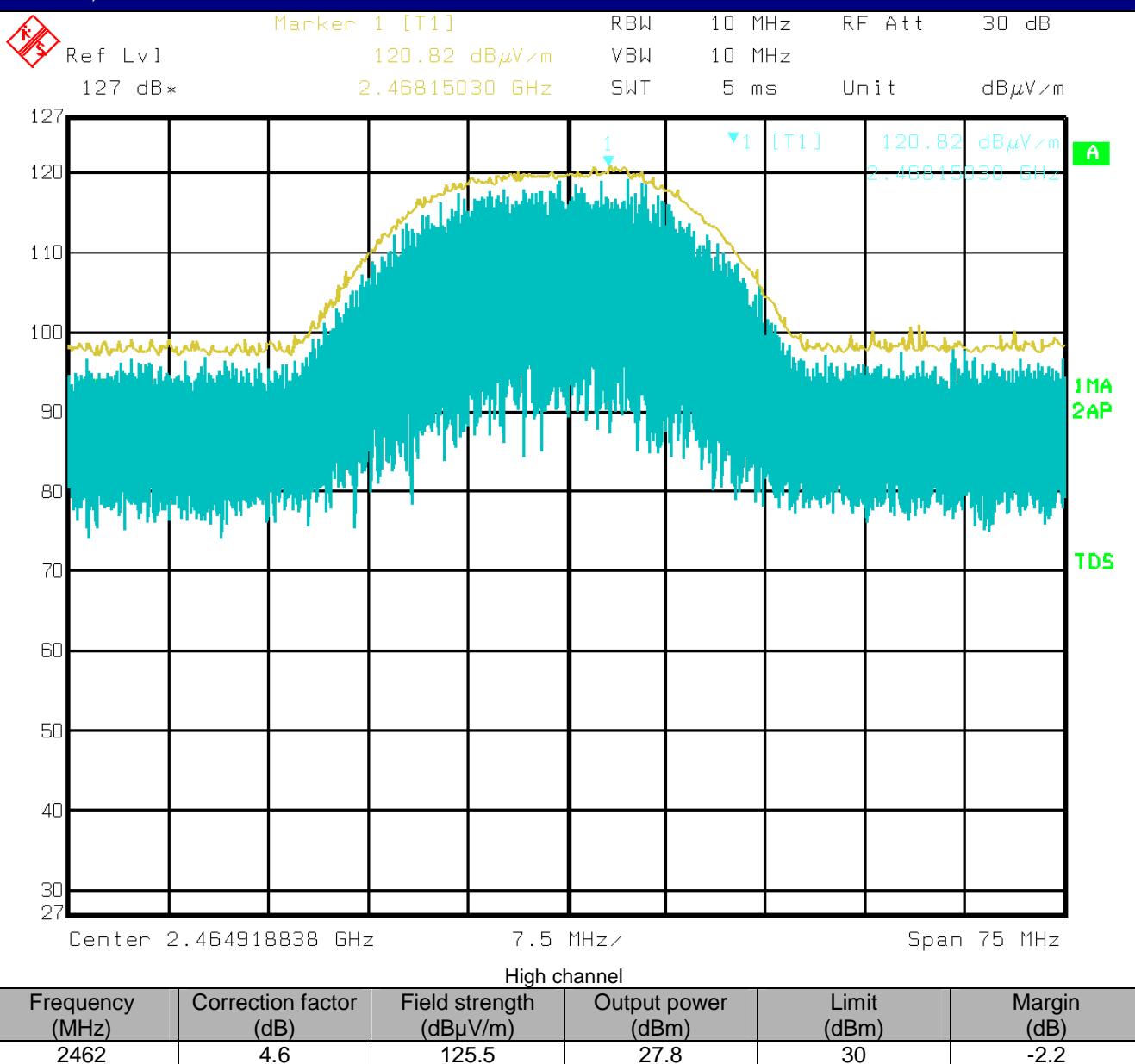
### Test data, continued





<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued





<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

Theoretical conversion from Field Strength measured at 3 m to power conducted from the intentional radiator to the antenna:

$$P (W) = \frac{E^2 R^2}{30G}$$

$E$  = Measured field strength value (V/m)

$R$  = Measurement distance (m)

$G$  = Antenna Gain (numeric)

Therefore  $dBW = dB\mu V/m + 20\log(3) - 10\log(30) - 10\log(G)$

From which we obtain

$$dBmW = dB\mu V/m - 120 + 20\log(3) - 10\log(30) - 10\log(G) + 30 = dB\mu V/m - 95.23 - 10\log(G)$$

Output power [dBm] = Field Strength [dB $\mu$ V/m] – 95.23 [dB] – Antenna gain [dBi]

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
2412	29.7	36	-6.3
2437	29.6	36	-6.4
2462	30.3	36	-5.7

$$\text{EIRP [dBm]} = \text{Output power [dBm]} + \text{Antenna gain [dBi]}$$



Section 8: Testing data	Product: STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions	
Test date: 2011-12-12	<b>Test engineer:</b> Paolo Barbieri
Verdict: Pass	Supply input: 120 Vac, 60 Hz
Temperature: 22 °C	Air pressure: 1008 mbar
<b>Specification:</b> FCC Part 15 Subpart C	

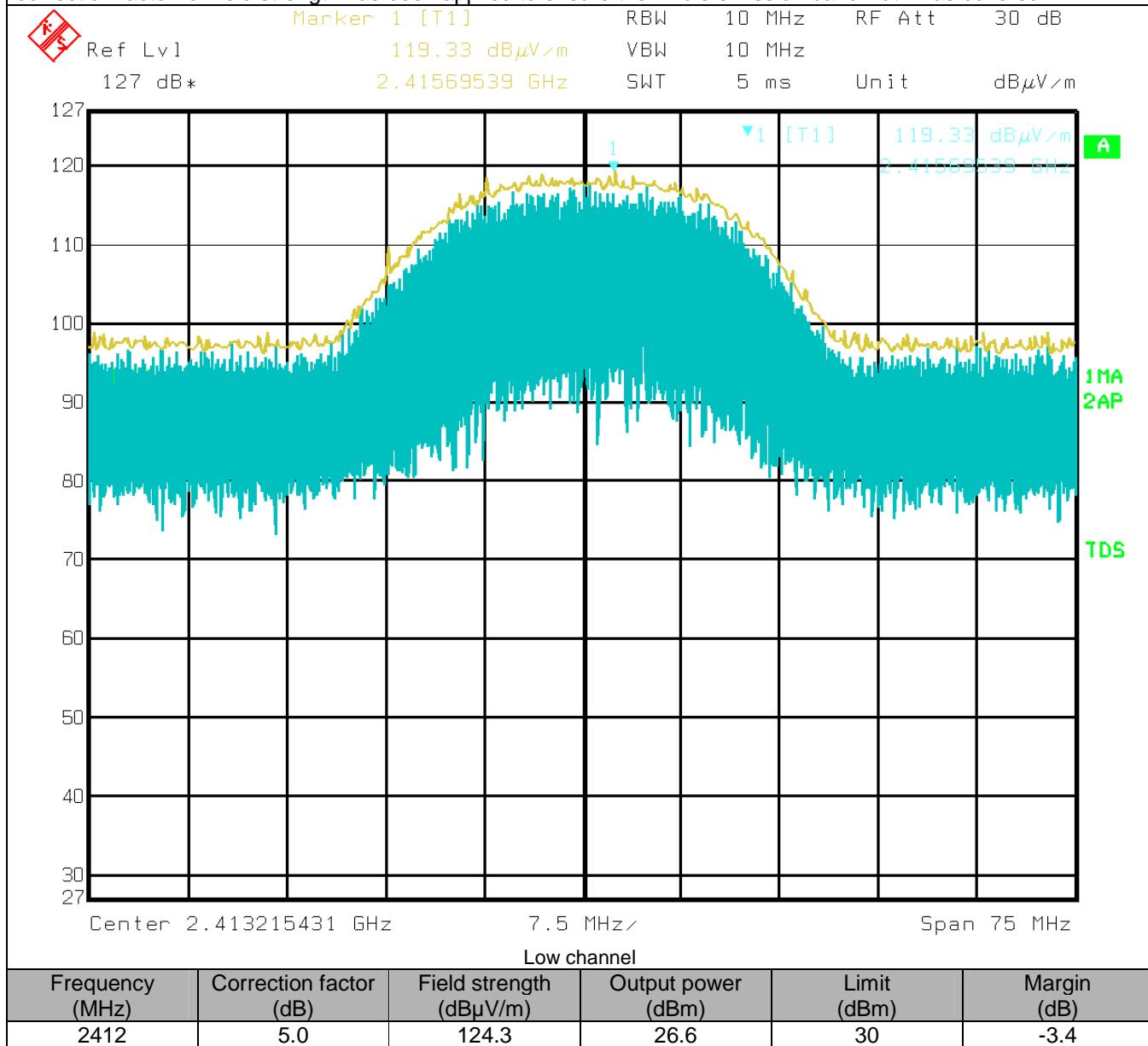
## Test data, continued

## Radiated measurements protocol 802.11n

Radiated measurements were performed:

- The EUT was measured on three orthogonal axes.
- All measurements were performed at a distance of 3 m.
- All measurements were performed using a peak detector with RBW 10 MHz: (\*)
- Only the worst data presented in the test report.

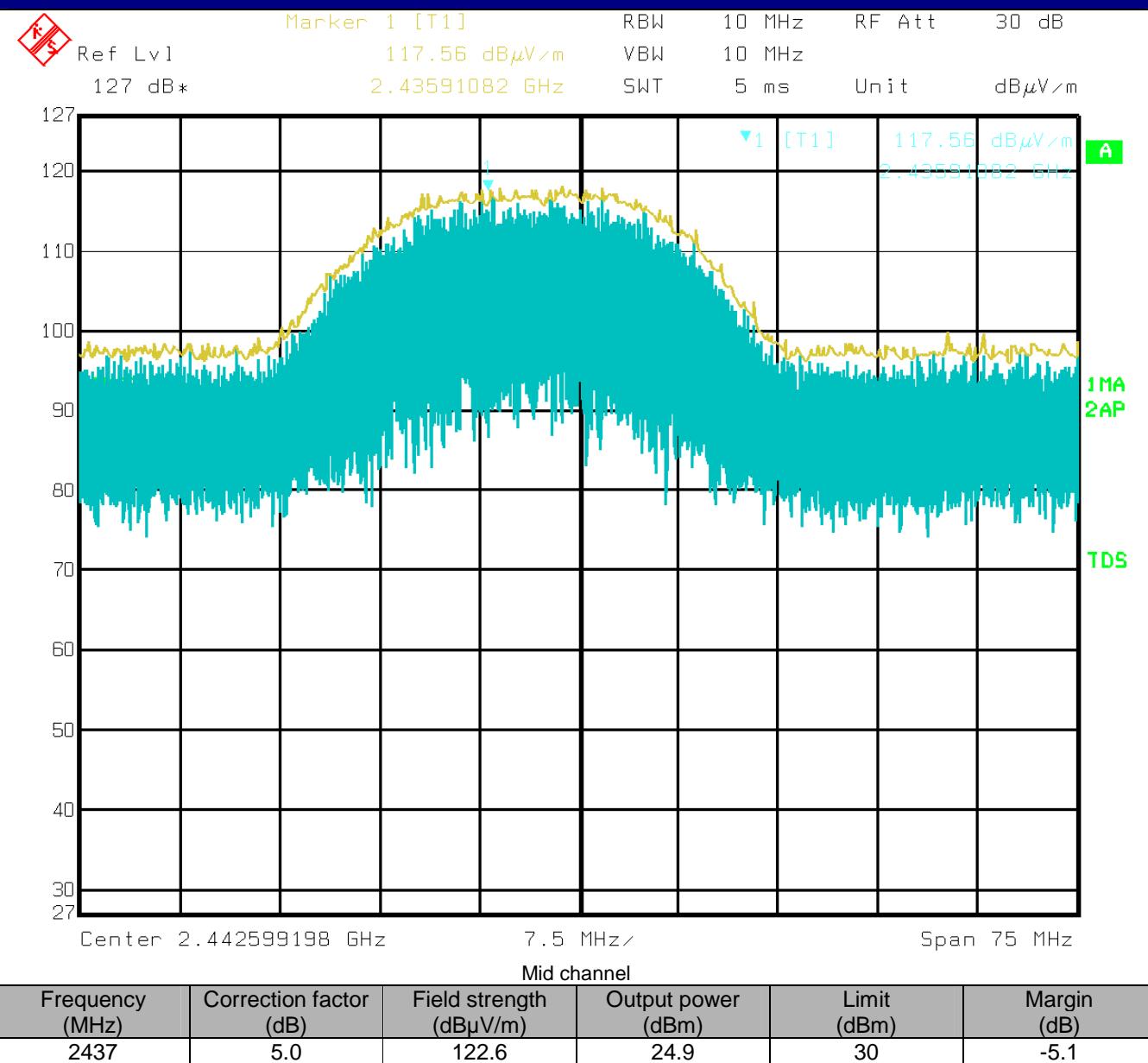
\*Notes: RBW of 10 MHz is less than the main lobe width (20 MHz). A  $20\log(10M/\text{measured 6dB bandwidth})$  correction factor for field strength has been applied to ensure the whole emission bandwidth was covered





<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

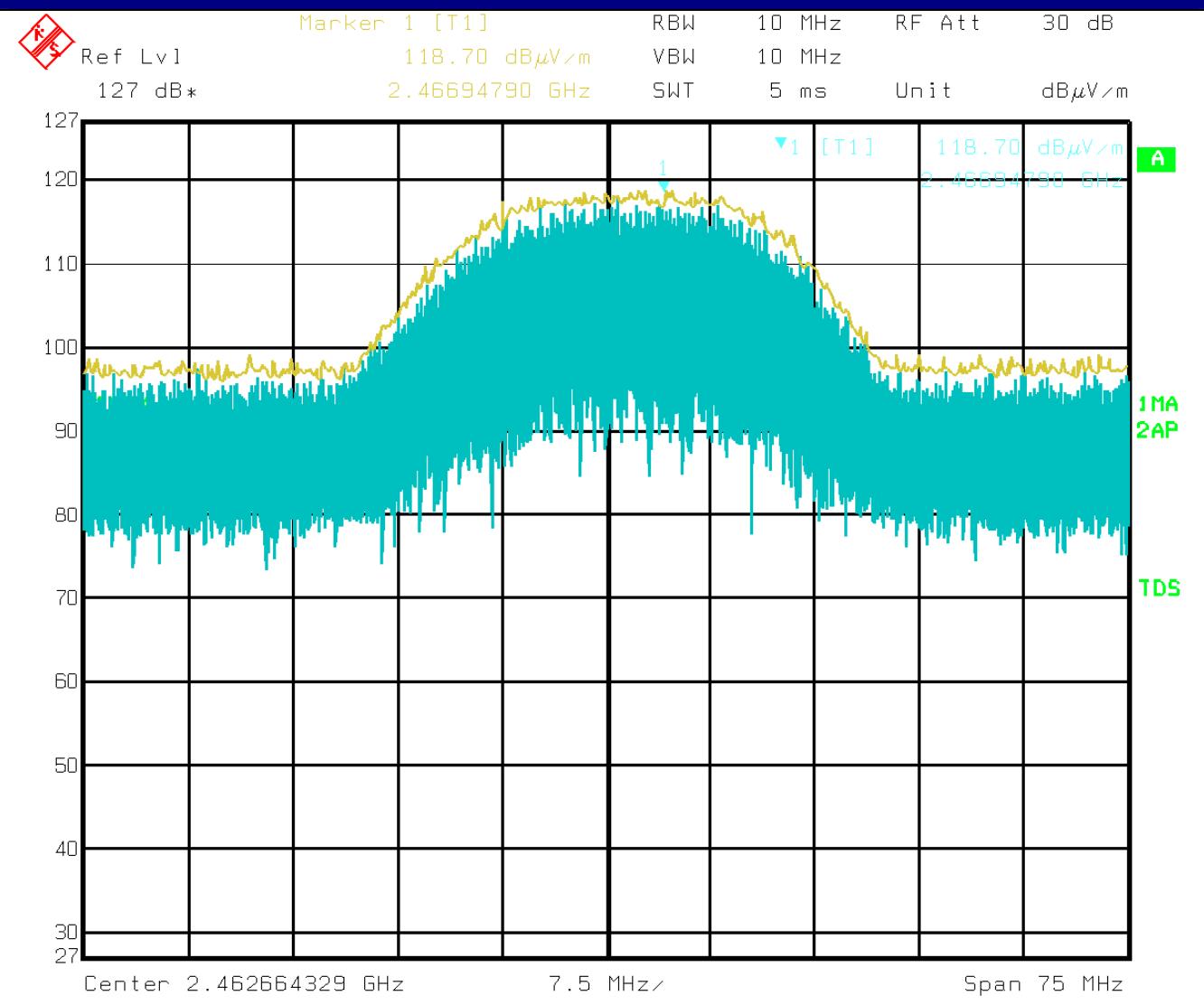
### Test data, continued





Section 8: Testing data	Product: STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions	
Test date: 2011-12-12	Test engineer: Paolo Barbieri
Verdict: Pass	Supply input: 120 Vac, 60 Hz
Temperature: 22 °C	Air pressure: 1008 mbar
Relative humidity: 45 %	
<b>Specification:</b> FCC Part 15 Subpart C	

## Test data, continued



High channel					
Frequency (MHz)	Correction factor (dB)	Field strength (dB $\mu$ V/m)	Output power (dBm)	Limit (dBm)	Margin (dB)
2462	4.9	123.6	25.9	30	-4.1



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

Theoretical conversion from Field Strength measured at 3 m to power conducted from the intentional radiator to the antenna:

$$P (W) = \frac{E^2 R^2}{30G}$$

$E$  = Measured field strength value (V/m)

$R$  = Measurement distance (m)

$G$  = Antenna Gain (numeric)

Therefore  $dBW = dB\mu V/m + 20\log(3) - 10\log(30) - 10\log(G)$

From which we obtain

$$dBmW = dB\mu V/m - 120 + 20\log(3) - 10\log(30) - 10\log(G) + 30 = dB\mu V/m - 95.23 - 10\log(G)$$

Output power [dBm] = Field Strength [dB $\mu$ V/m] – 95.23 [dB] – Antenna gain [dBi]

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
2412	29.1	36	-6.9
2437	27.4	36	-8.6
2462	28.4	36	-7.6

$$\text{EIRP [dBm]} = \text{Output power [dBm]} + \text{Antenna gain [dBi]}$$



<b>Section 8: Testing data</b>	<b>Product: STNH4C7A82GDL</b>	
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

## 8.7 Clause 15.247(d) Spurious emissions

### § 15.247 Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.

(d) 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)).



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

## Special notes

### §15.209 – Radiated emission limits

Frequency (MHz)	Field strength		Measurement distance (m)
	( $\mu$ V/m)	(dB $\mu$ V/m)	
0.009–0.490	2400/F	67.6–20log(F)	300
0.490–1.705	24000/F	87.6–20log(F)	30
1.705–30.0	30	29.5	30
30–88	100	40.0	3
88–216	150	43.5	3
216–960	200	46.0	3
above 960	500	54.0	3

#### Notes:

- F = fundamental frequency in kHz
- In the emission table above, the tighter limit applies at the band edges.
- For frequencies above 1 GHz the limit on peak RF emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.

### §15.205 – Restricted bands of operation

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
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	Above 38.6
13.36–13.41			

- The spectrum was searched from 30 MHz to the 10<sup>th</sup> harmonic.
- The EUT was measured on three orthogonal axis.
- All measurements were performed at a distance of 3 m.
- All measurements were performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz/300 kHz RBW/VBW,
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results



<b>Section 8: Testing data</b>	<b>Product: STNH4C7A82GDL</b>	
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

## Test data

### Duty cycle/average factor calculations

§15.35(c) When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.

#### **Duty cycle/average factor calculations: duty cycle =100%**

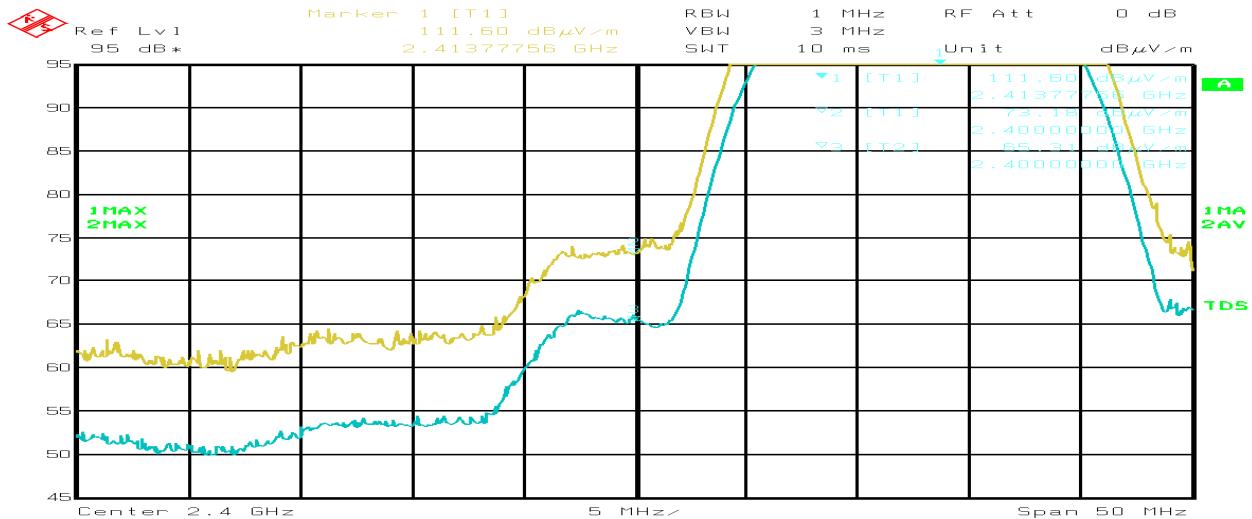
$$\text{Duty cycle / average factor} = 20 \times \log_{10} \left( \frac{T_{x_{100ms}}}{100ms} \right) = \text{not applicable}$$

 <b>Nemko</b> Nemko Spa Via del Carroccio, 4 20853 Biassono (MB) – Italy	<b>Section 8: Testing data</b> <b>Test name:</b> Clause 15.247(d) Spurious emissions <b>Test date:</b> 2011-12-12 <b>Verdict:</b> Pass <b>Temperature:</b> 22 °C <b>Specification:</b> FCC Part 15 Subpart C	<b>Product:</b> STNH4C7A82GDL <b>Test engineer:</b> Paolo Barbieri <b>Supply input:</b> 120 Vac, 60 Hz <b>Air pressure:</b> 1008 mbar <b>Relative humidity:</b> 45 %
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## Test data, continued

Marker-delta measurement for 2.4000 GHz Band Edge protocol 802.11b

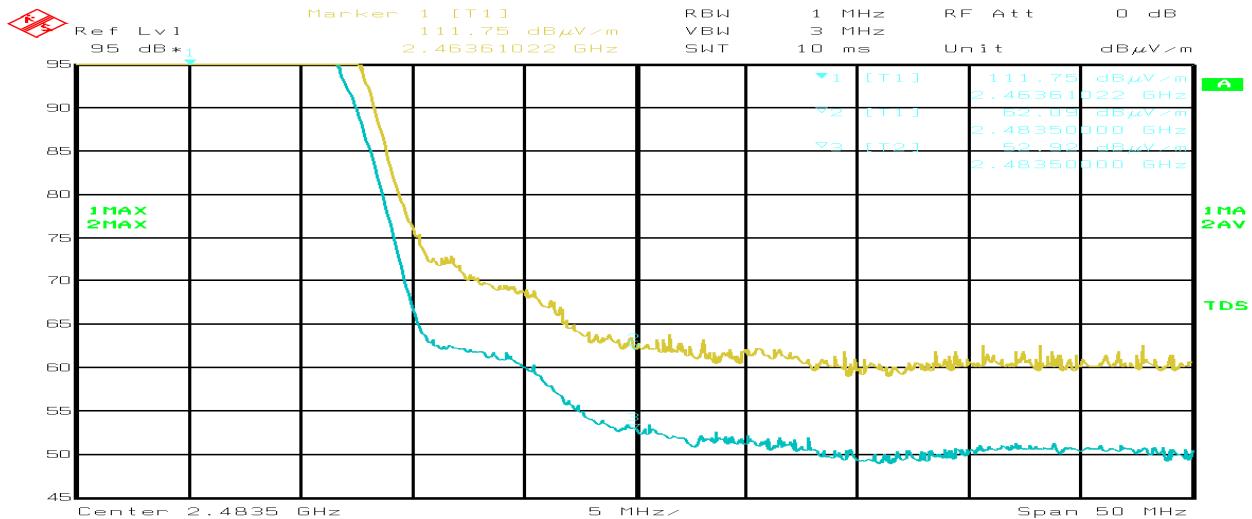
Measured field strength for low channel in 1 MHz/3 MHz RBW/VBW = 111.6 dB<sub>µ</sub>V/m



Delta marker = 38.4 dB

Marker-delta measurement for 2.4835 GHz Band Edge protocol 802.11b

Measured field strength for high channel in 1 MHz/3 MHz RBW/VBW = 111.7 dB $\mu$ V/m



Delta marker = 49.6 dB

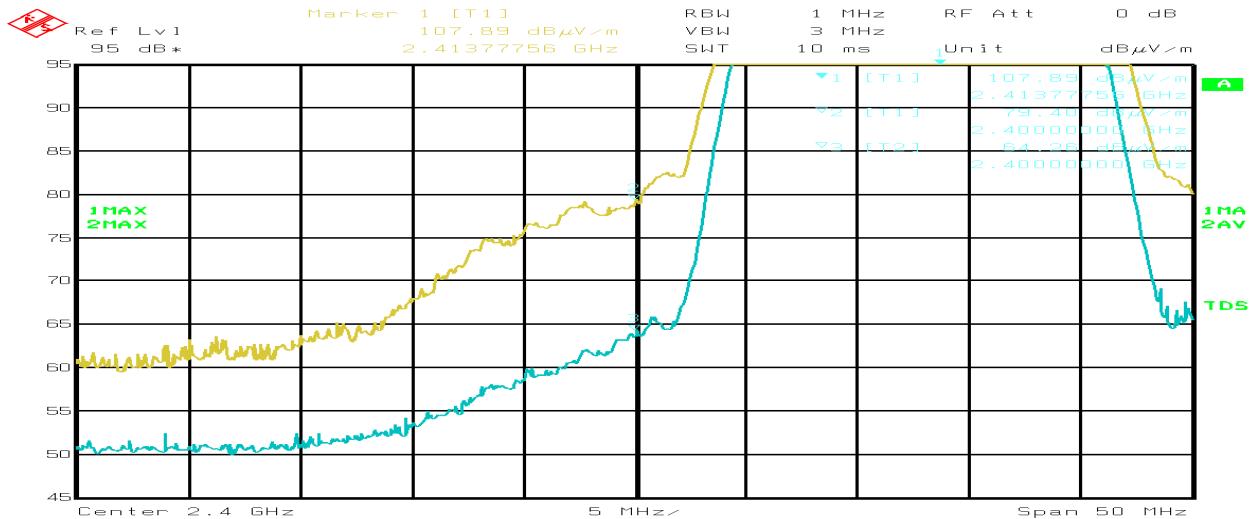


<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

Marker-delta measurement for 2.4000 GHz Band Edge protocol 802.11g

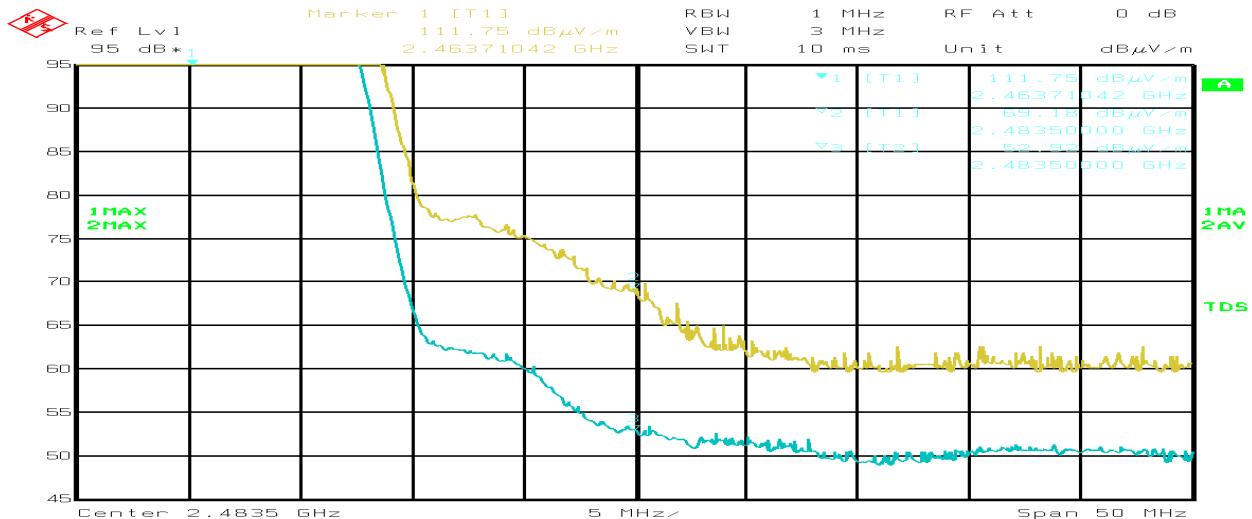
Measured field strength for low channel in 1 MHz/3 MHz RBW/VBW = 107.9 dB $\mu$ V/m



Delta marker = 28.5 dB

Marker-delta measurement for 2.4835 GHz Band Edge protocol 802.11g

Measured field strength for high channel in 1 MHz/3 MHz RBW/VBW = 111.7 dB $\mu$ V/m



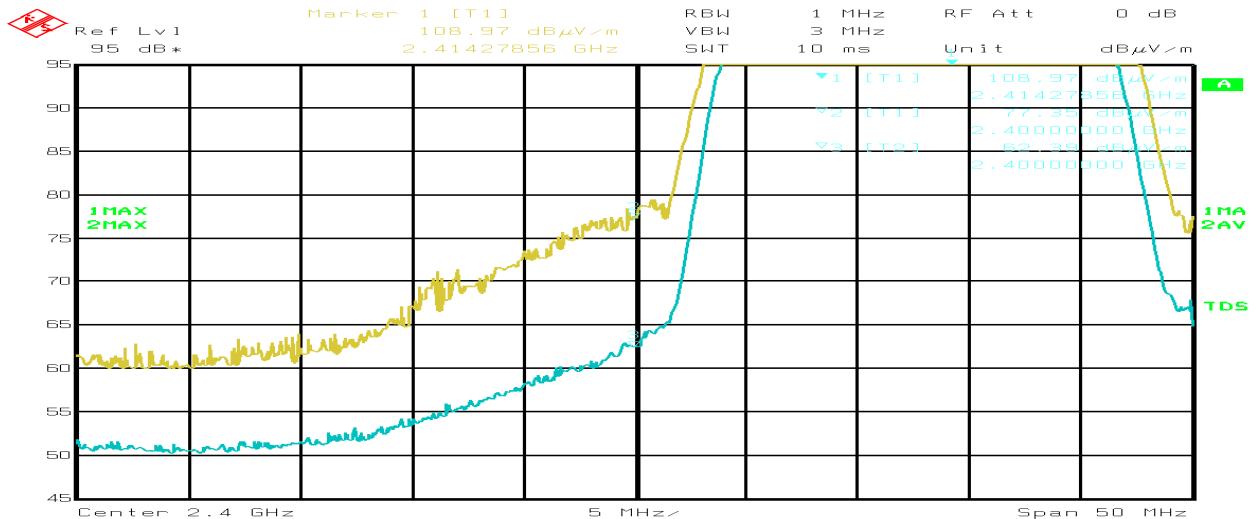
Delta marker = 42.5 dB

 <b>Nemko</b> Nemko Spa Via del Carroccio, 4 20853 Biassono (MB) – Italy	<b>Section 8: Testing data</b> <b>Test name:</b> Clause 15.247(d) Spurious emissions <b>Test date:</b> 2011-12-12 <b>Verdict:</b> Pass <b>Temperature:</b> 22 °C <b>Specification:</b> FCC Part 15 Subpart C	<b>Product:</b> STNH4C7A82GDL <b>Test engineer:</b> Paolo Barbieri <b>Supply input:</b> 120 Vac, 60 Hz <b>Air pressure:</b> 1008 mbar <b>Relative humidity:</b> 45 %
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## Test data, continued

Marker-delta measurement for 2.4000 GHz Band Edge protocol 802.11n

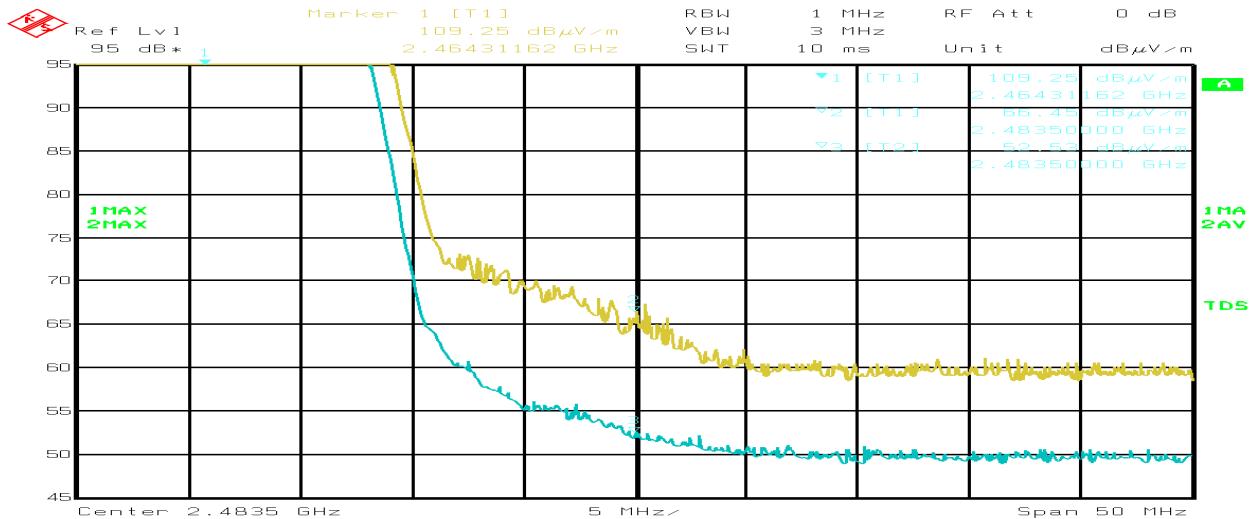
Measured field strength for low channel in 1 MHz/3 MHz RBW/VBW = 108.9 dB<sub>µ</sub>V/m



Delta marker = 31.5 dB

Marker-delta measurement for 2.4835 GHz Band Edge protocol 802.11n

Measured field strength for high channel in 1 MHz/3 MHz RBW/VBW = 109.2 dB $\mu$ V/m



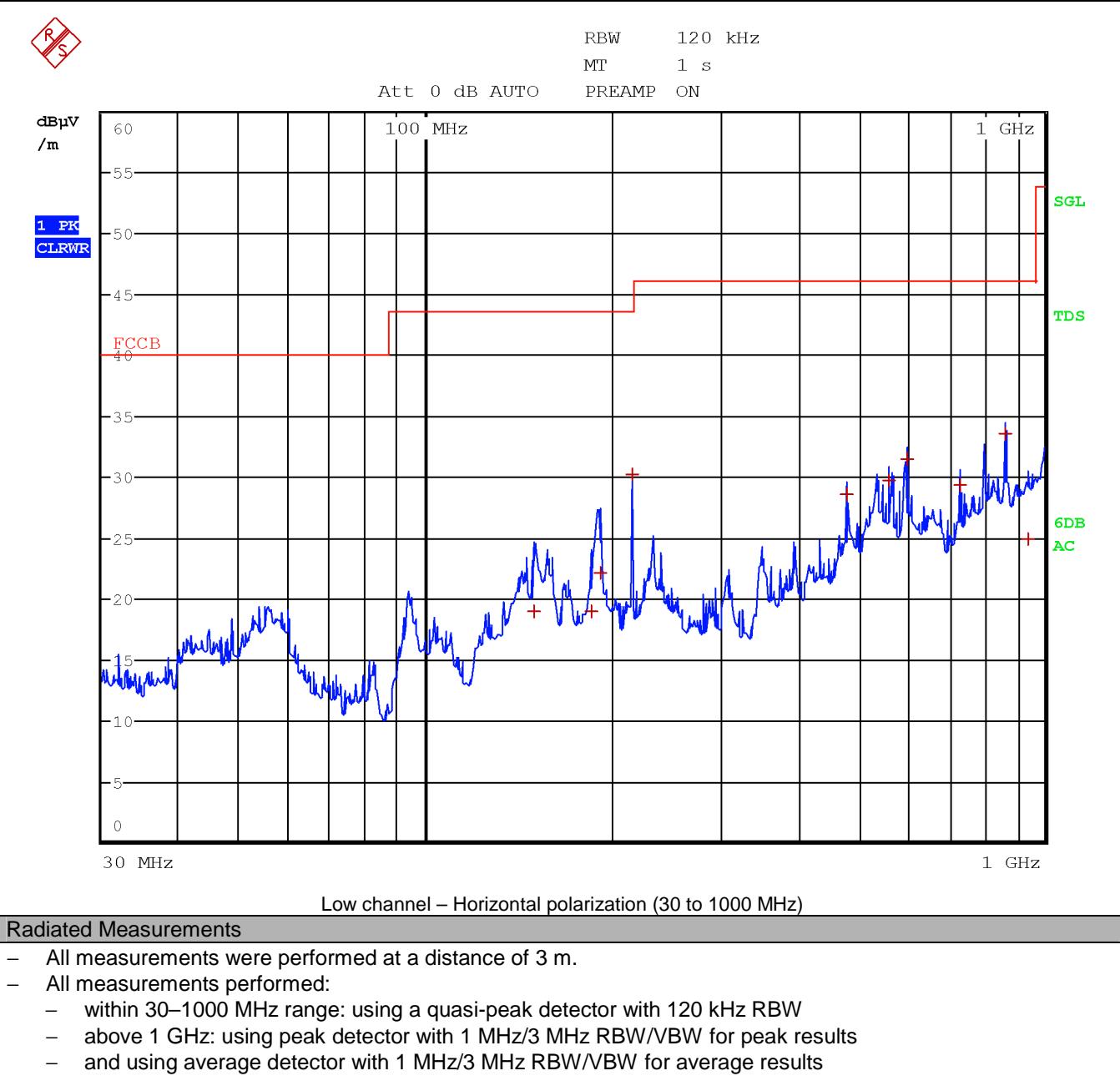
Delta marker = 42.7 dB



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b





<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
149.6500	19.0	43.5	-24.6	QP
185.6500	19.0	43.5	-24.5	QP
191.9500	22.2	43.5	-21.4	QP
216.0000	30.2	46.0	-15.8	QP
480.1500	28.6	46.0	-17.4	QP
559.1000	29.7	46.0	-16.4	QP
600.0000	31.4	46.0	-14.6	QP
729.0000	29.4	46.0	-16.7	QP
864.0000	33.7	46.0	-12.4	QP
939.6500	24.9	46.0	-21.1	QP

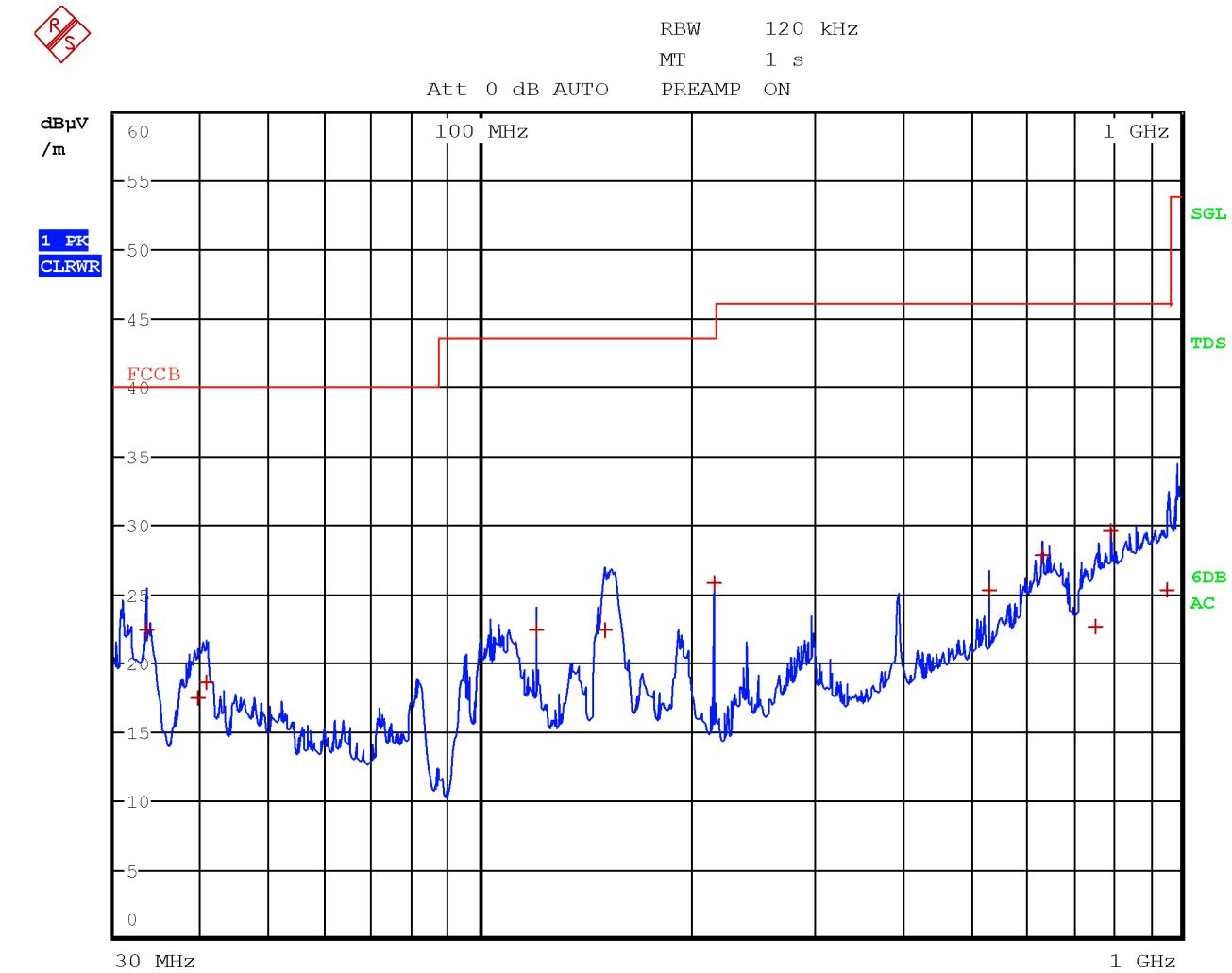
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



Section 8: Testing data	Product: STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions	
Test date: 2011-12-12	<b>Test engineer:</b> Paolo Barbieri
Verdict: Pass	Supply input: 120 Vac, 60 Hz
Temperature: 22 °C	Air pressure: 1008 mbar
<b>Specification:</b> FCC Part 15 Subpart C	

## Test data, continued

Radiated measurement protocol 802.11b



## Radiated Measurements

- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
33.3500	22.3	40.0	-17.7	QP
39.4000	17.5	40.0	-22.5	QP
40.7000	18.6	40.0	-21.4	QP
120.0000	22.4	43.5	-21.2	QP
150.1500	22.4	43.5	-21.2	QP
216.0000	25.8	46.0	-20.2	QP
533.3500	25.2	46.0	-20.8	QP
633.3500	27.8	46.0	-18.2	QP
754.3500	22.6	46.0	-23.4	QP
792.0000	29.6	46.0	-16.4	QP
953.9000	25.2	46.0	-20.8	QP

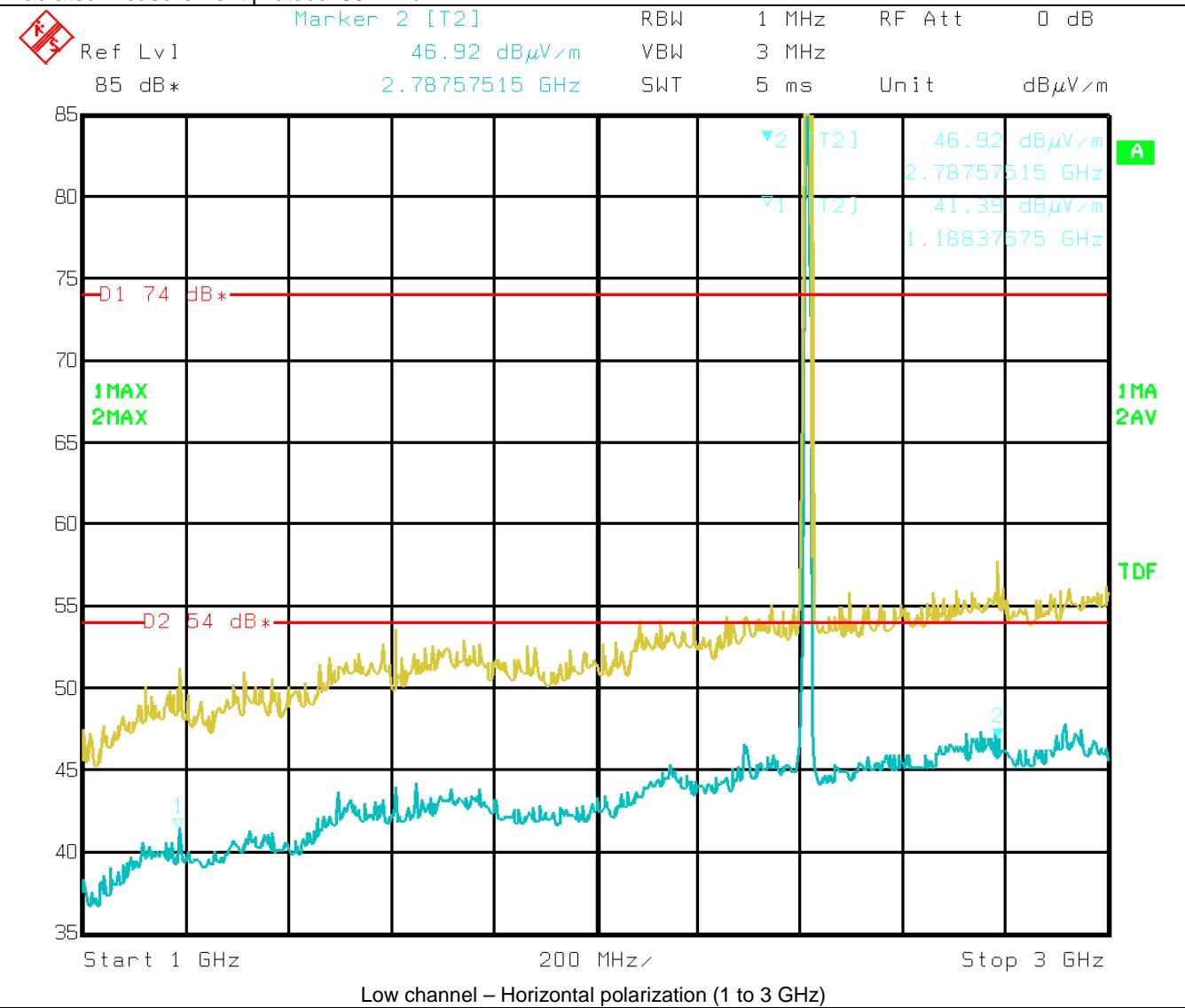
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



Section 8: Testing data	Product: STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions	
Test date: 2011-12-12	Test engineer: Paolo Barbieri
Verdict: Pass	Supply input: 120 Vac, 60 Hz
Temperature: 22 °C	Air pressure: 1008 mbar
Relative humidity: 45 %	
<b>Specification:</b> FCC Part 15 Subpart C	

## Test data, continued

Radiated measurement protocol 802.11b



## Radiated Measurements

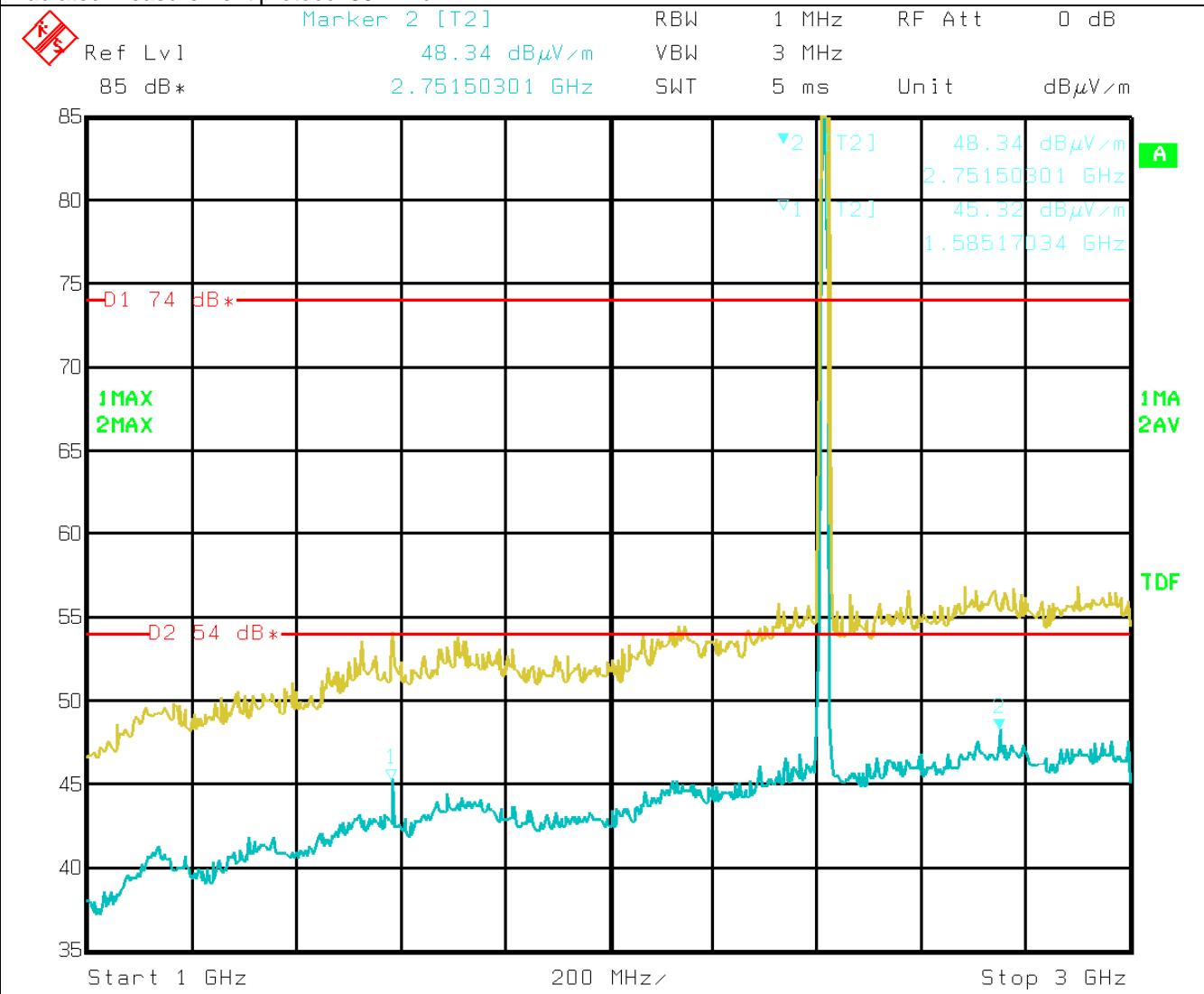
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

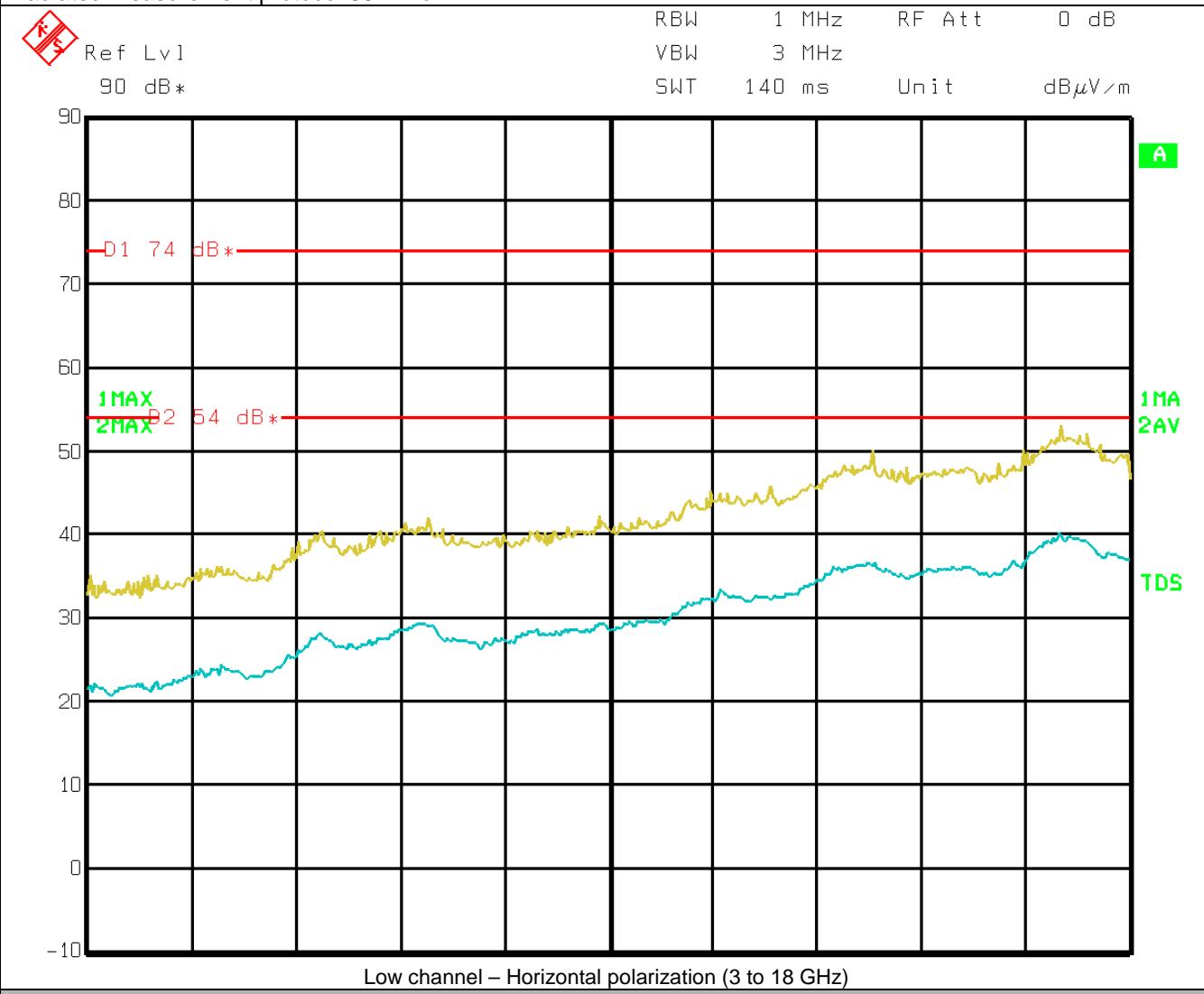
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

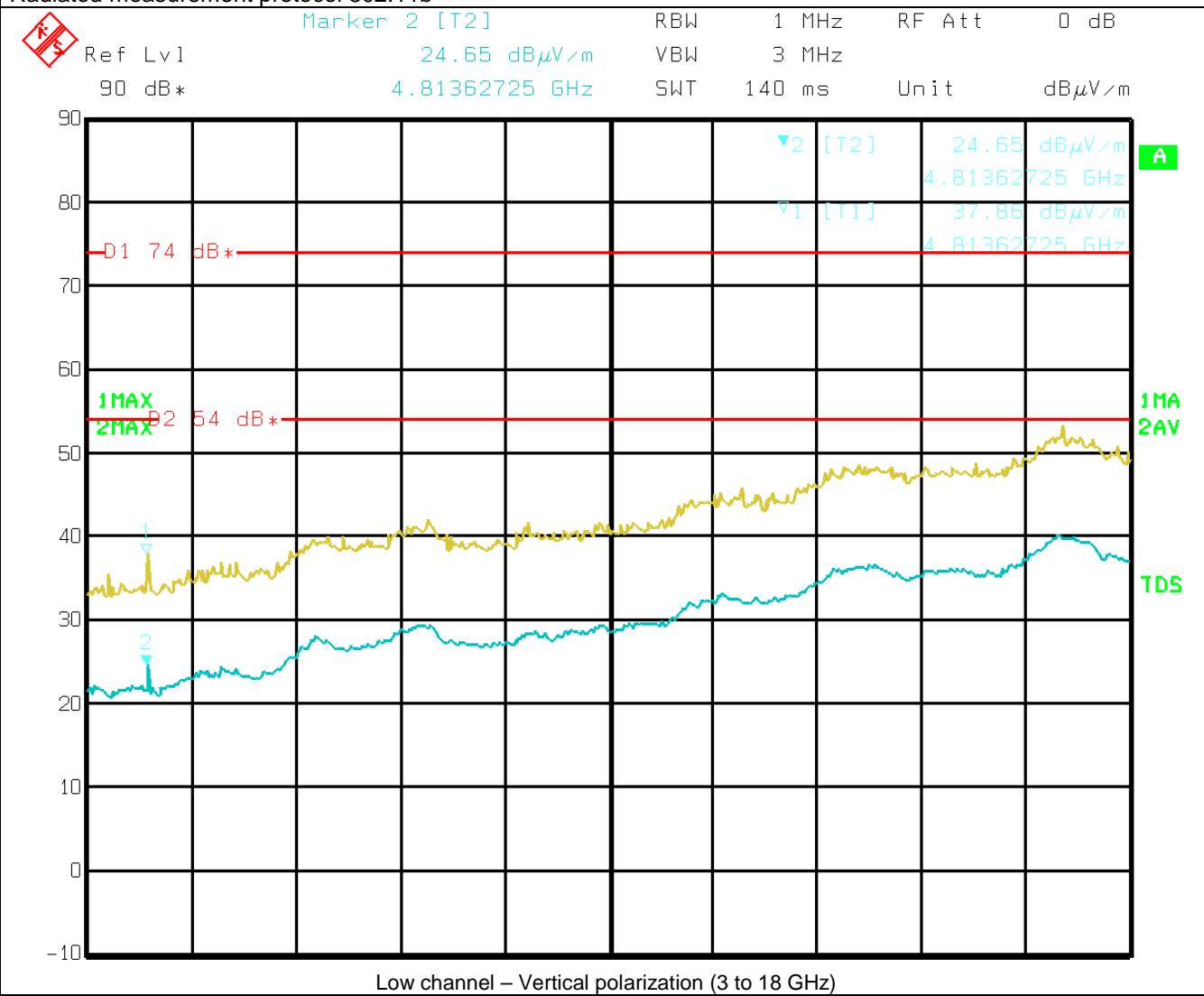
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

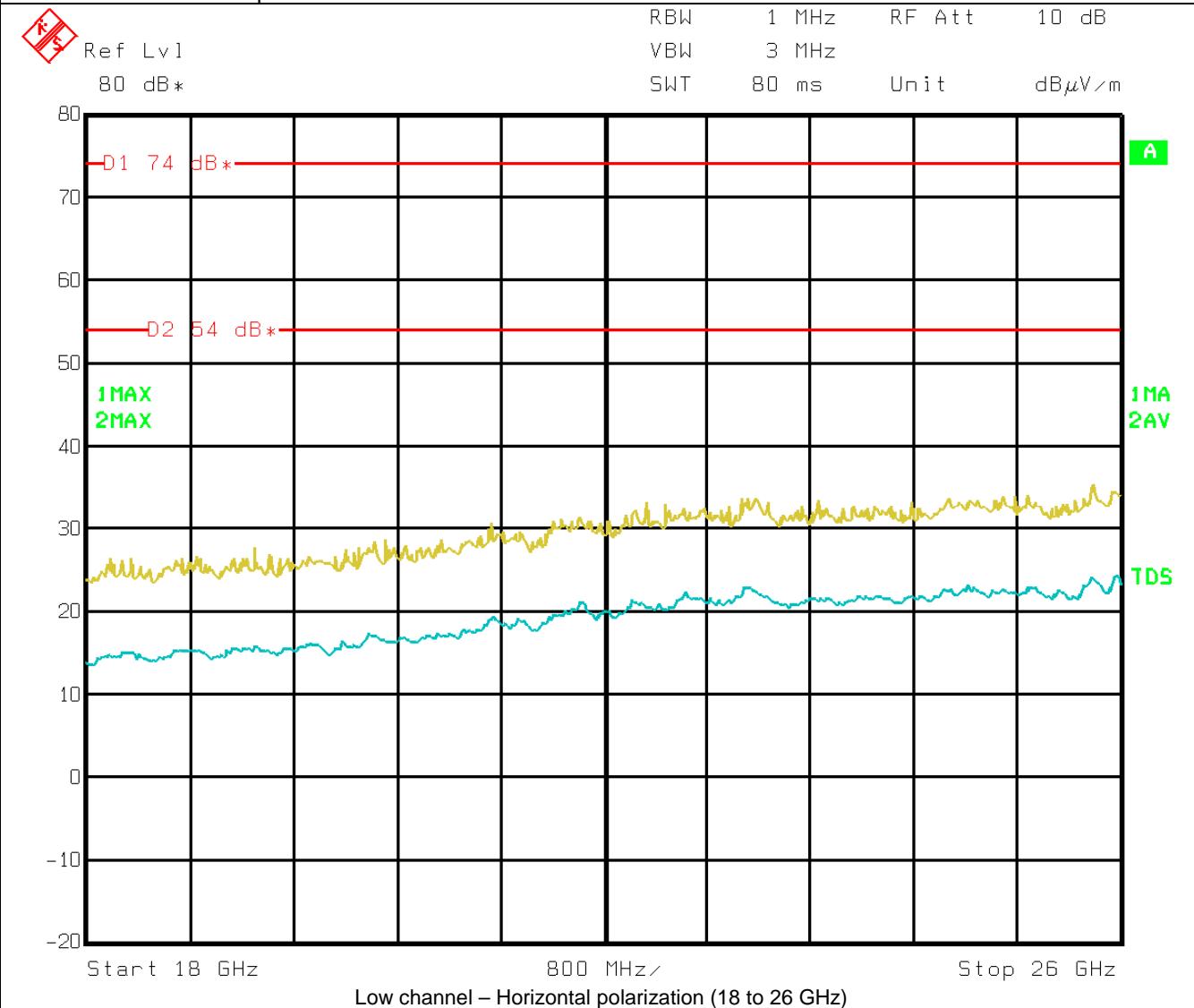
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

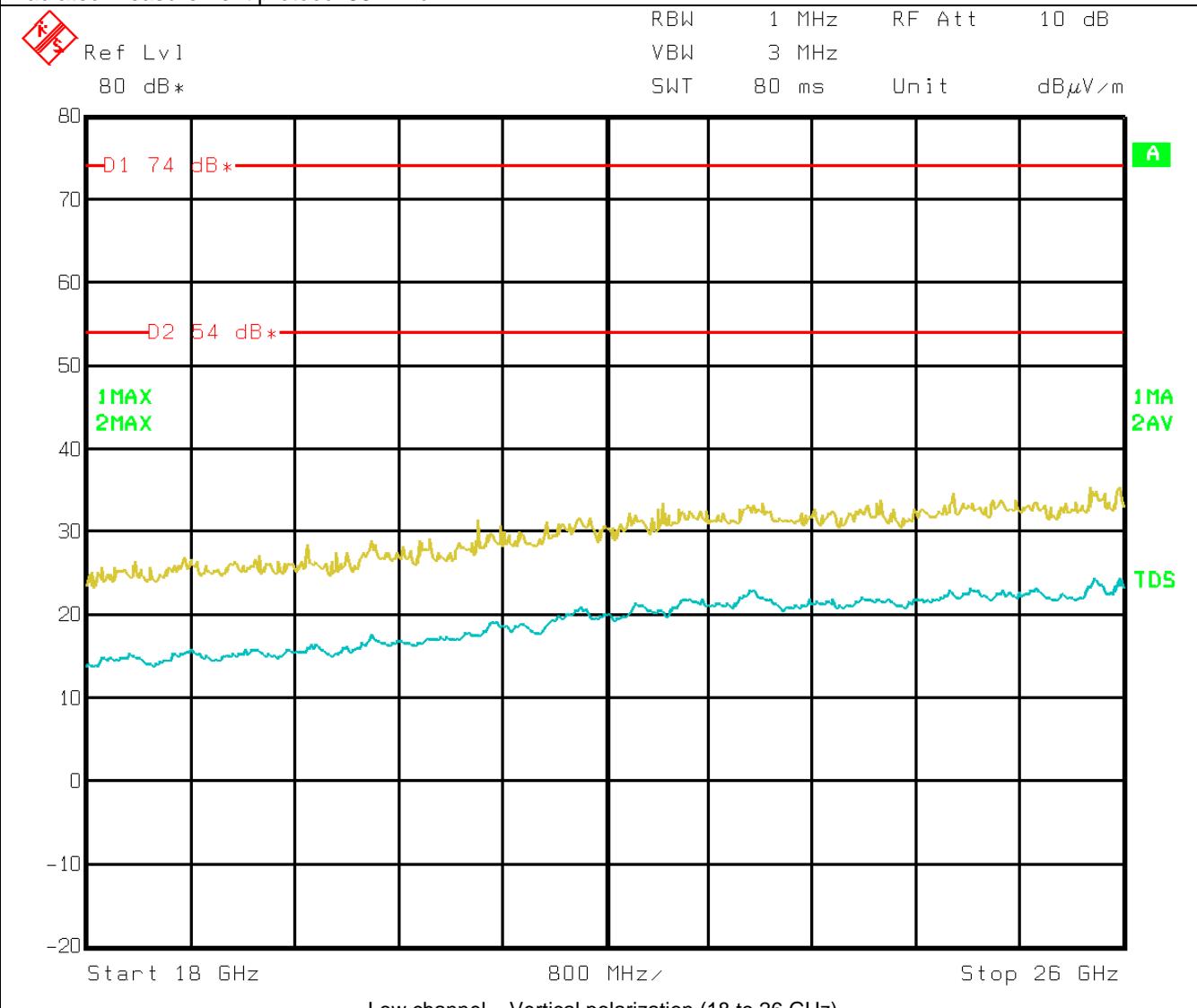
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

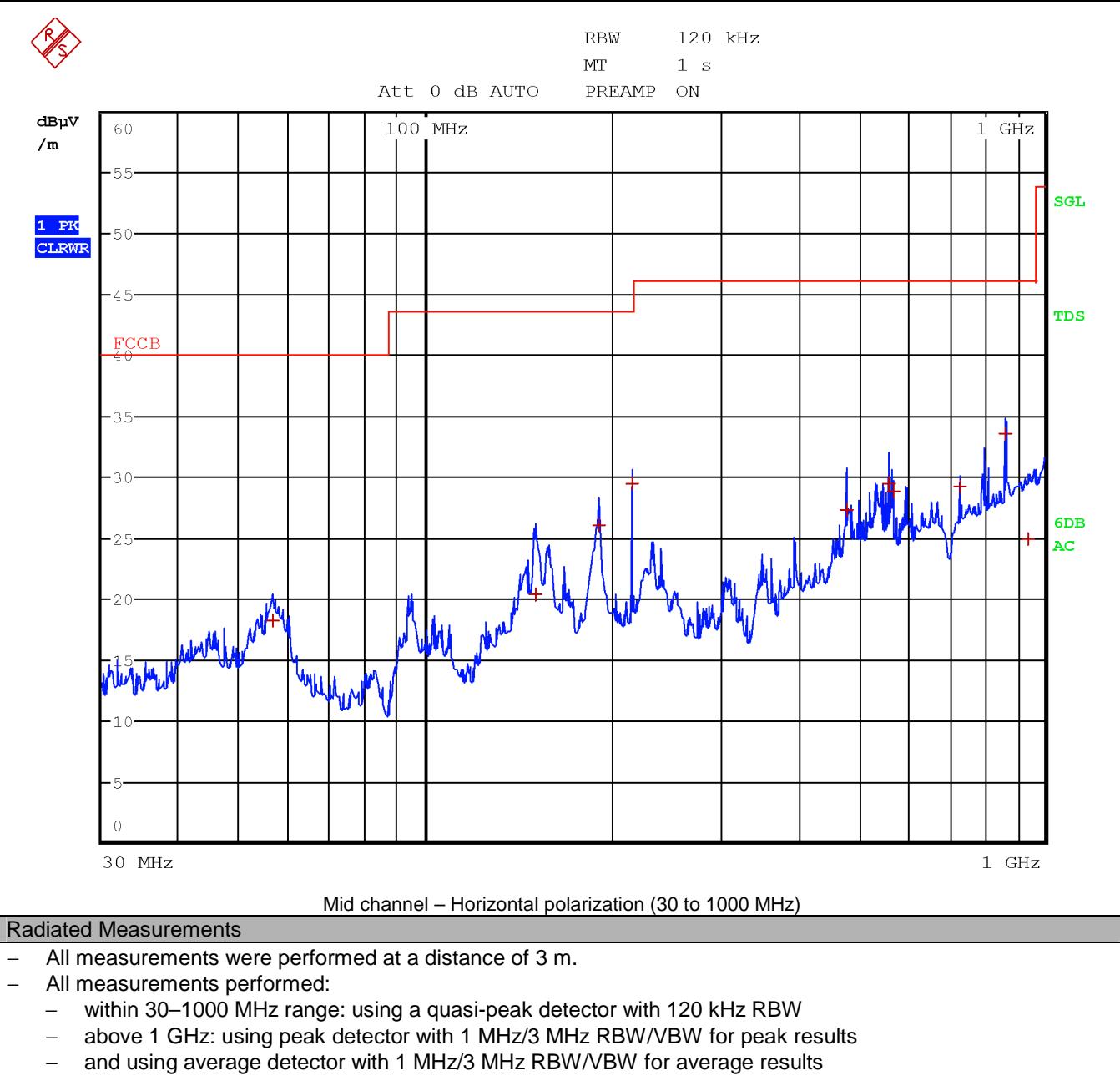
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b





<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
56.6500	18.2	40.0	-21.8	QP
150.1000	20.3	43.5	-23.2	QP
190.4500	26.1	43.5	-17.5	QP
216.0000	29.5	46.0	-16.5	QP
480.1000	27.3	46.0	-18.7	QP
559.1000	29.5	46.0	-16.5	QP
571.4000	28.9	46.0	-17.2	QP
729.0000	29.2	46.0	-16.8	QP
864.0000	33.6	46.0	-12.4	QP
942.2500	24.9	46.0	-21.1	QP

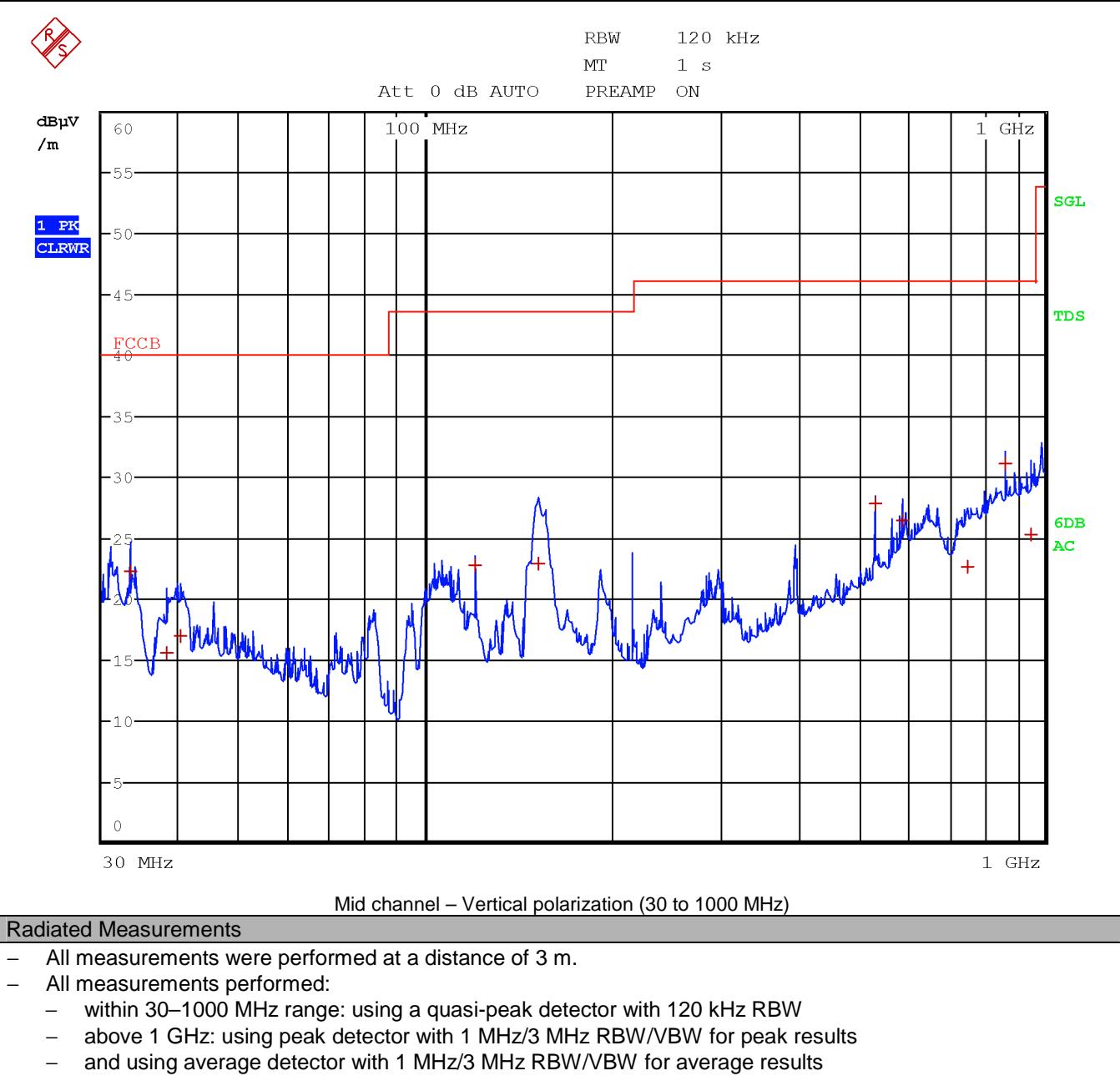
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11b



### Radiated Measurements

- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
33.3500	22.3	40.0	-17.7	QP
38.2500	15.6	40.0	-24.4	QP
40.1000	17.0	40.0	-23.0	QP
120.0000	22.8	43.5	-20.8	QP
152.3500	22.9	43.5	-20.7	QP
533.3500	27.8	46.0	-18.3	QP
590.4000	26.4	46.0	-19.6	QP
750.0500	22.6	46.0	-23.4	QP
864.0000	31.0	46.0	-15.0	QP
953.0000	25.2	46.0	-20.8	QP

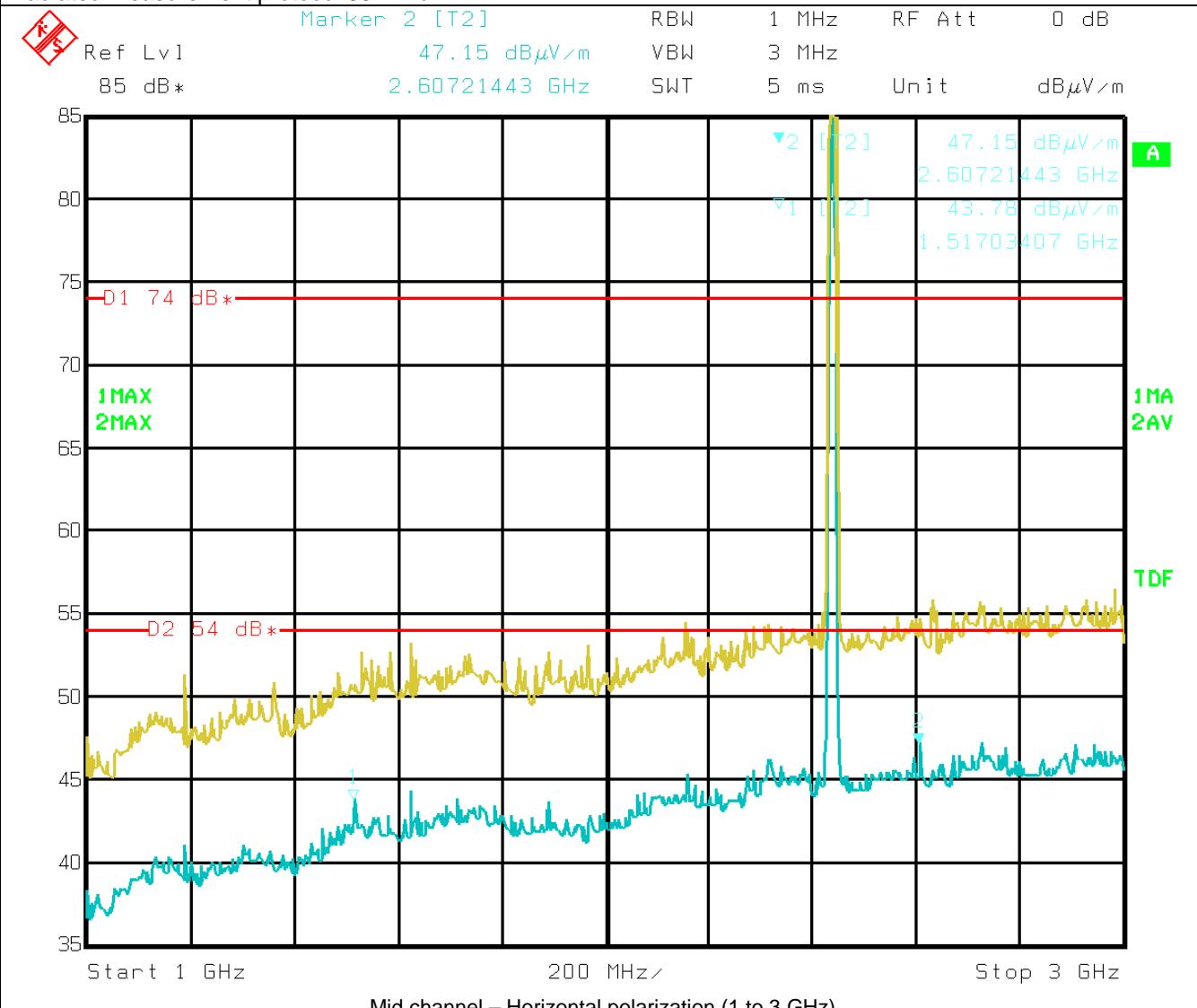
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11b



### Radiated Measurements

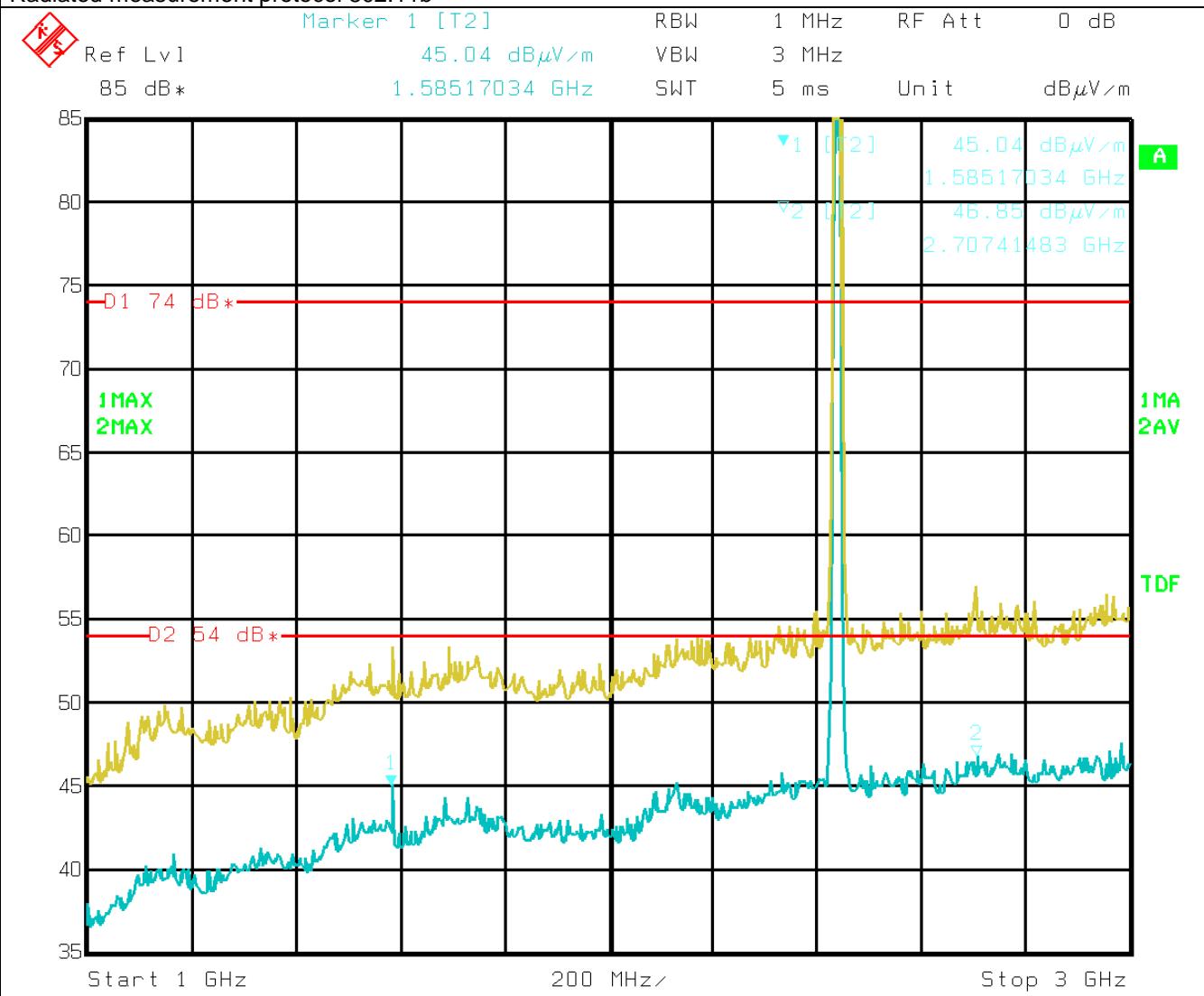
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

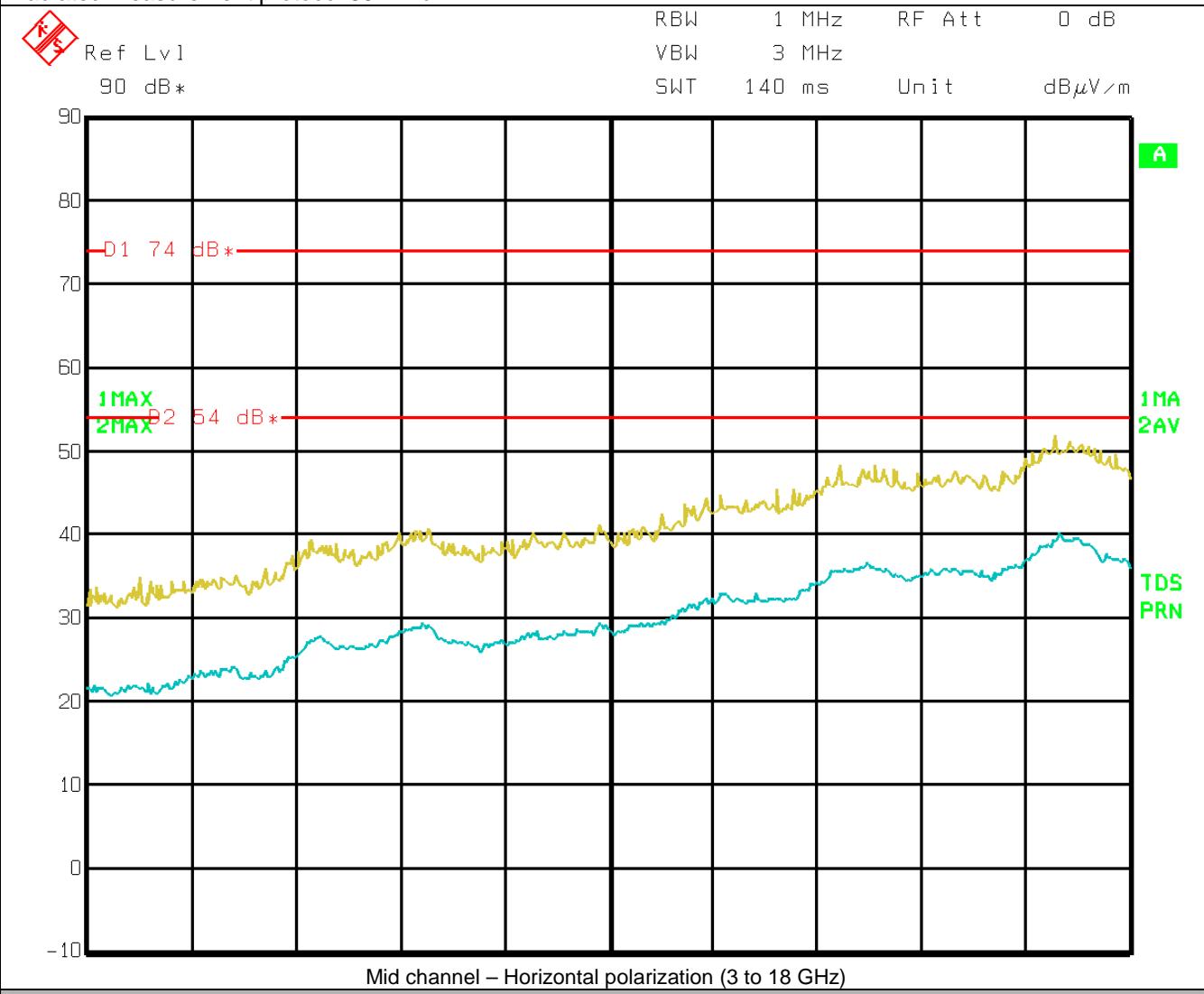
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

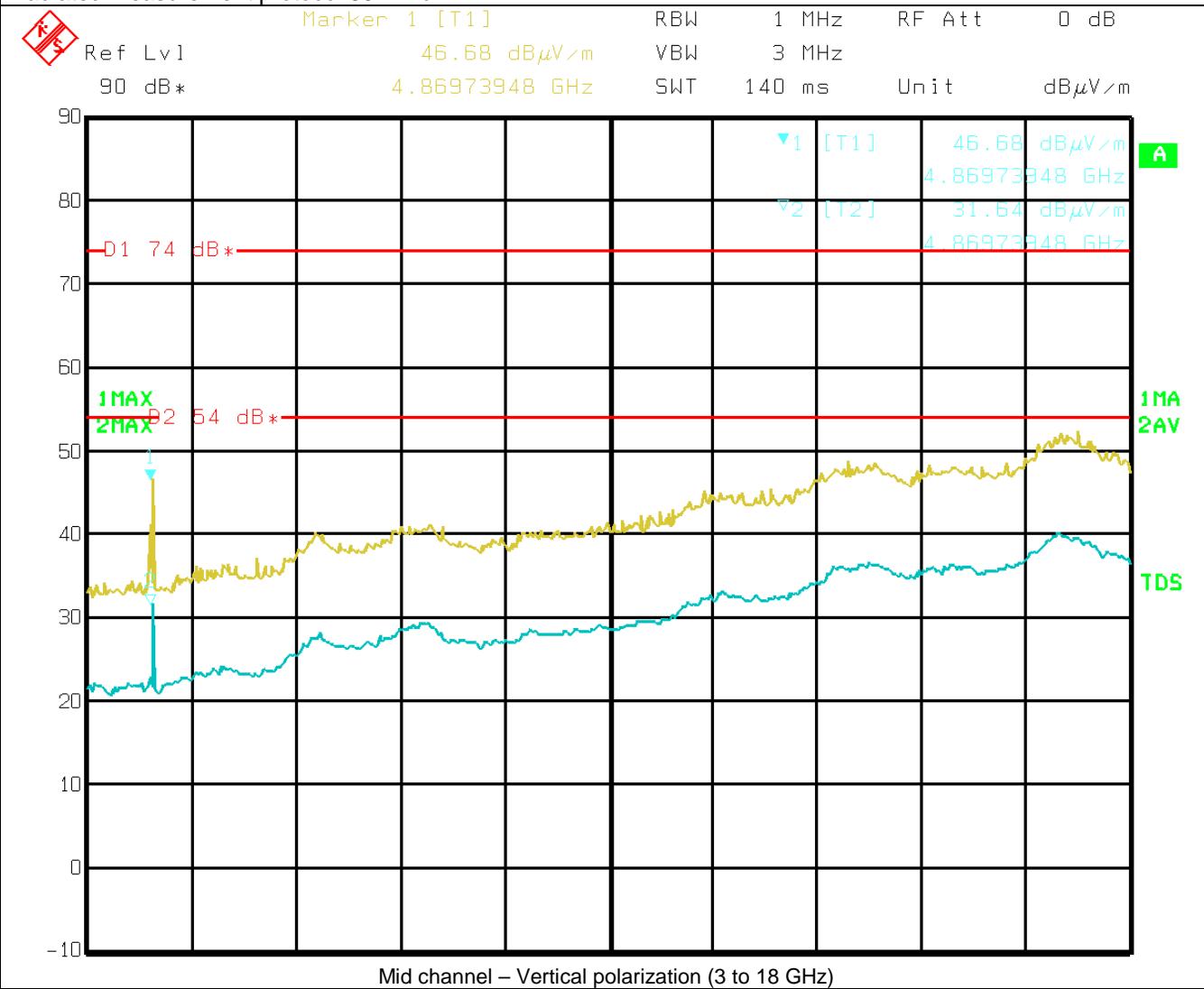
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

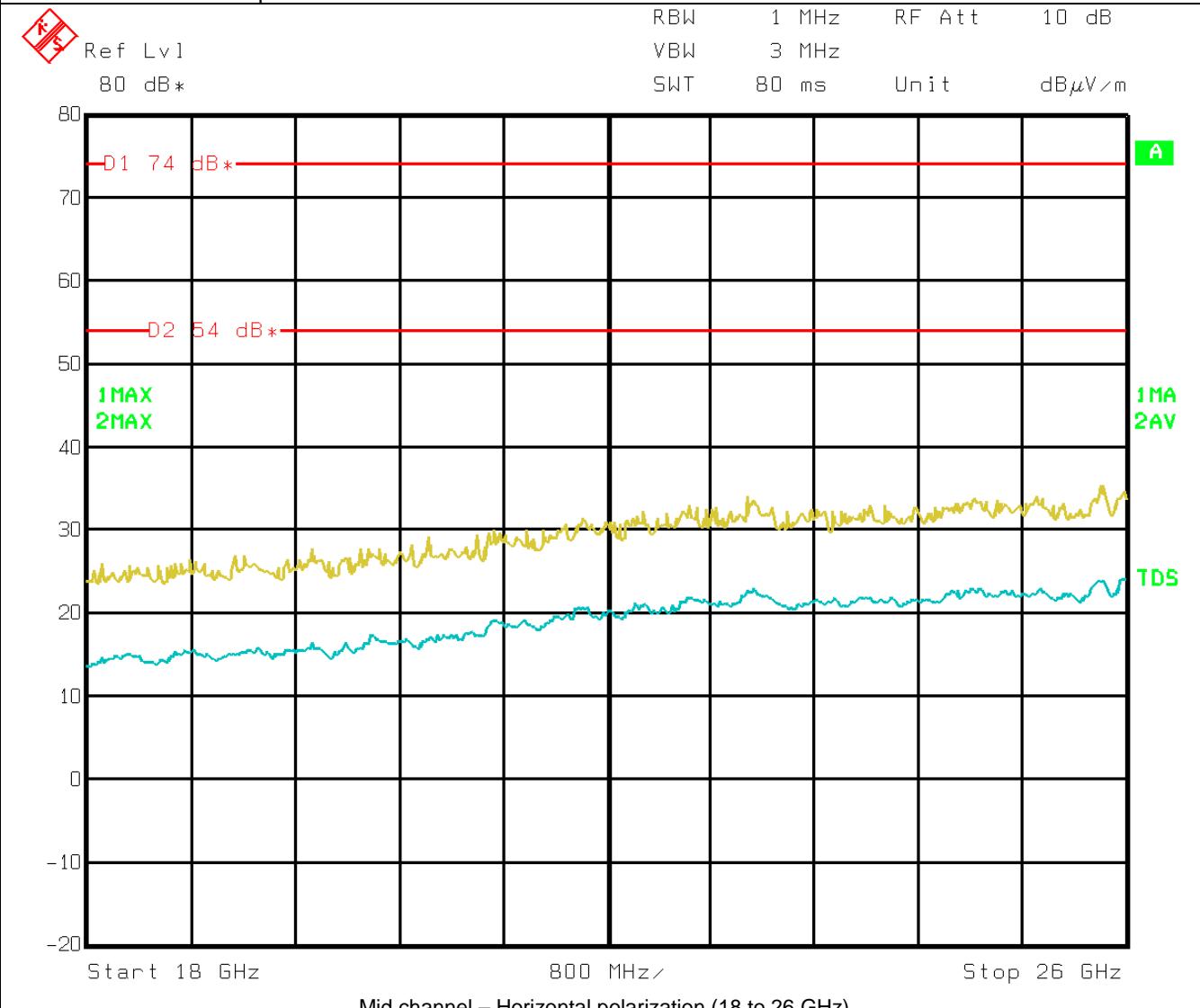
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

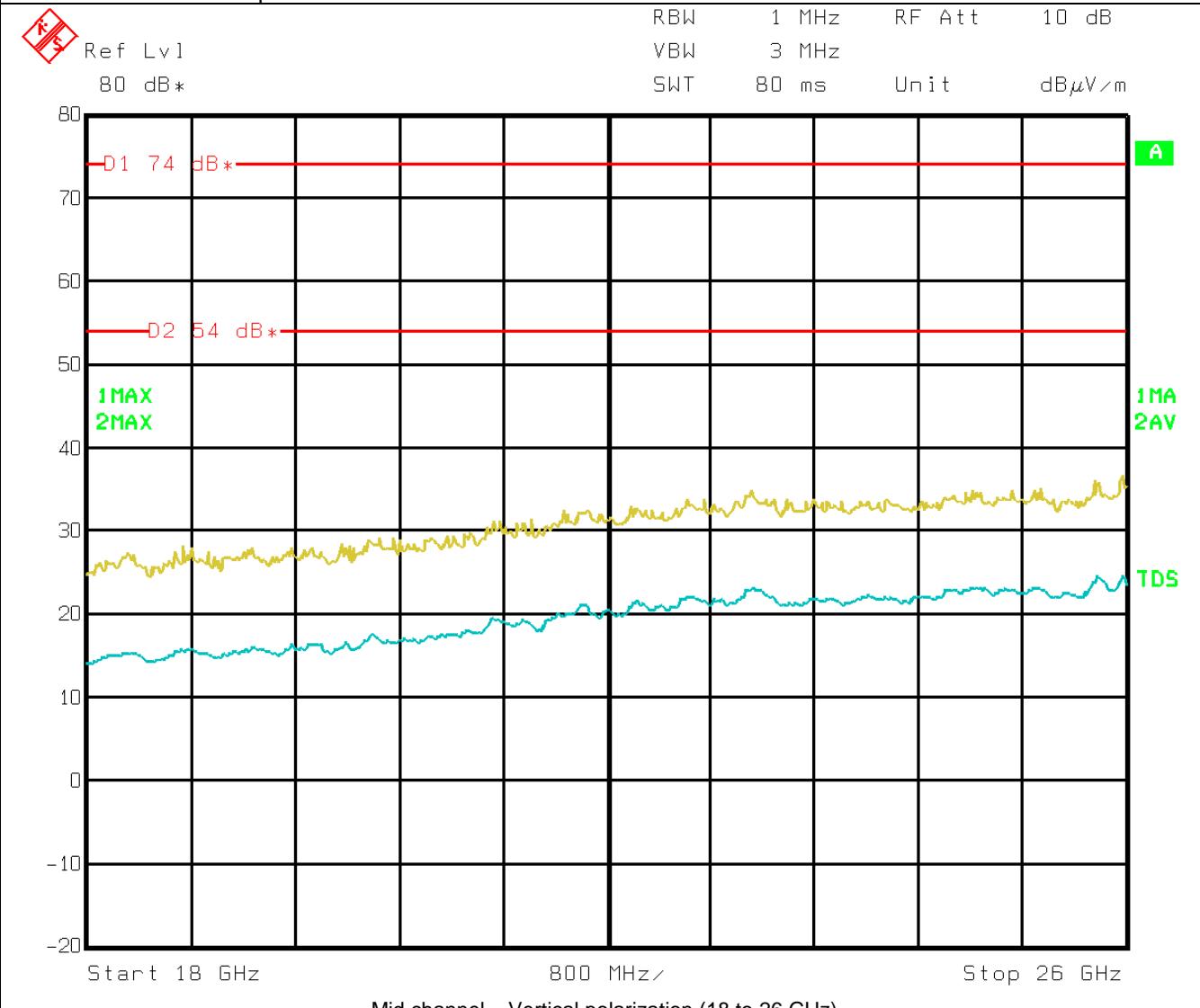
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

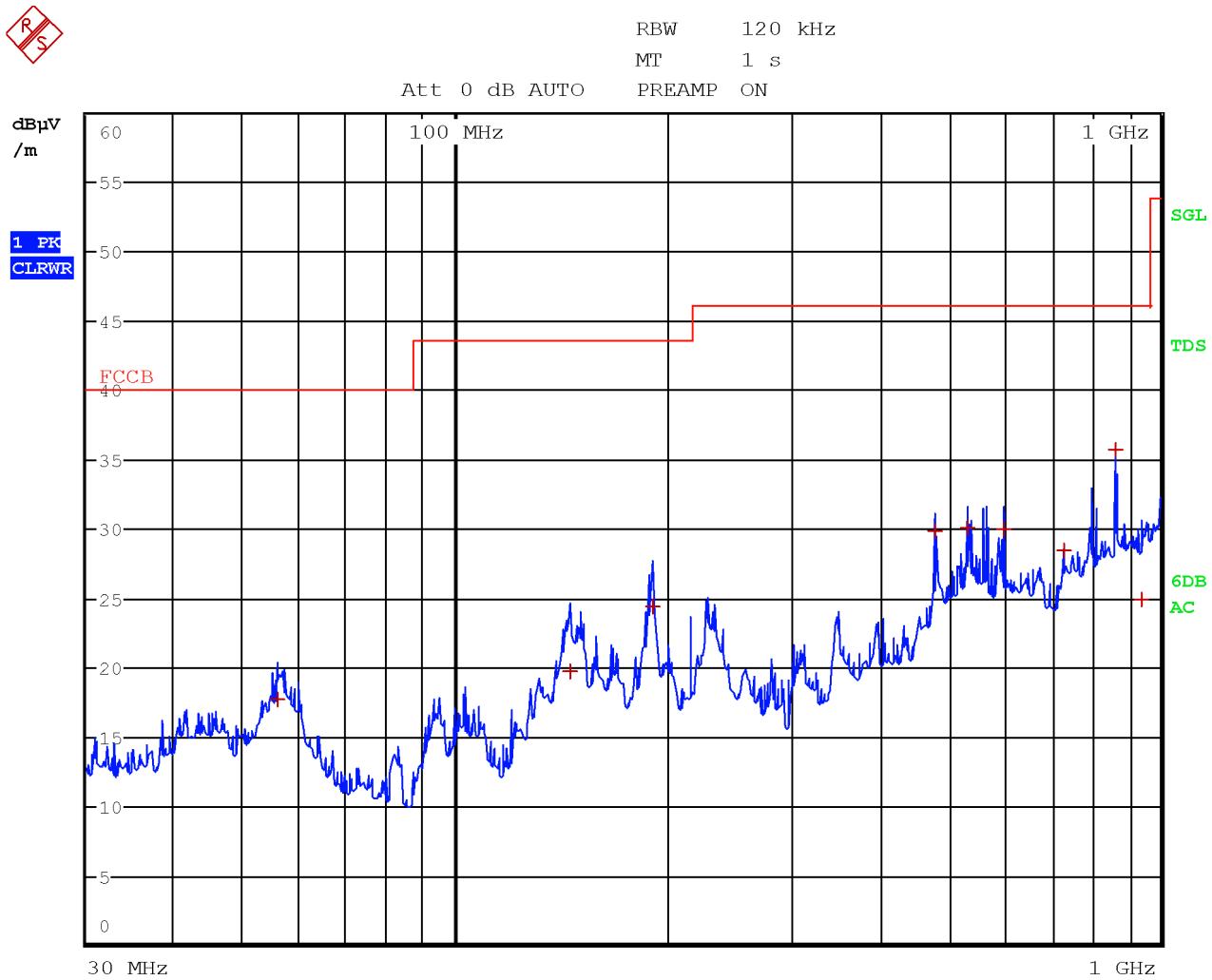
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



Section 8: Testing data	Product: STNH4C7A82GDL
Test name: Clause 15.247(d) Spurious emissions	
Test date: 2011-12-12	Test engineer: Paolo Barbieri
Verdict: Pass	Supply input: 120 Vac, 60 Hz
Temperature: 22 °C	Air pressure: 1008 mbar
Specification: FCC Part 15 Subpart C	Relative humidity: 45 %

## Test data, continued

Radiated measurement protocol 802.11b



### High channel – Horizontal polarization (30 to 1000 MHz)

## Radiated Measurements

- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
55.9500	17.7	40.0	-22.3	QP
145.7500	19.7	43.5	-23.8	QP
190.5000	24.4	43.5	-19.1	QP
480.1500	29.8	46.0	-16.2	QP
533.3500	30.0	46.0	-16.0	QP
600.0000	30.0	46.0	-16.1	QP
729.0000	28.5	46.0	-17.5	QP
864.0000	35.7	46.0	-10.3	QP
940.6000	24.9	46.0	-21.1	QP

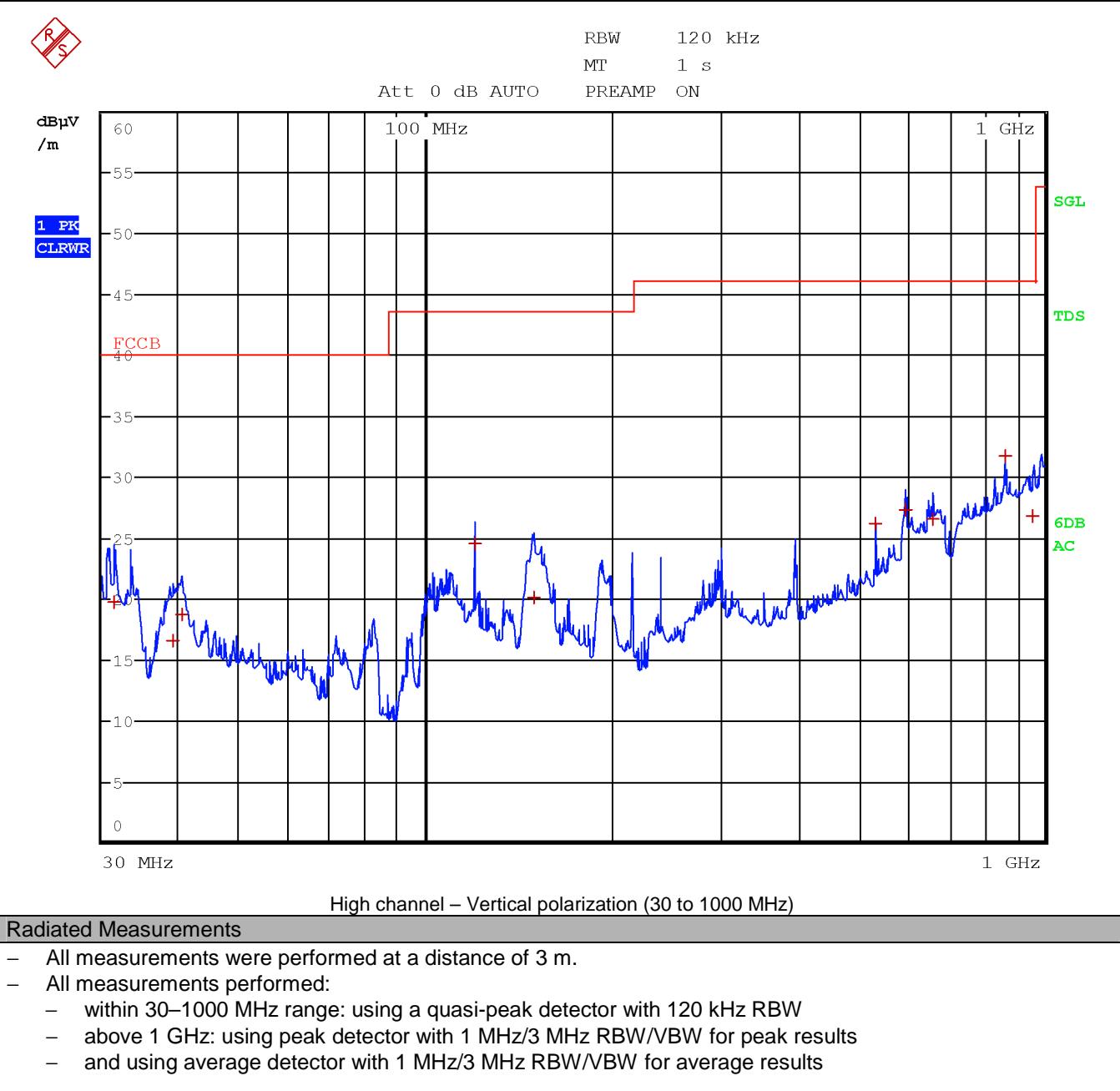
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11b





<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
31.3000	19.8	40.0	-20.2	QP
39.0500	16.6	40.0	-23.4	QP
40.3500	18.7	40.0	-21.3	QP
120.0000	24.5	43.5	-19.0	QP
149.3500	20.1	43.5	-23.4	QP
533.3500	26.2	46.0	-19.8	QP
597.6000	27.3	46.0	-18.7	QP
661.5000	26.5	46.0	-19.5	QP
864.0000	31.7	46.0	-14.3	QP
955.8000	26.8	46.0	-19.2	QP

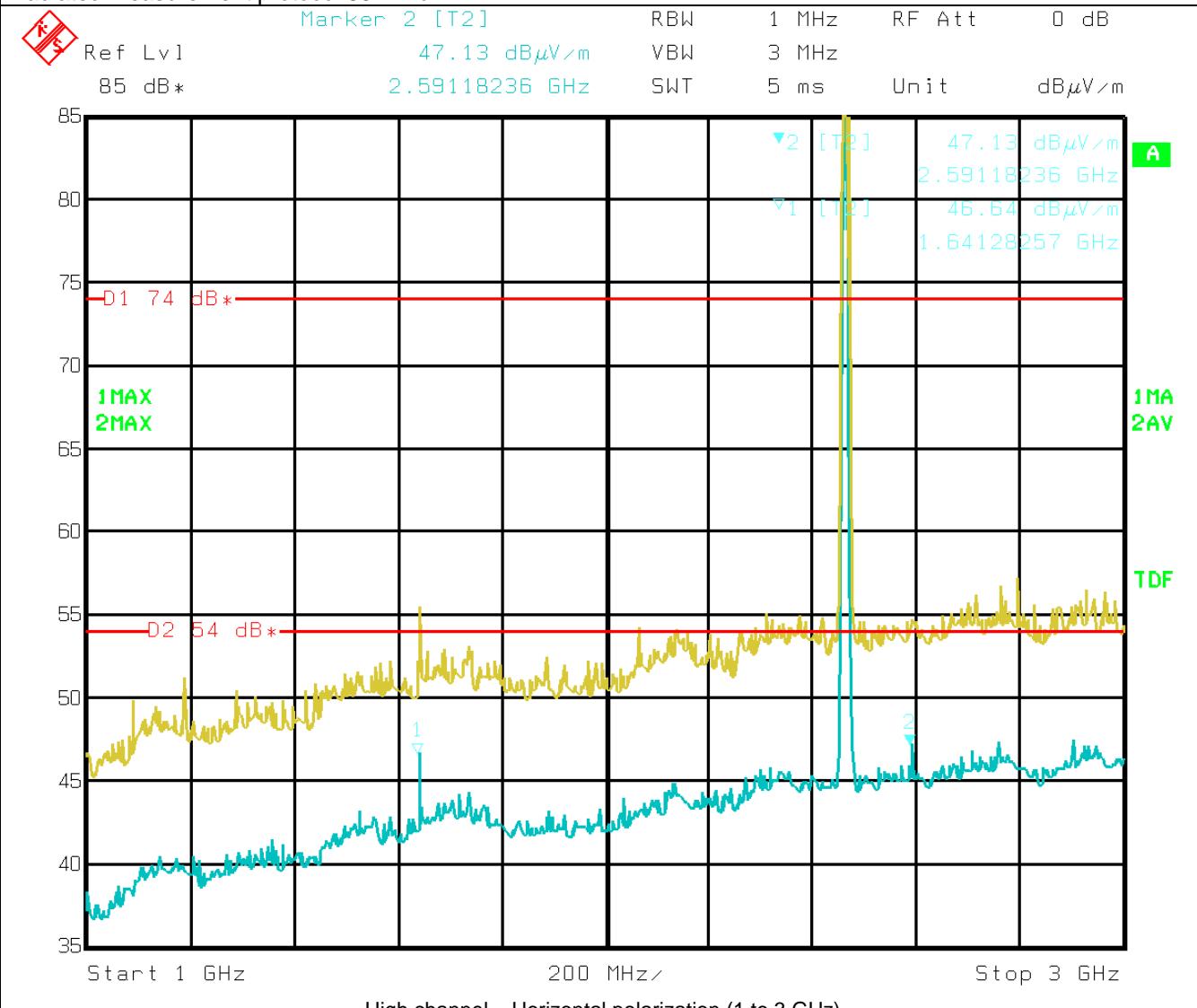
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11b



### Radiated Measurements

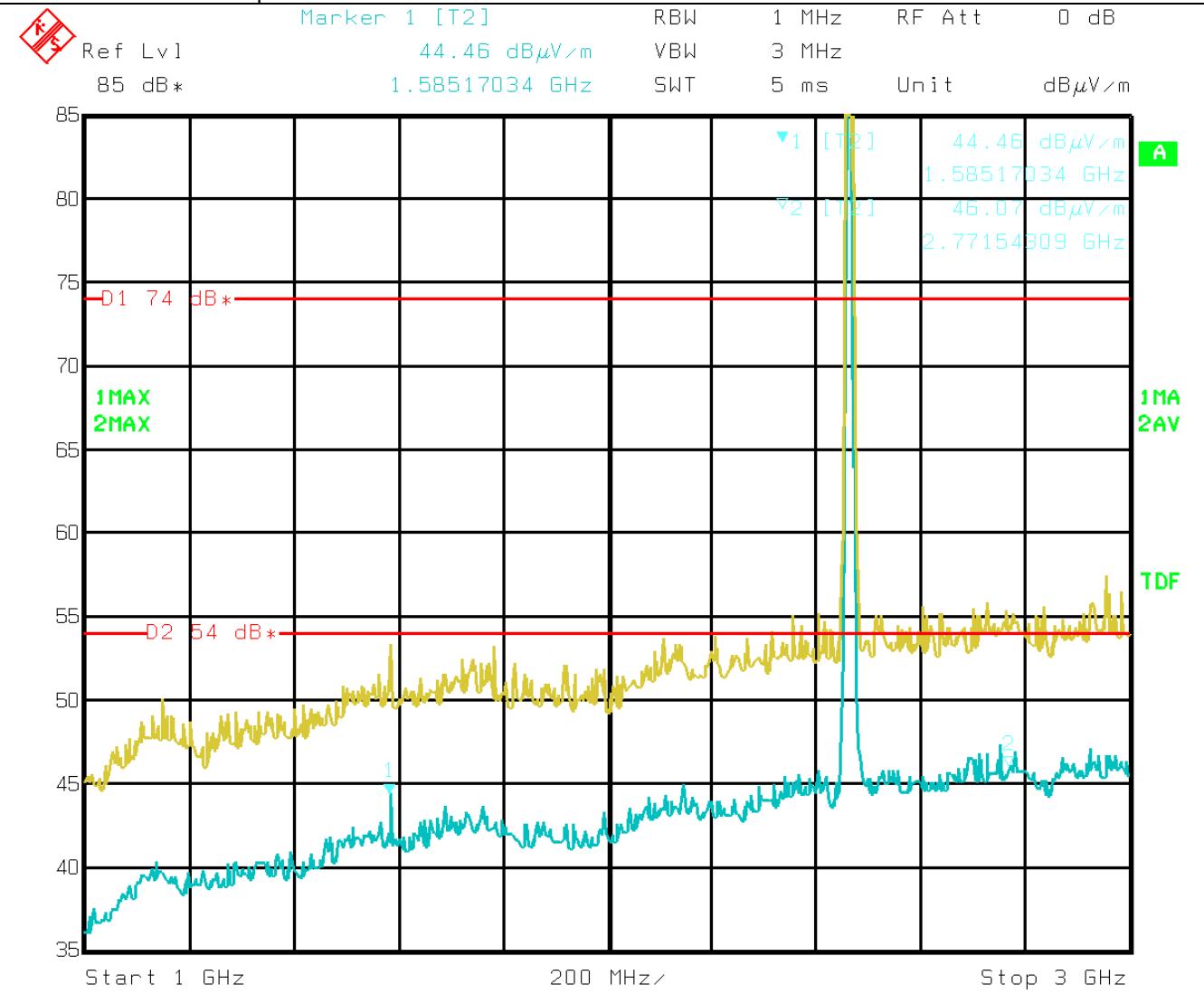
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11b



### Radiated Measurements

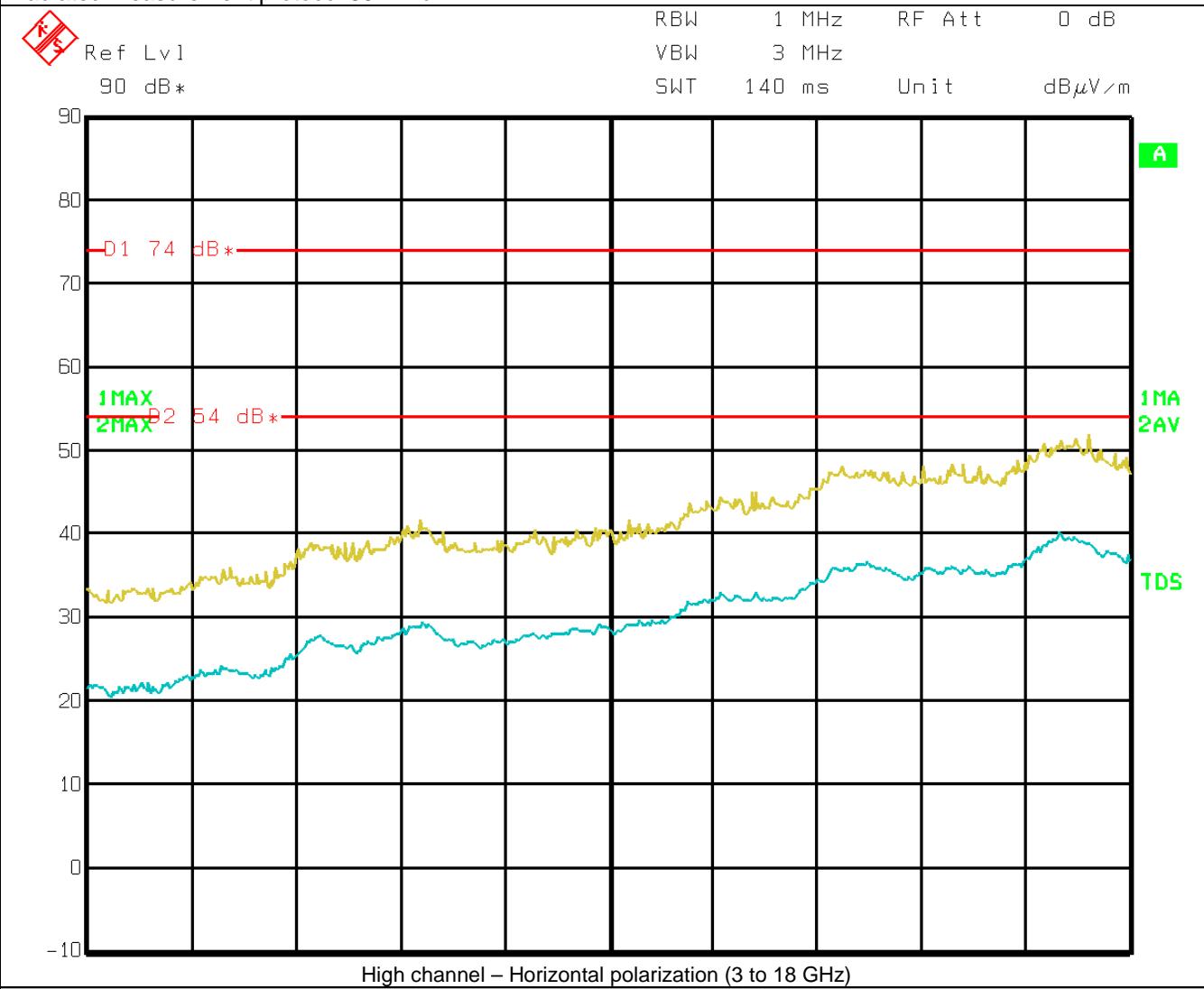
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

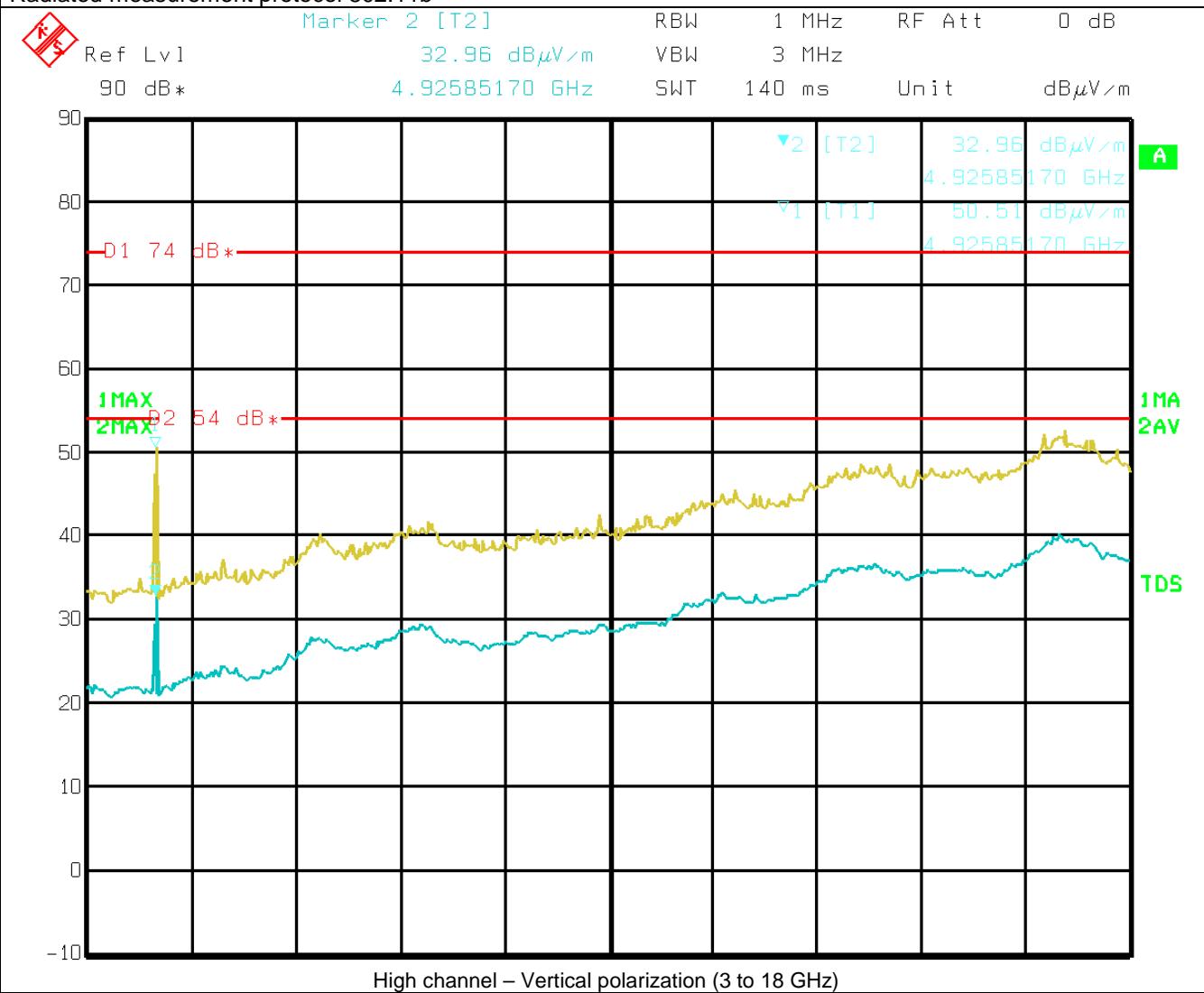
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

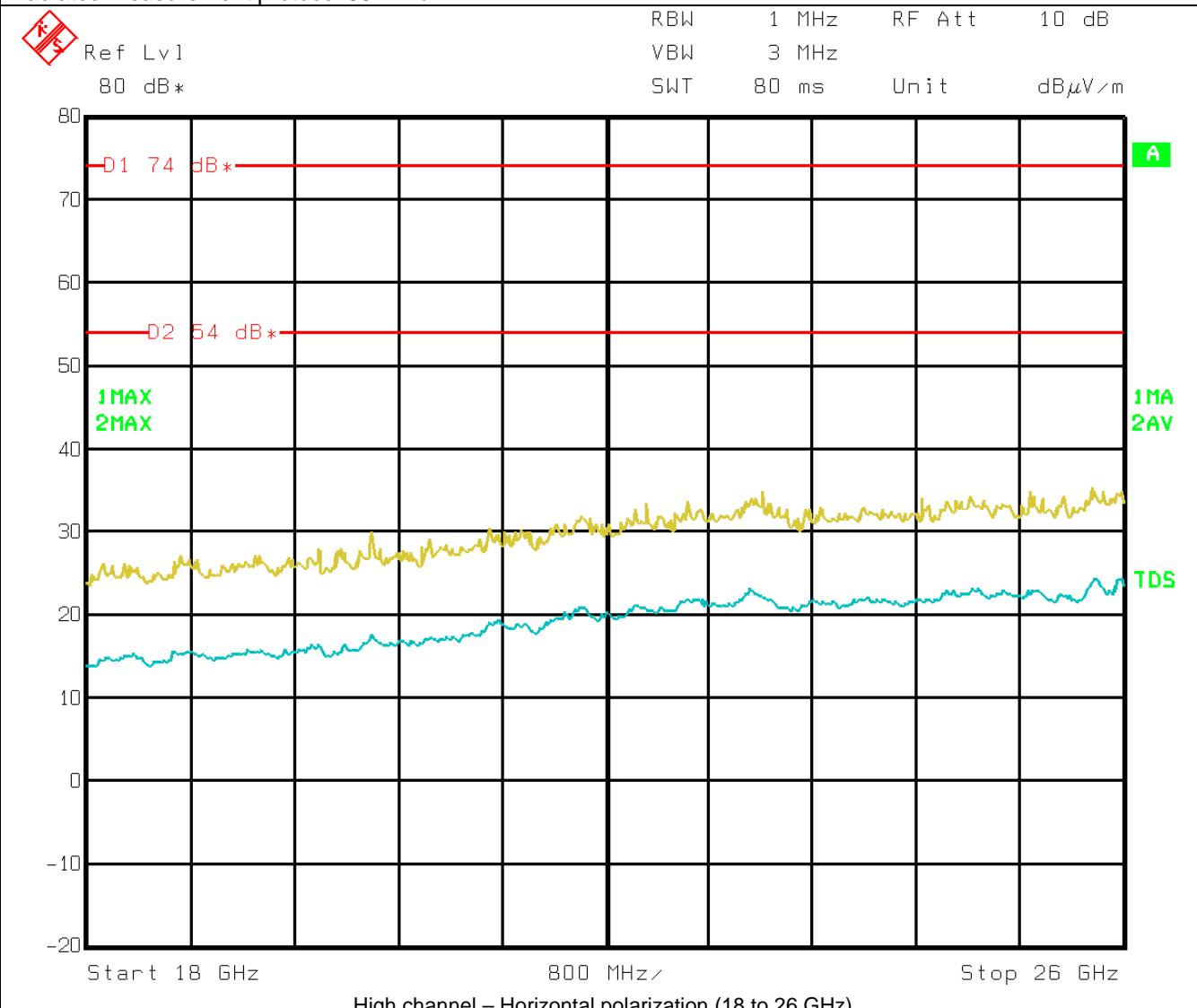
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

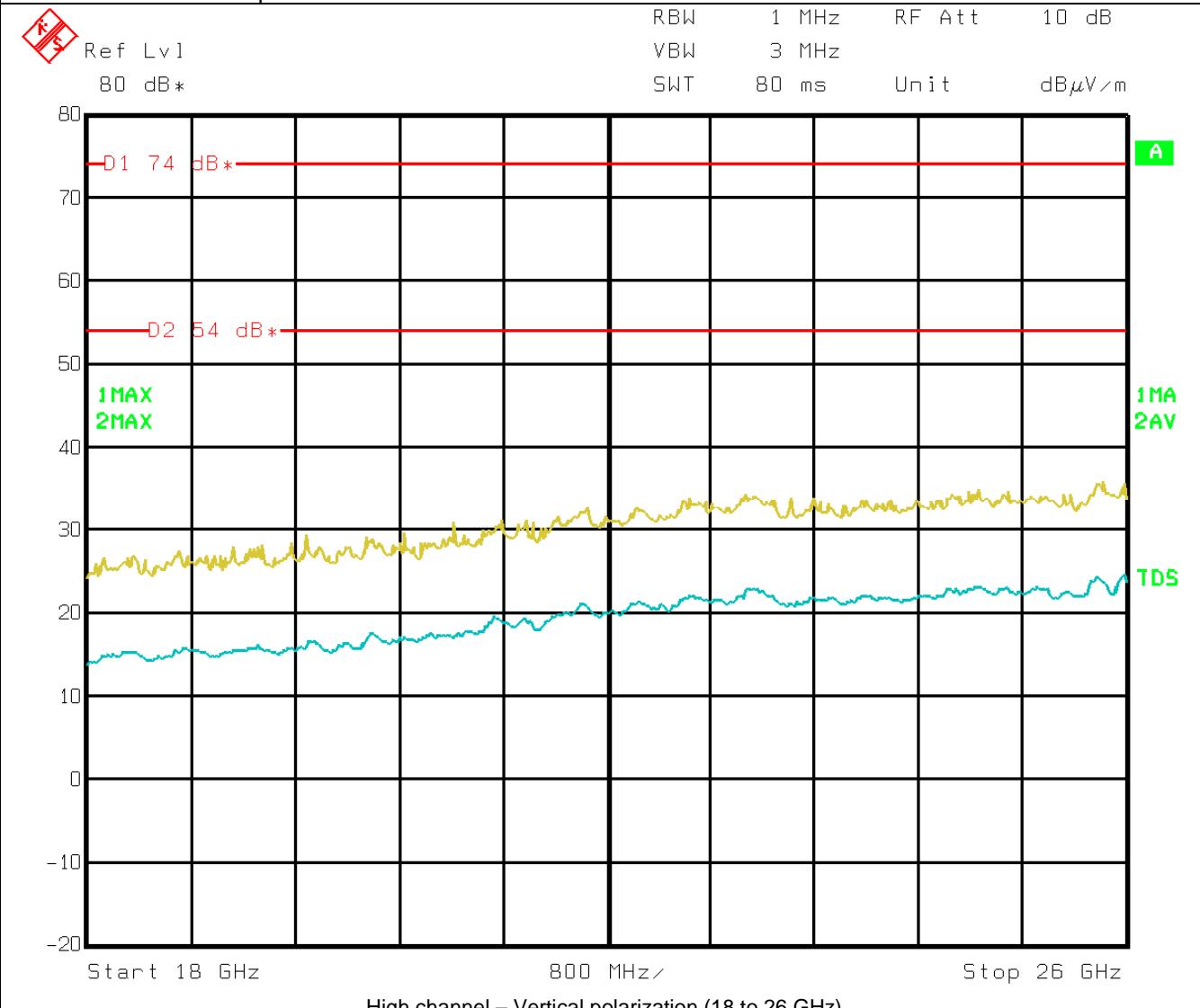
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11b



#### Radiated Measurements

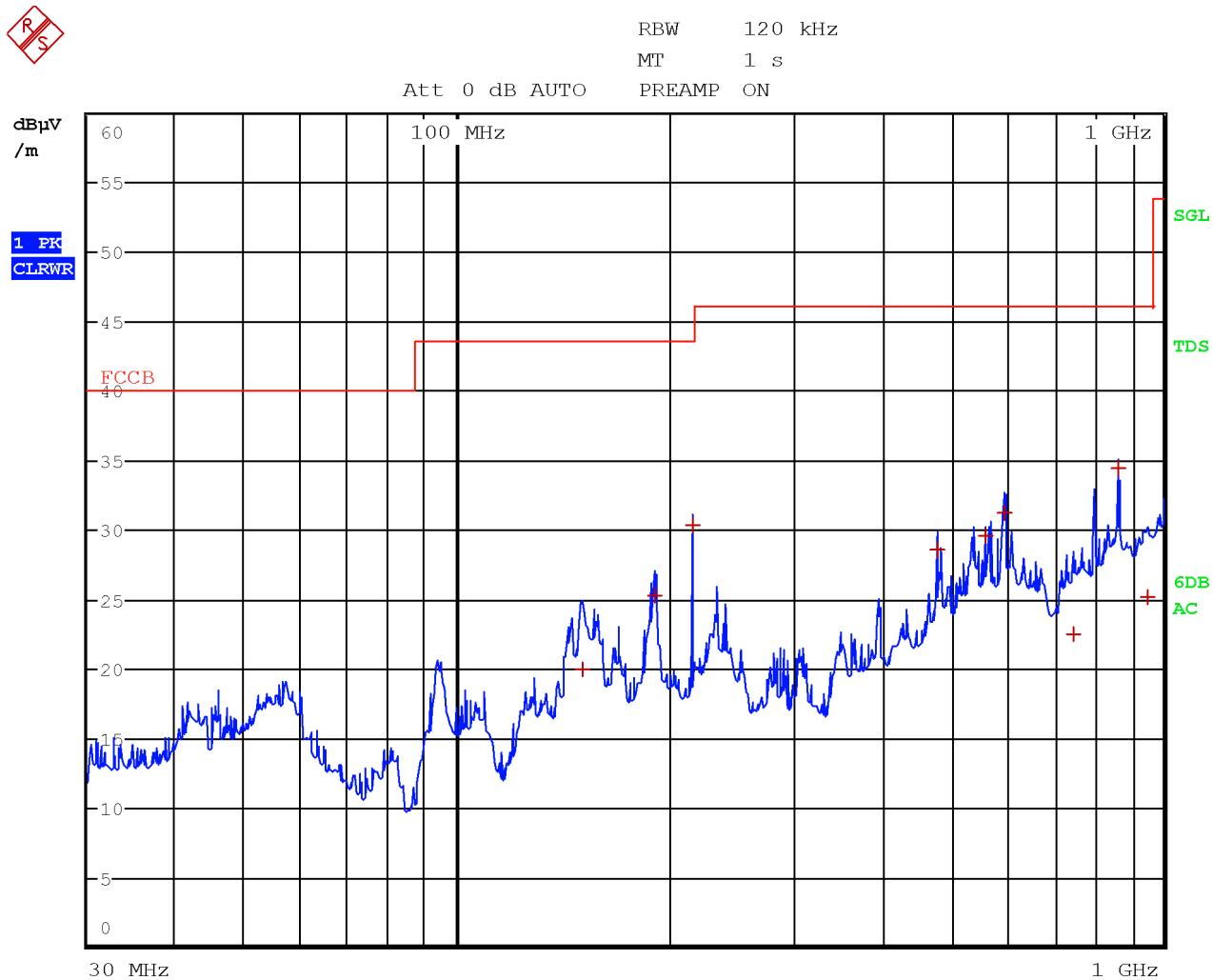
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



Low channel – Horizontal polarization (30 to 1000 MHz)

#### Radiated Measurements

- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
150.3000	20.0	43.5	-23.5	QP
190.4500	25.3	43.5	-18.2	QP
216.0000	30.4	46.0	-15.6	QP
480.1500	28.6	46.0	-17.5	QP
559.1000	29.6	46.0	-16.4	QP
595.9500	31.2	46.0	-14.9	QP
745.9000	22.5	46.0	-23.5	QP
864.0000	34.4	46.0	-11.6	QP
953.2000	25.1	46.0	-20.9	QP

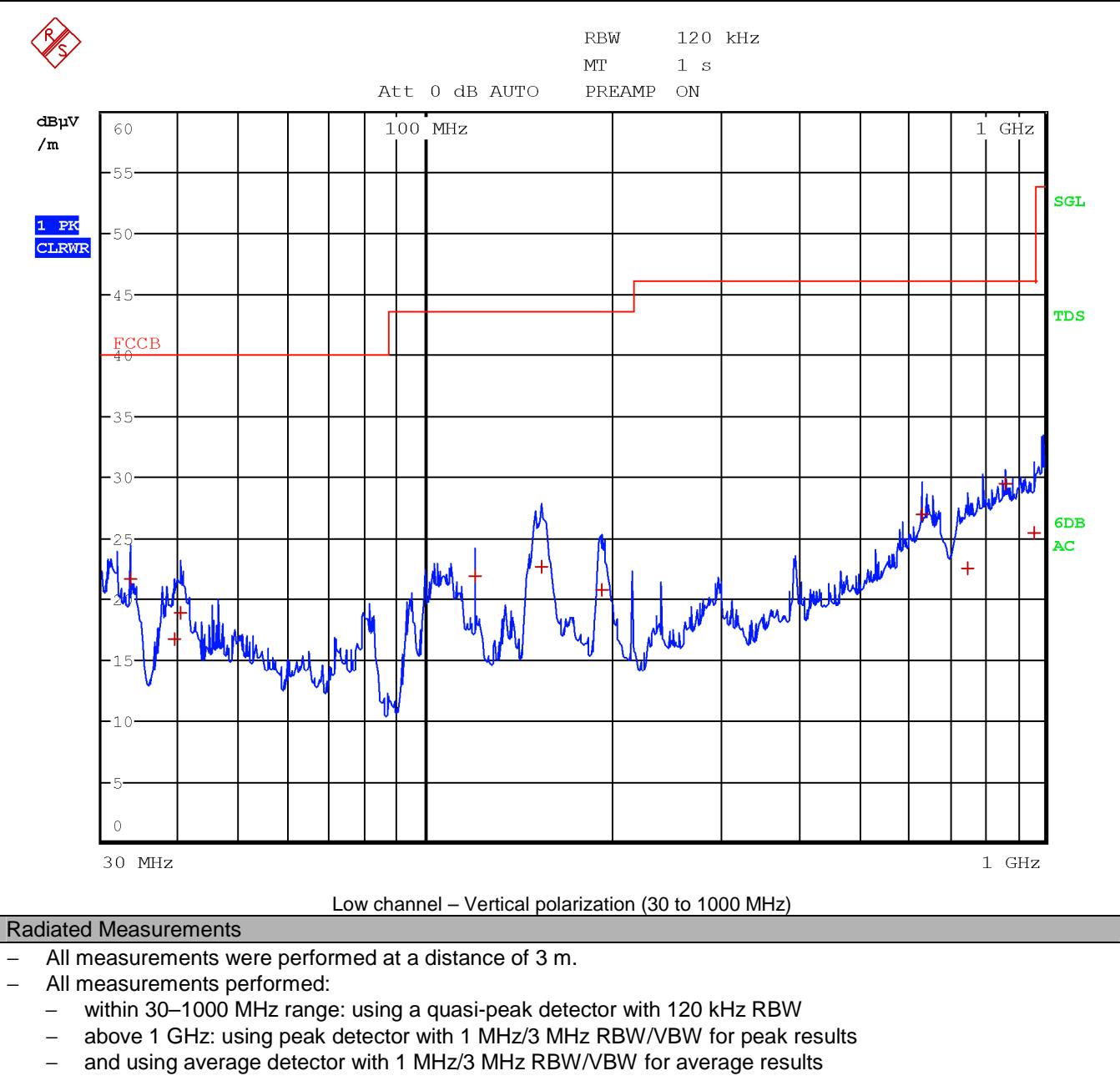
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11g





<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
33.3500	21.6	40.0	-18.4	QP
39.2000	16.7	40.0	-23.3	QP
40.1000	18.8	40.0	-21.2	QP
120.0000	21.9	43.5	-21.6	QP
153.6500	22.7	43.5	-20.9	QP
192.7500	20.7	43.5	-22.8	QP
633.3500	26.9	46.0	-19.1	QP
749.3500	22.6	46.0	-23.5	QP
864.0000	29.4	46.0	-16.6	QP
959.4000	25.5	46.0	-20.6	QP

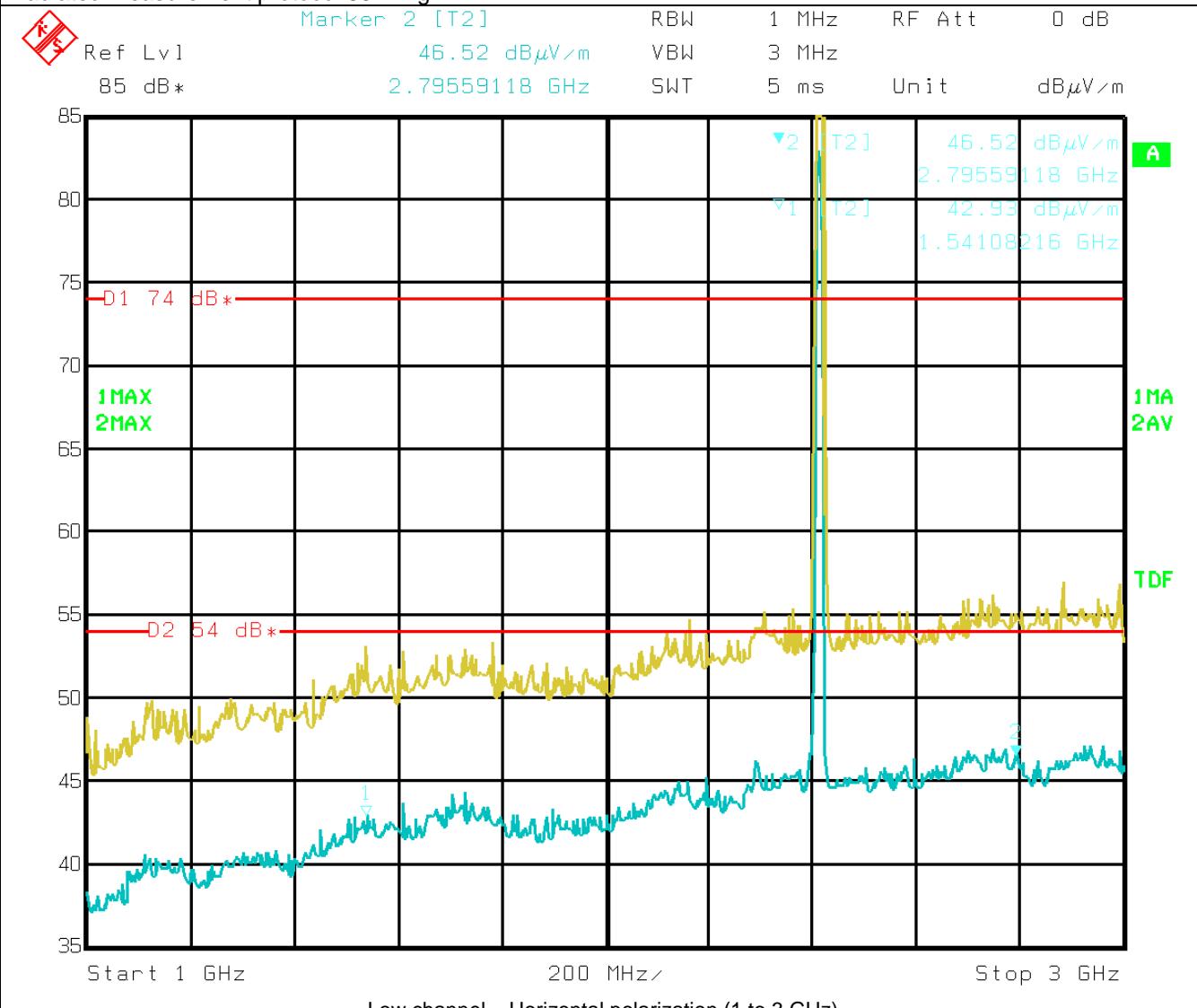
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11g



### Radiated Measurements

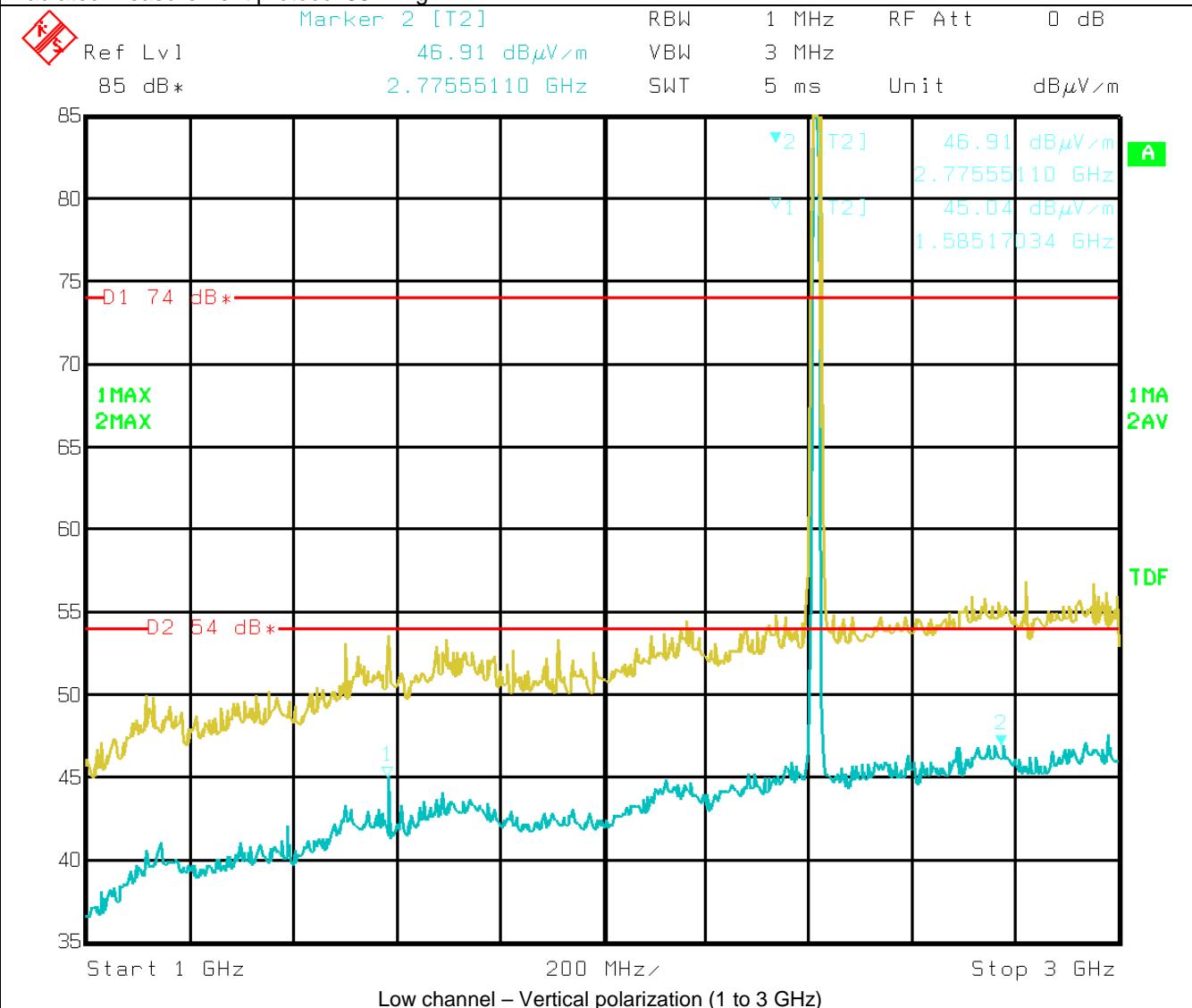
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

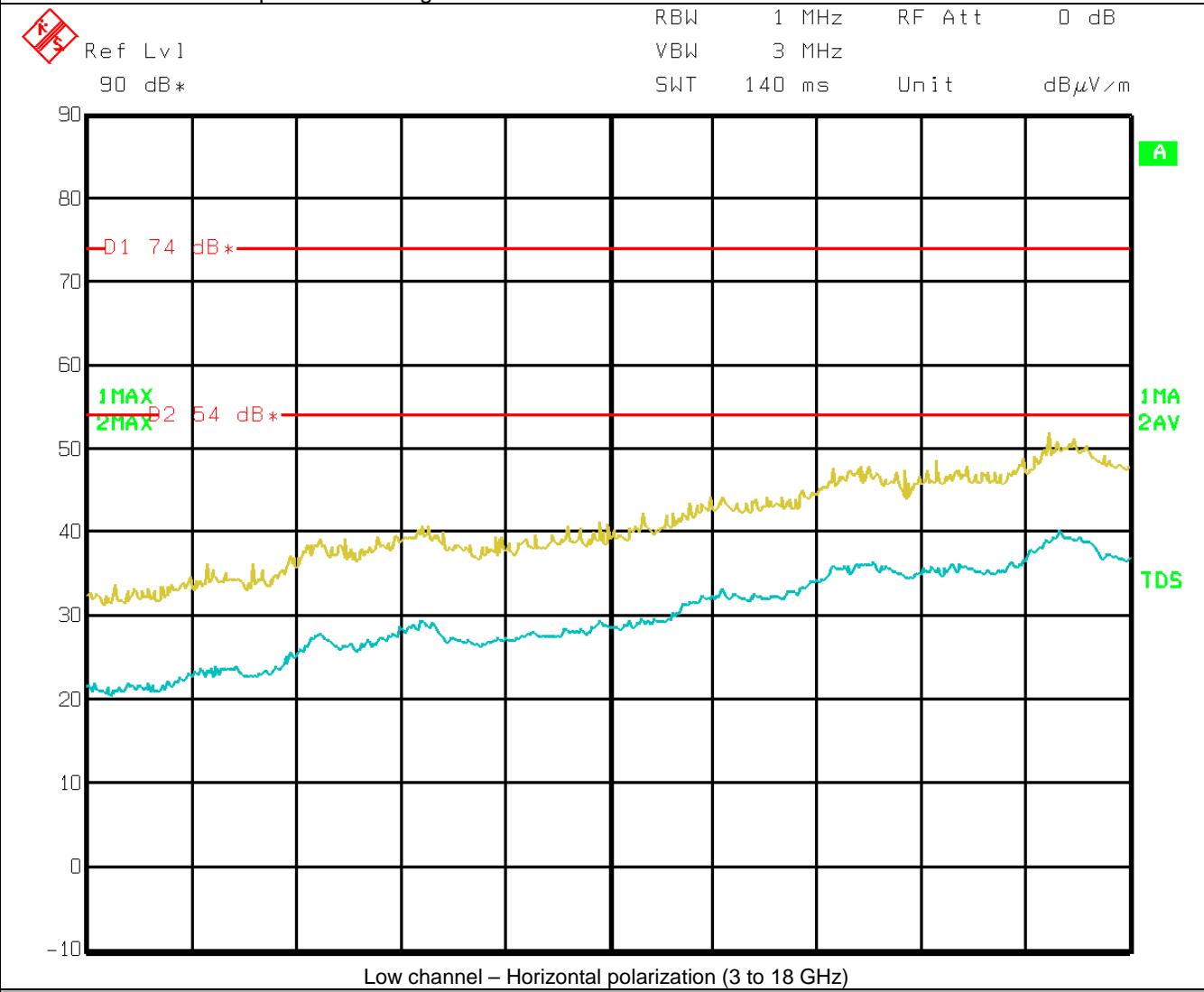
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

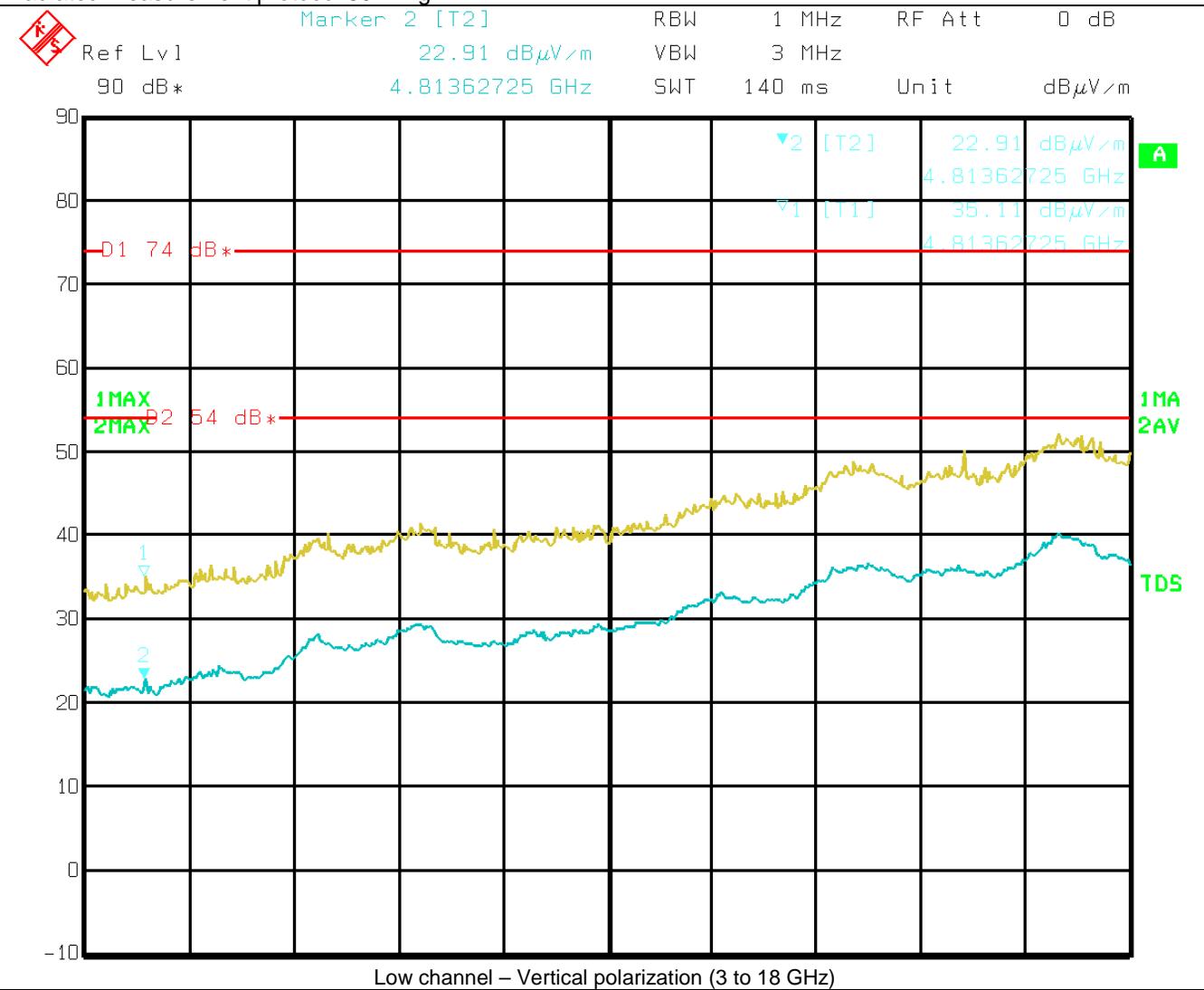
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

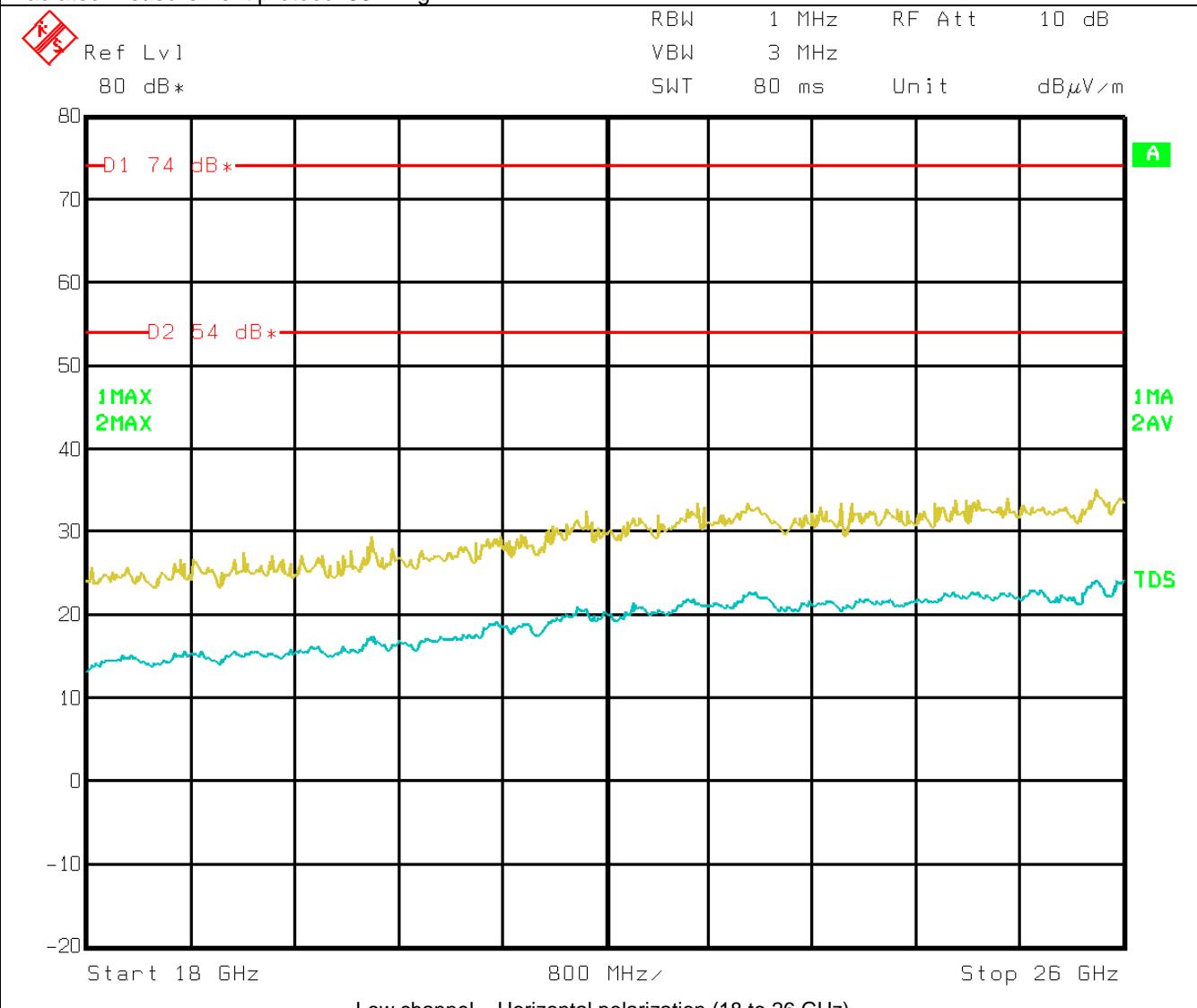
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

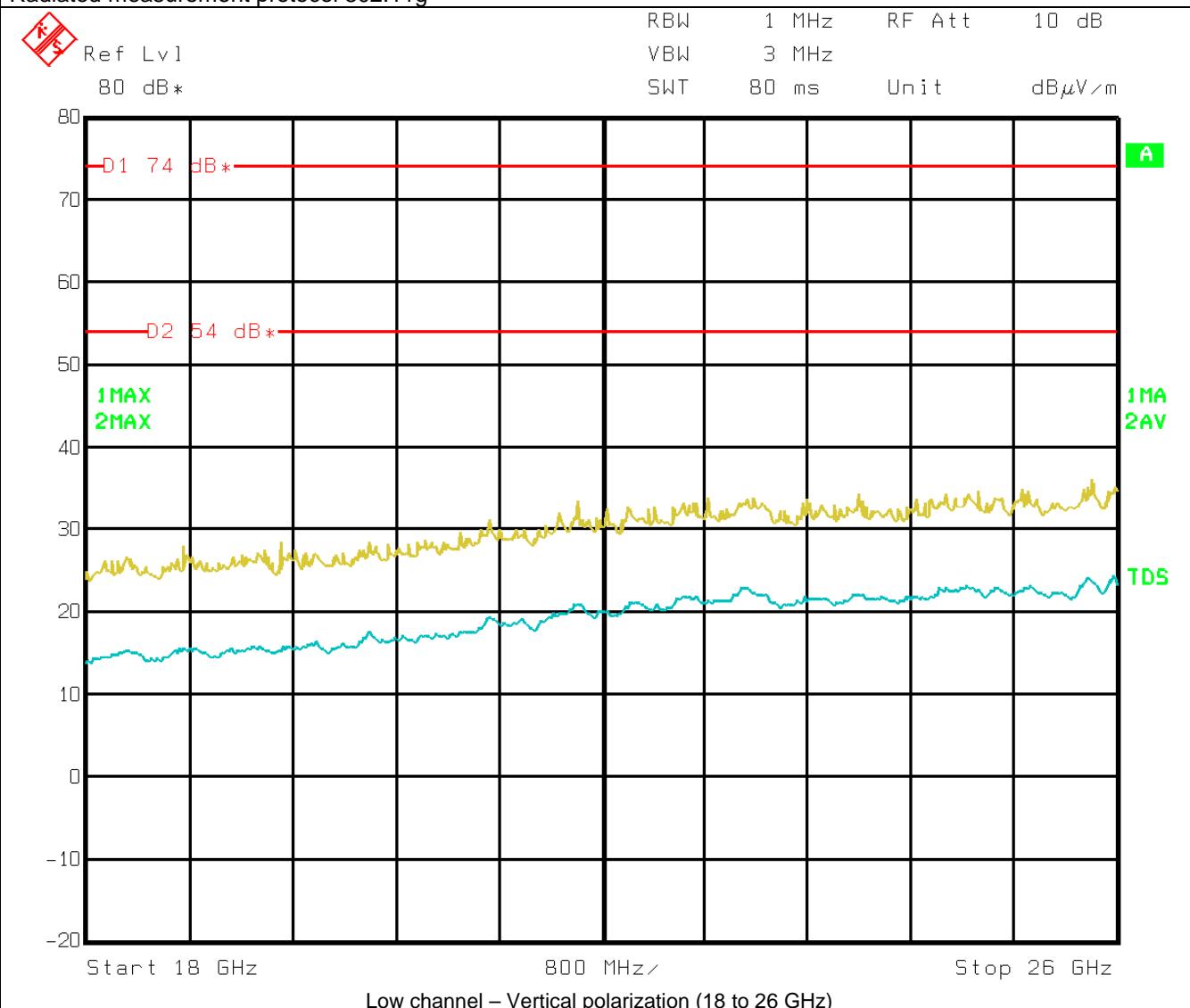
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

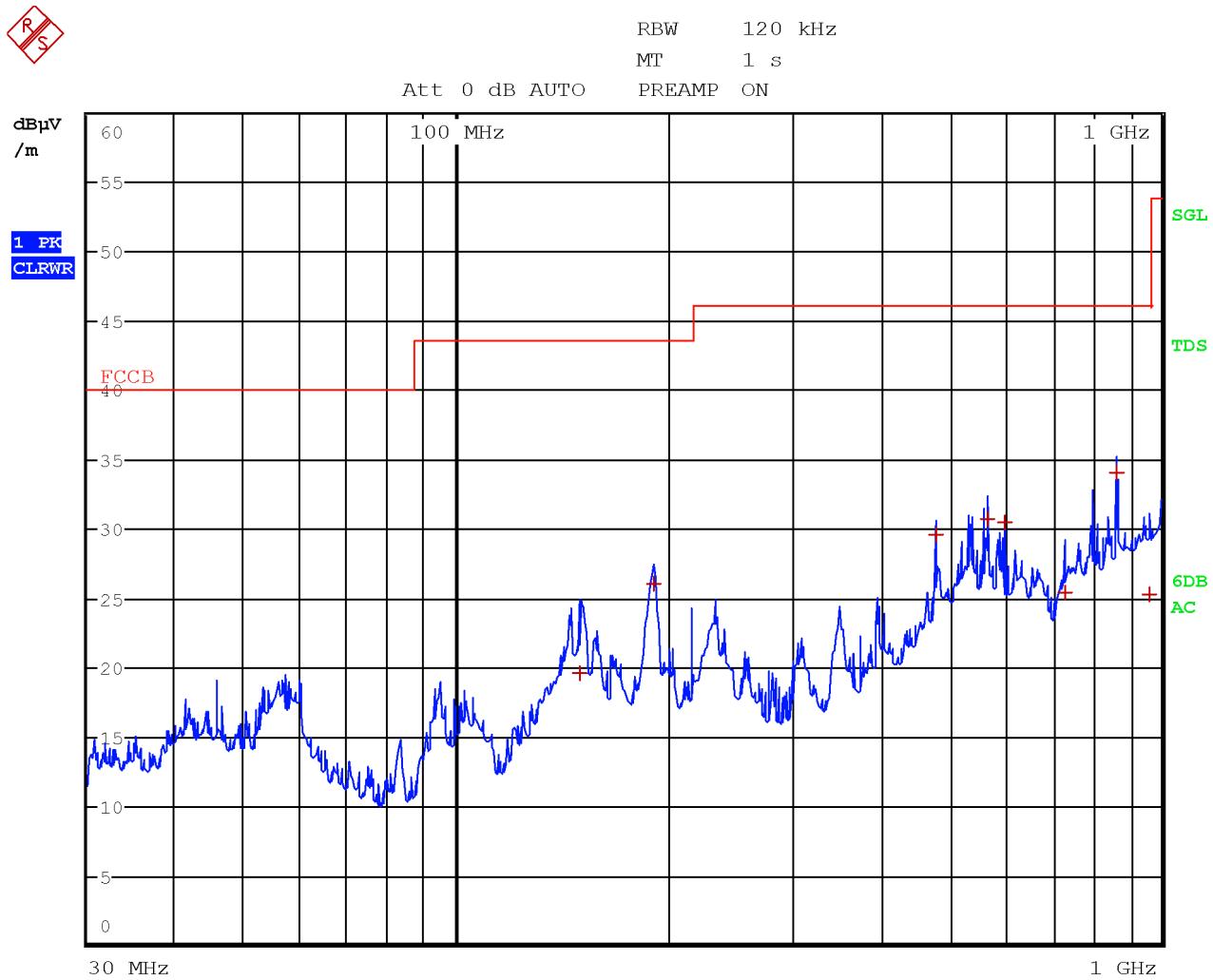
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



Section 8: Testing data	Product: STNH4C7A82GDL	
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass		Supply input: 120 Vac, 60 Hz
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

## Test data, continued

Radiated measurement protocol 802.11g



## Radiated Measurements

- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
150.0000	19.6	43.5	-23.9	QP
190.4500	26.0	43.5	-17.5	QP
480.1500	29.6	46.0	-16.5	QP
566.6500	30.7	46.0	-15.3	QP
600.0000	30.5	46.0	-15.5	QP
728.9500	25.4	46.0	-20.6	QP
864.0000	34.1	46.0	-11.9	QP
958.8000	25.2	46.0	-20.8	QP

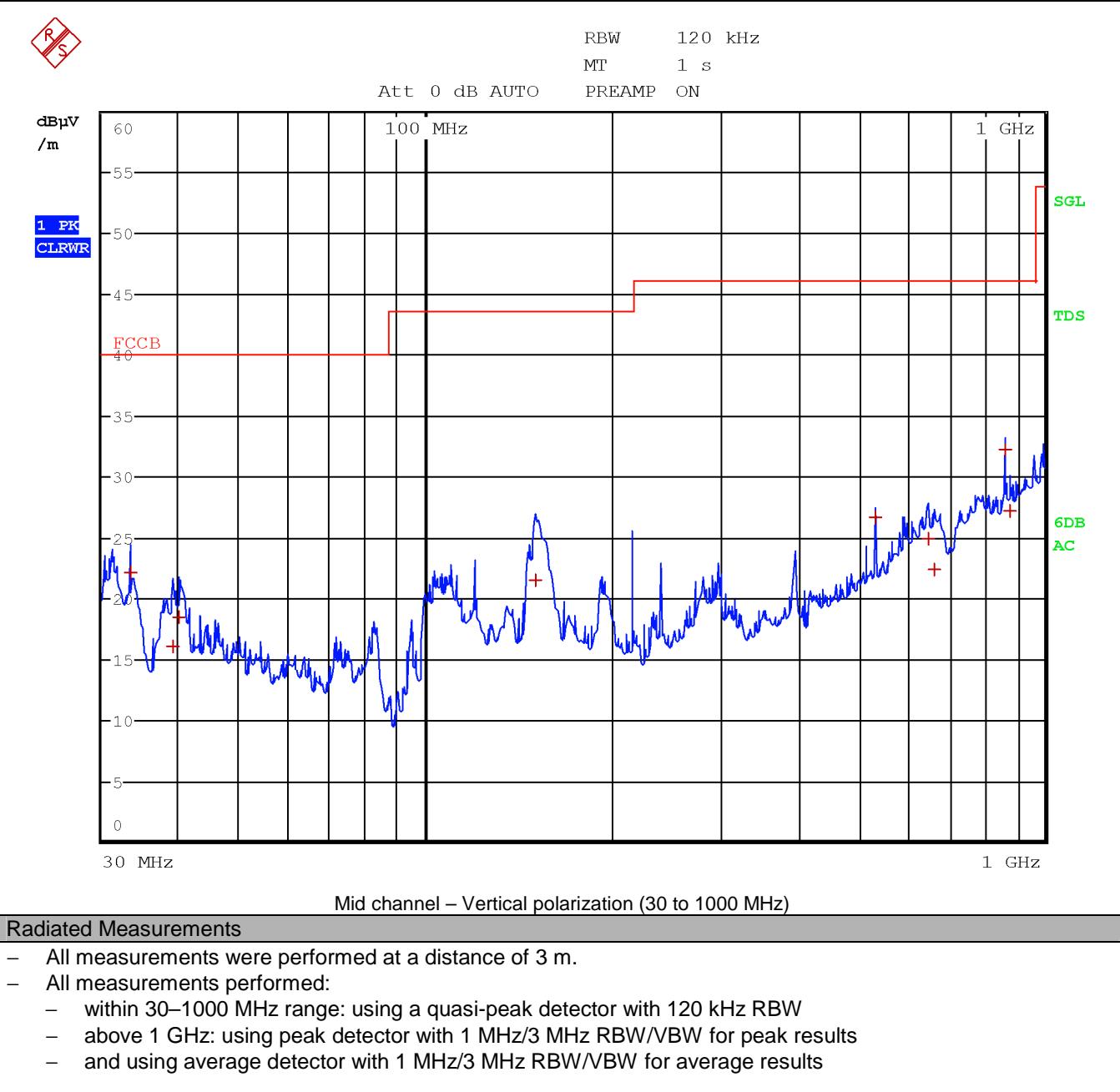
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g





<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
33.3500	22.1	40.0	-17.9	QP
39.1000	16.1	40.0	-23.9	QP
40.0000	18.4	40.0	-21.6	QP
150.2500	21.5	43.5	-22.0	QP
533.3500	26.7	46.0	-19.3	QP
648.0500	24.9	46.0	-21.1	QP
661.9500	22.3	46.0	-23.7	QP
864.0000	32.2	46.0	-13.8	QP
877.5000	27.2	46.0	-18.8	QP

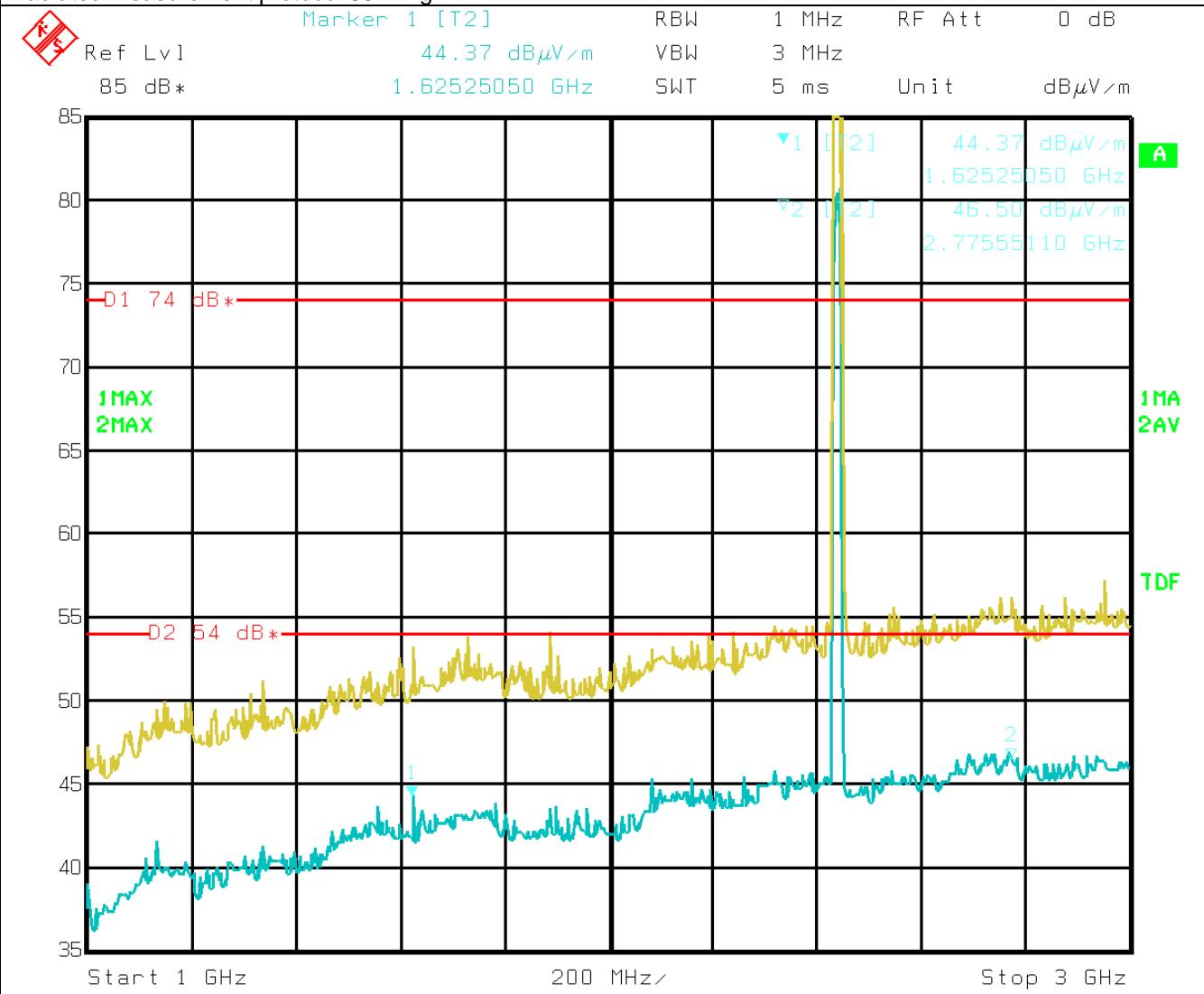
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11g



### Radiated Measurements

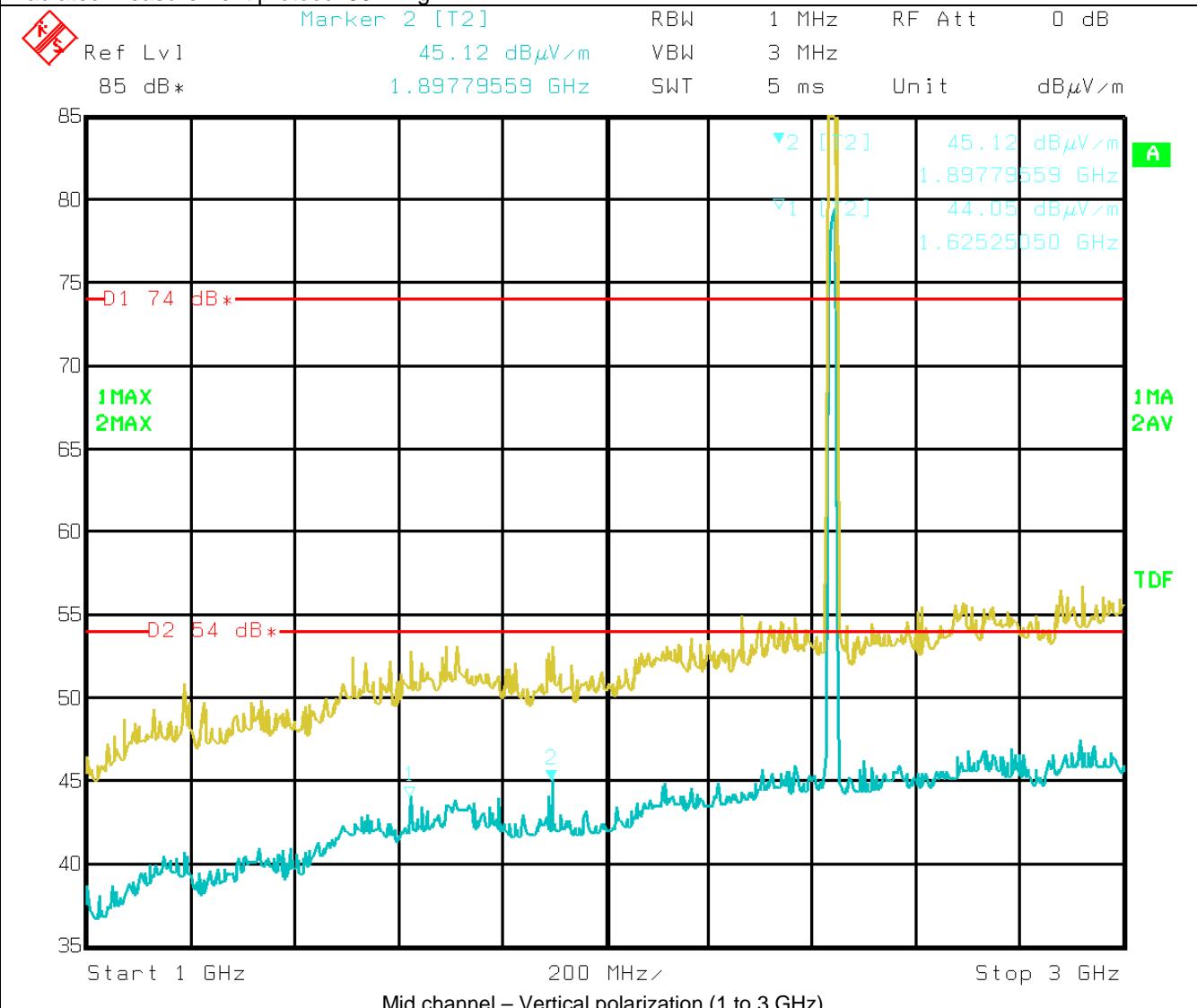
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

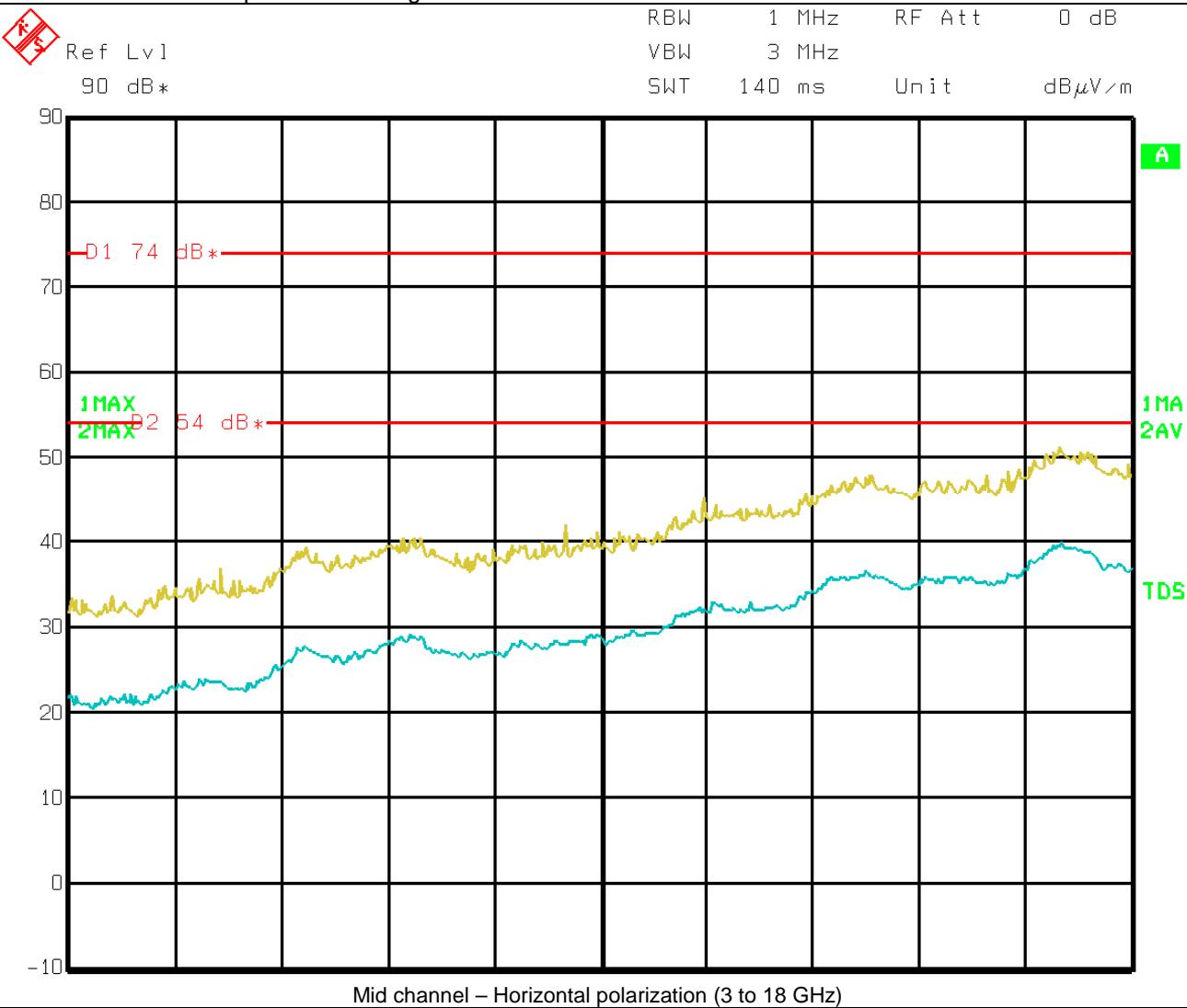
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

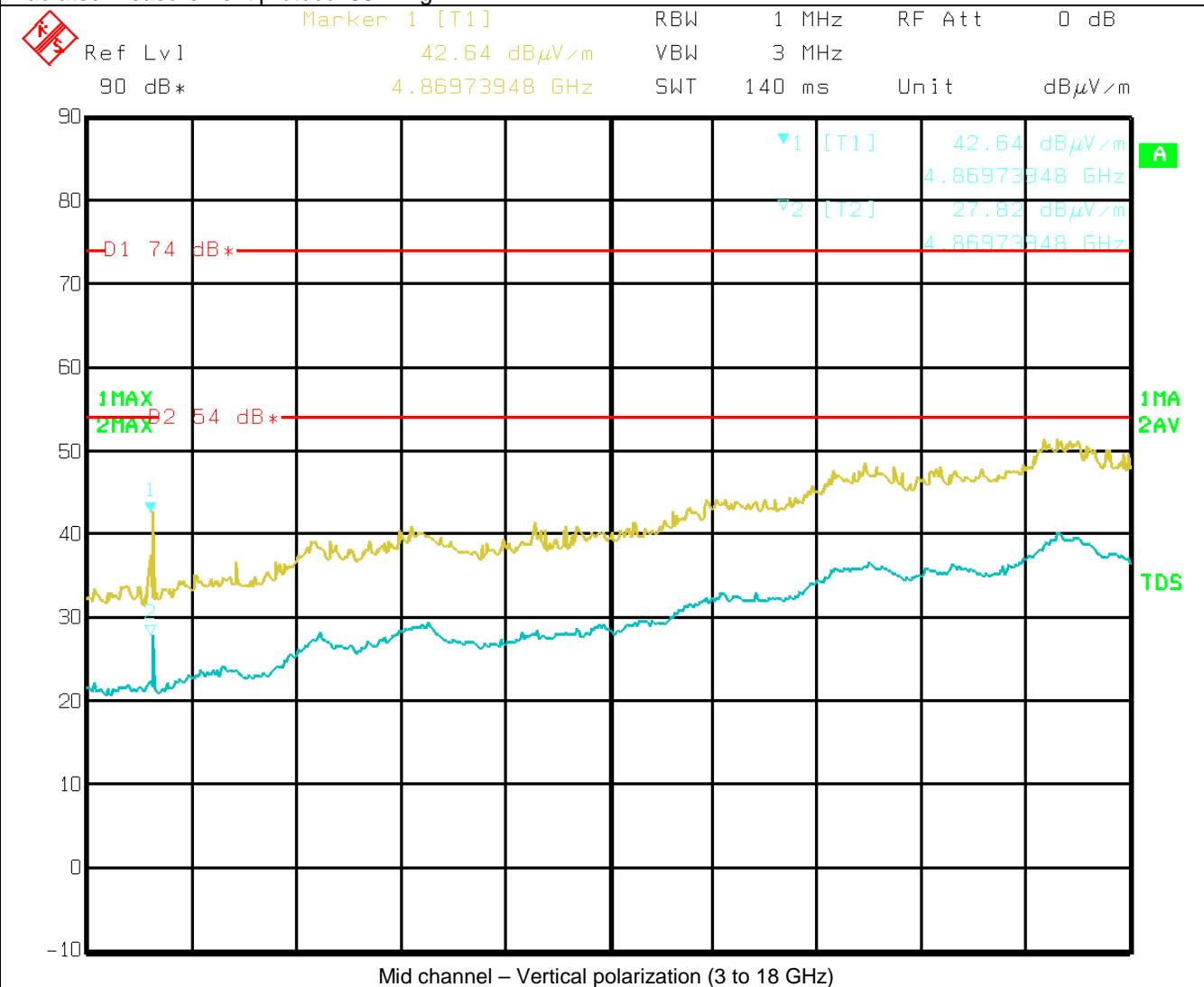
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

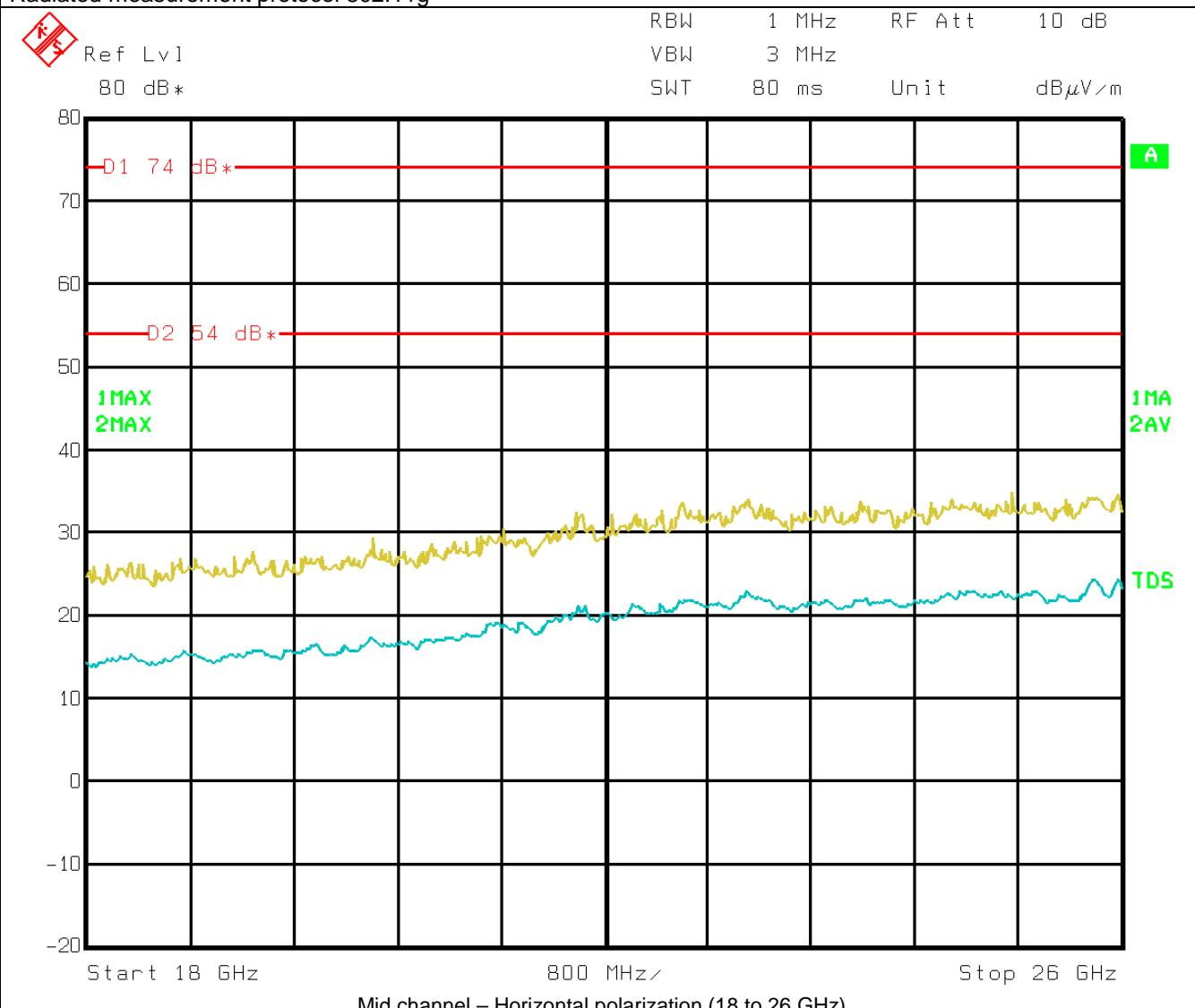
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

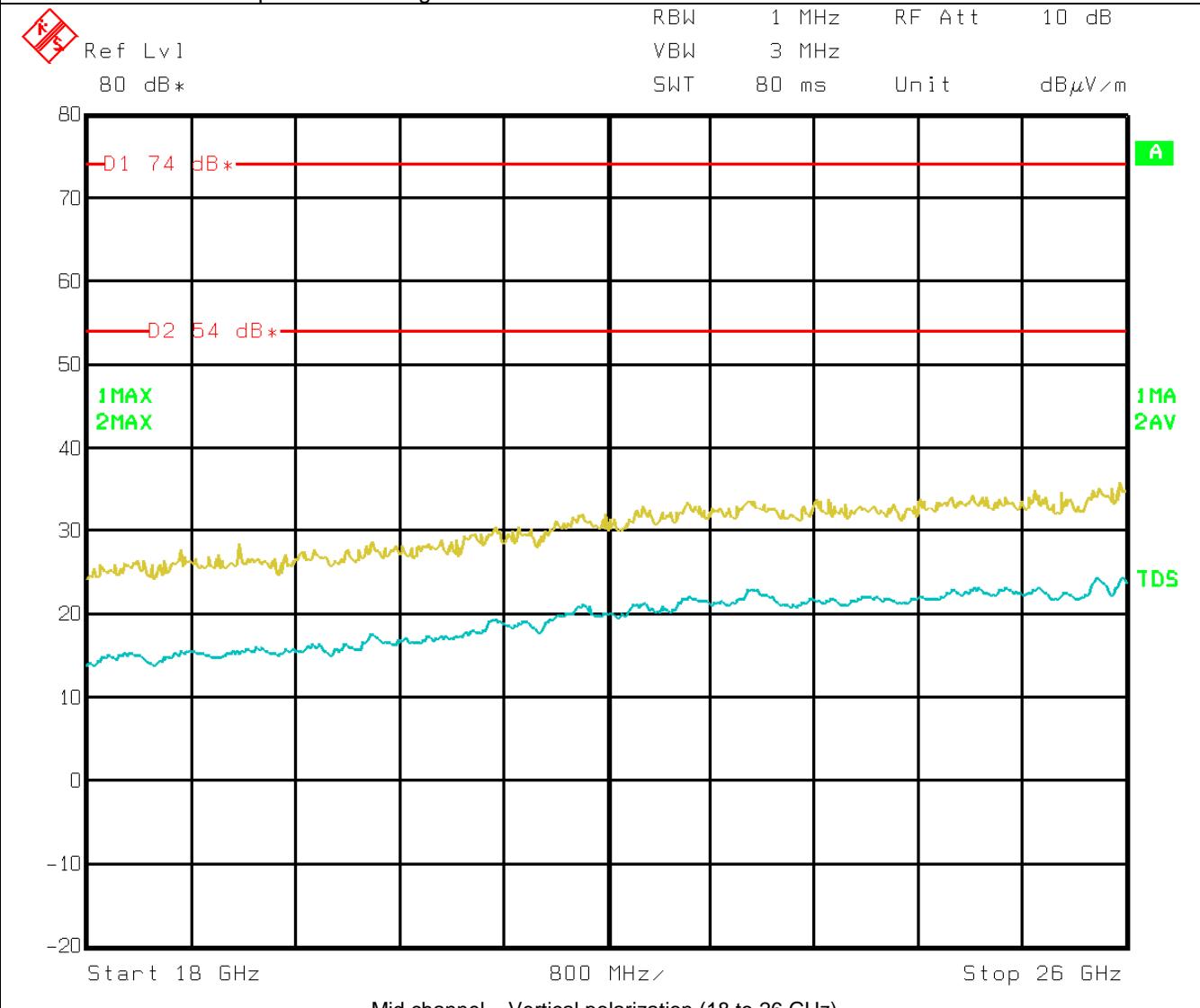
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

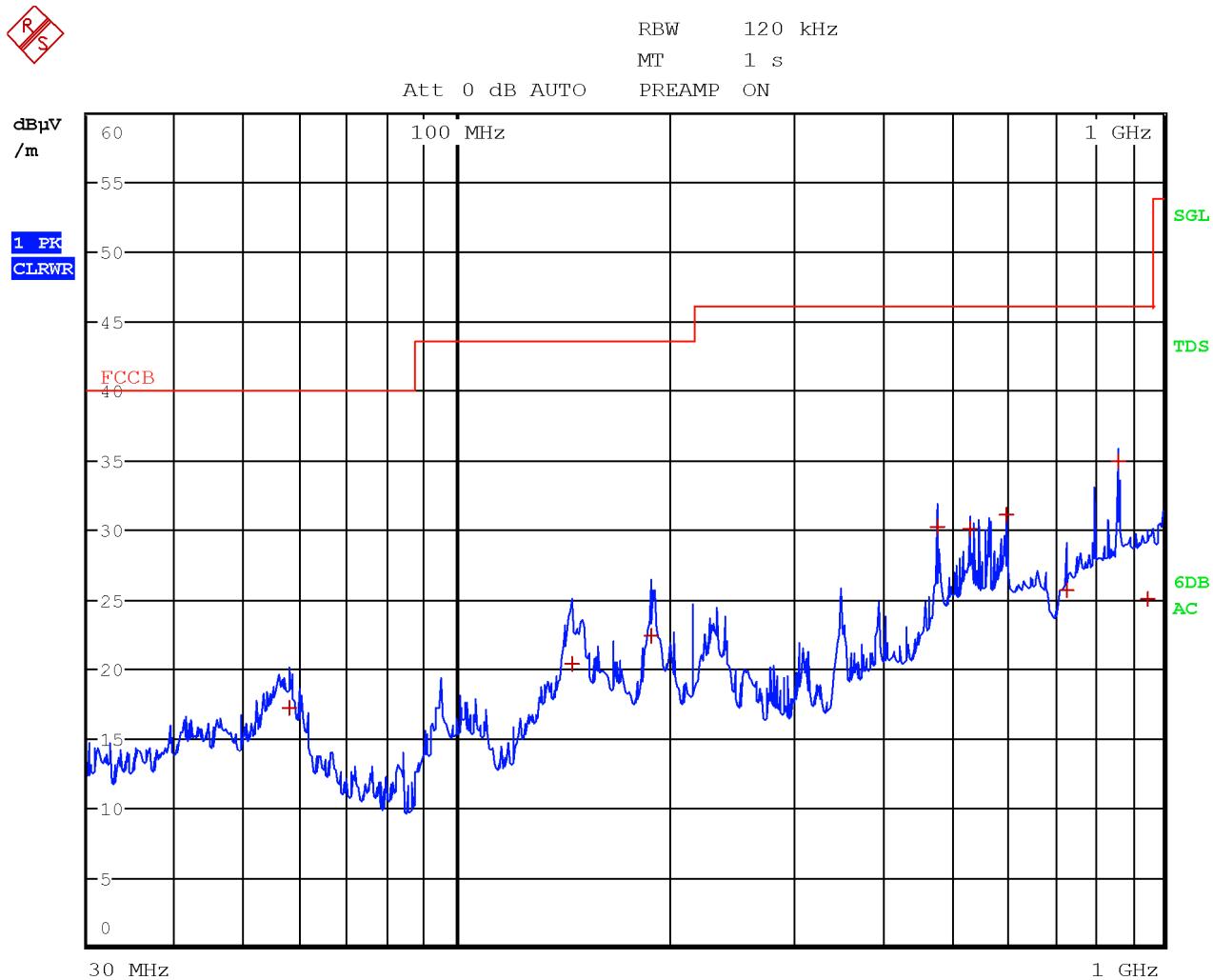
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



High channel – Horizontal polarization (30 to 1000 MHz)

#### Radiated Measurements

- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
58.0000	17.2	40.0	-22.8	QP
145.4500	20.4	43.5	-23.1	QP
188.9000	22.4	43.5	-21.1	QP
480.1500	30.2	46.0	-15.8	QP
533.3500	30.0	46.0	-16.0	QP
600.0000	31.0	46.0	-15.0	QP
729.0500	25.6	46.0	-20.4	QP
864.0000	35.0	46.0	-11.1	QP
948.2000	25.0	46.0	-21.0	QP

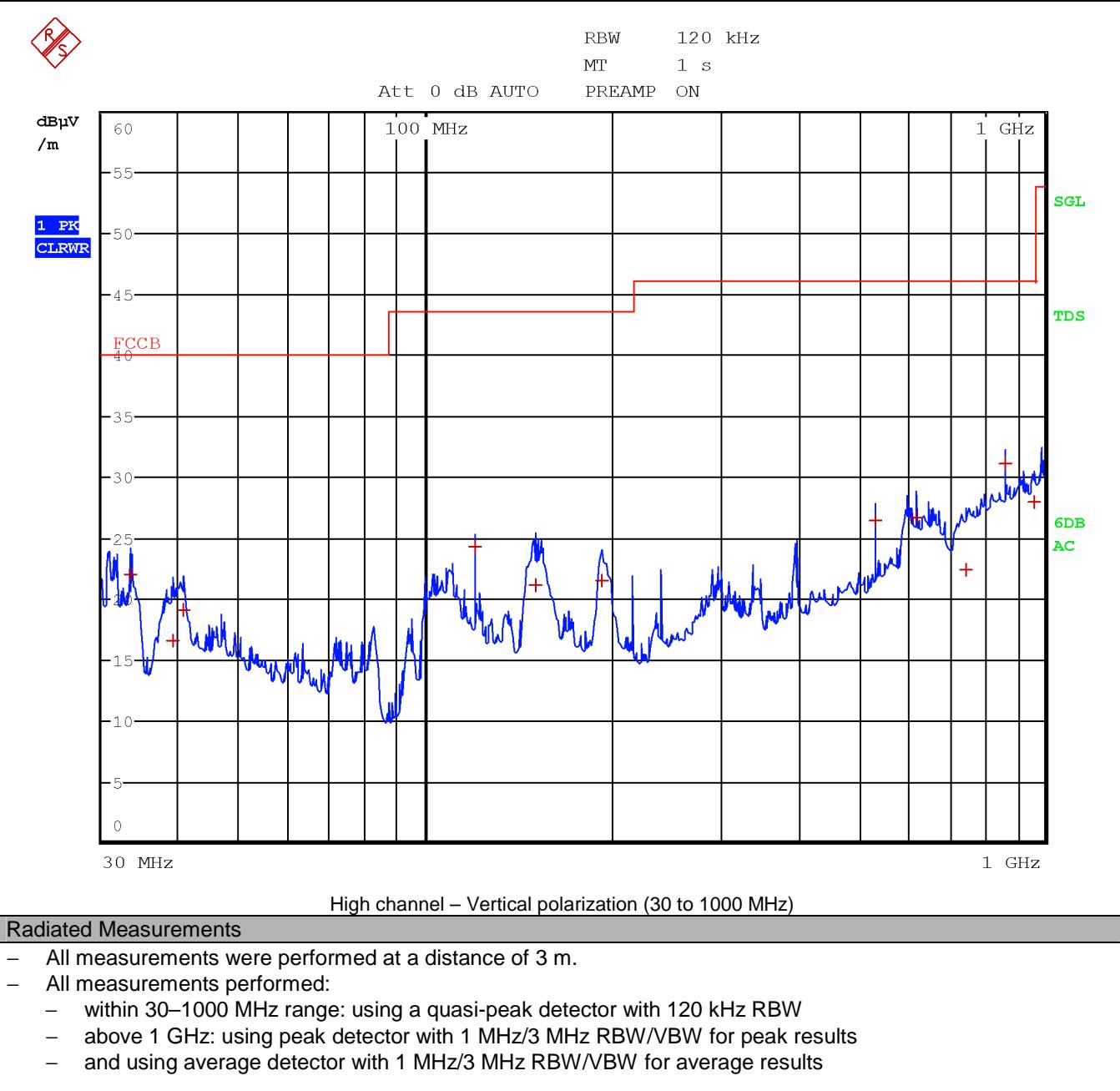
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g





<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
33.3500	22.0	40.0	-18.0	QP
39.0500	16.5	40.0	-23.5	QP
40.7000	19.1	40.0	-20.9	QP
120.0000	24.2	43.5	-19.3	QP
150.2000	21.1	43.5	-22.4	QP
192.9500	21.5	43.5	-22.0	QP
533.3500	26.4	46.0	-19.7	QP
620.5500	26.7	46.0	-19.3	QP
744.8000	22.4	46.0	-23.7	QP
864.0000	31.0	46.0	-15.0	QP
959.9500	27.9	46.0	-18.1	QP

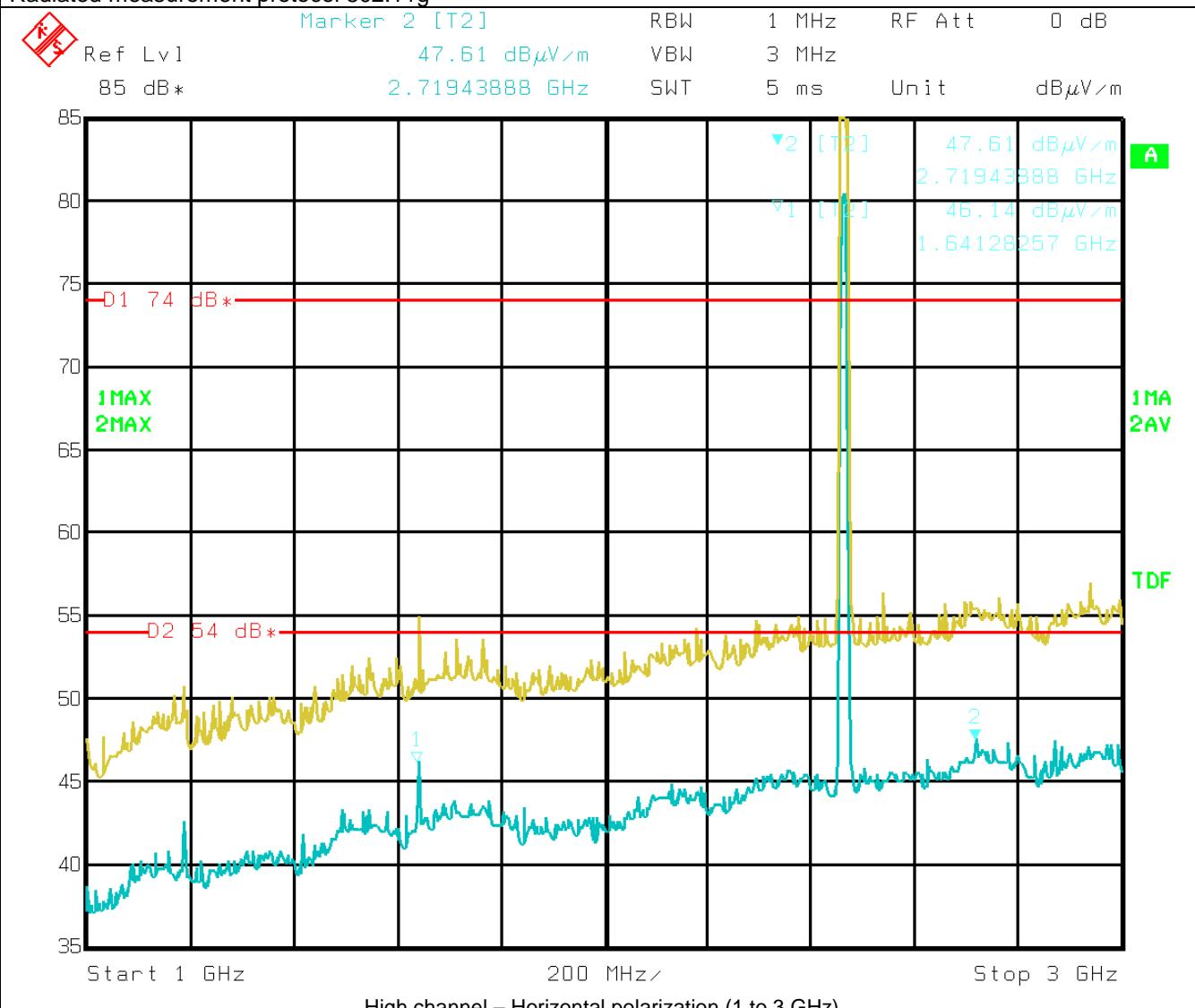
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

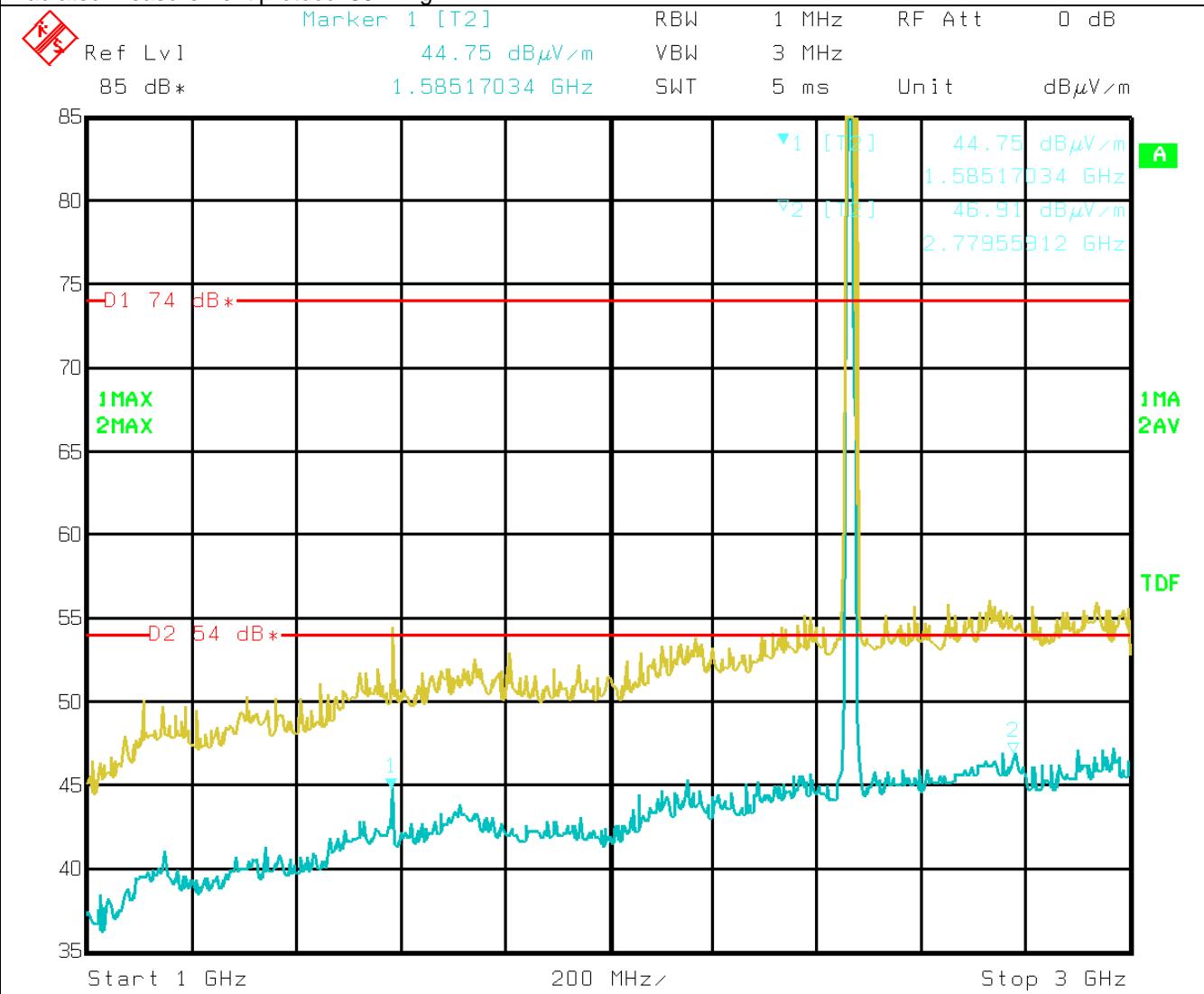
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11g



### Radiated Measurements

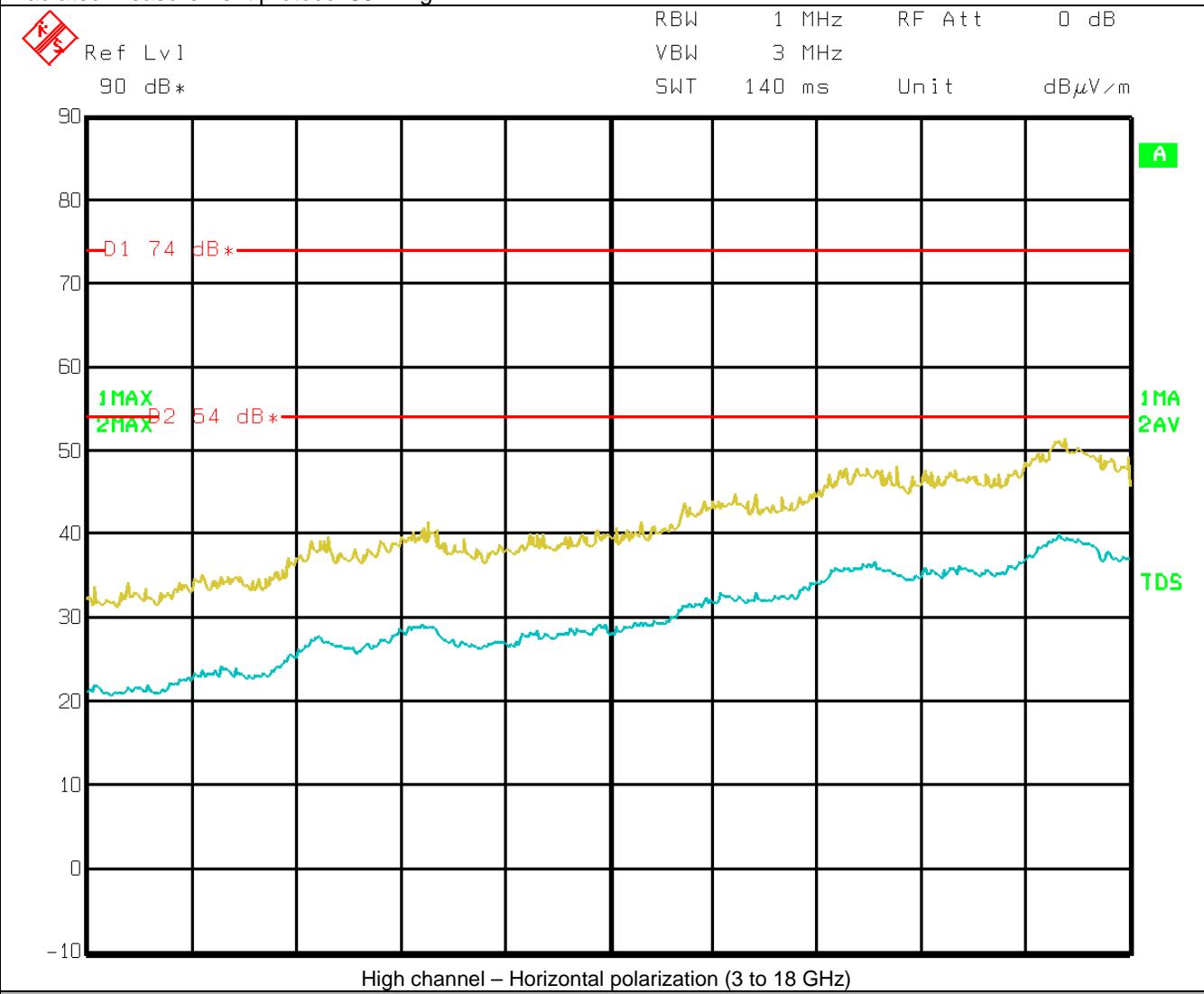
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

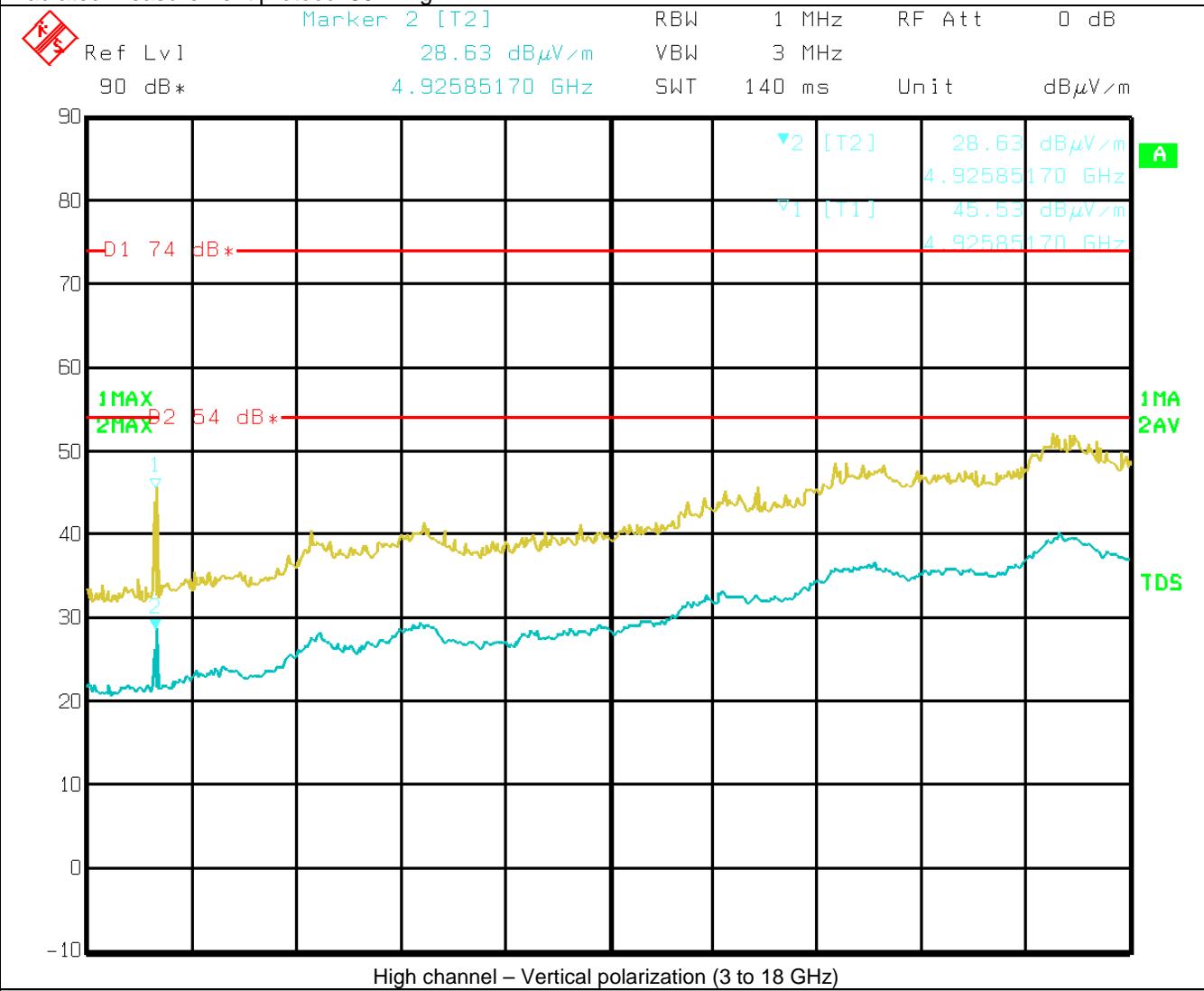
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11g



### Radiated Measurements

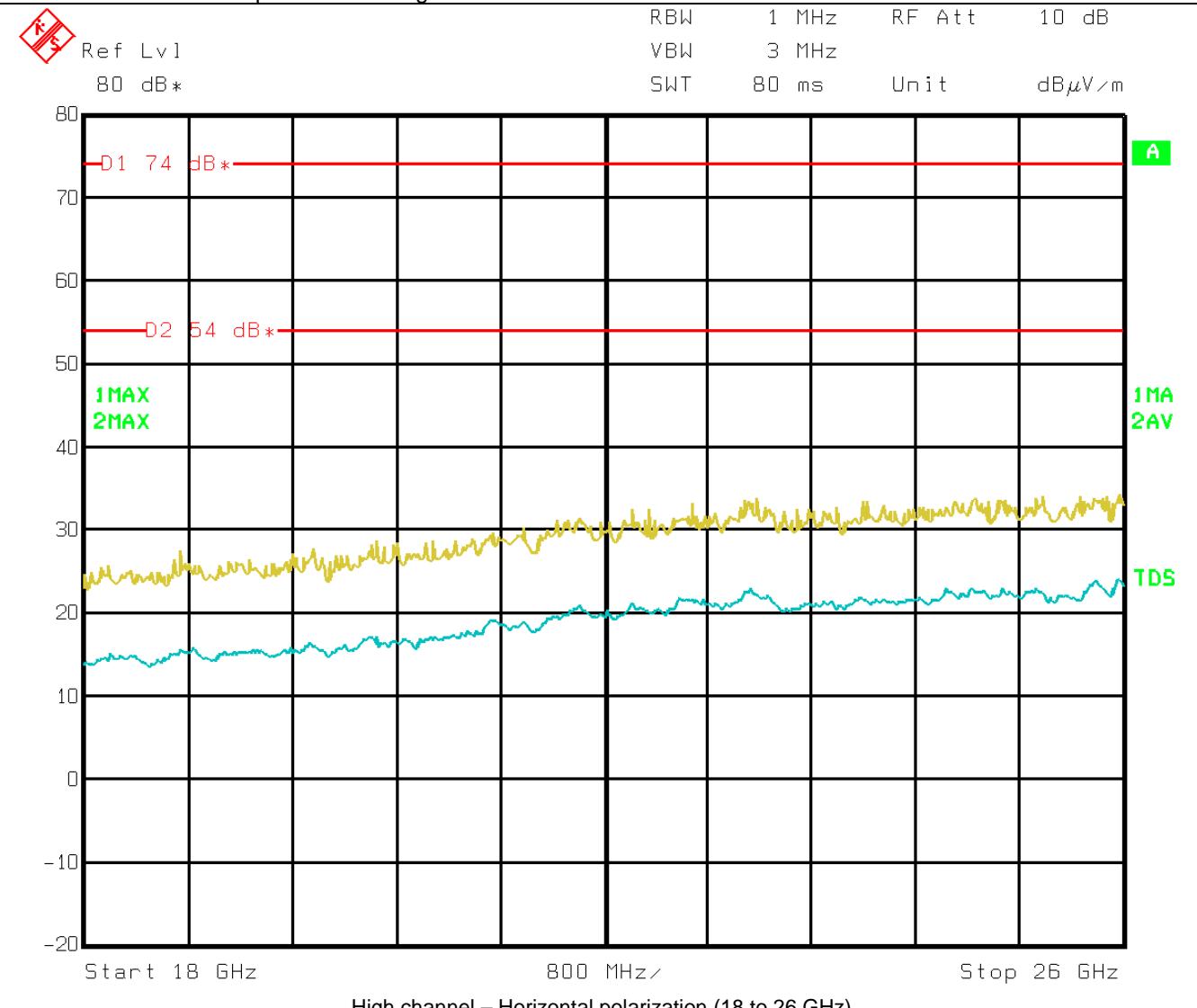
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

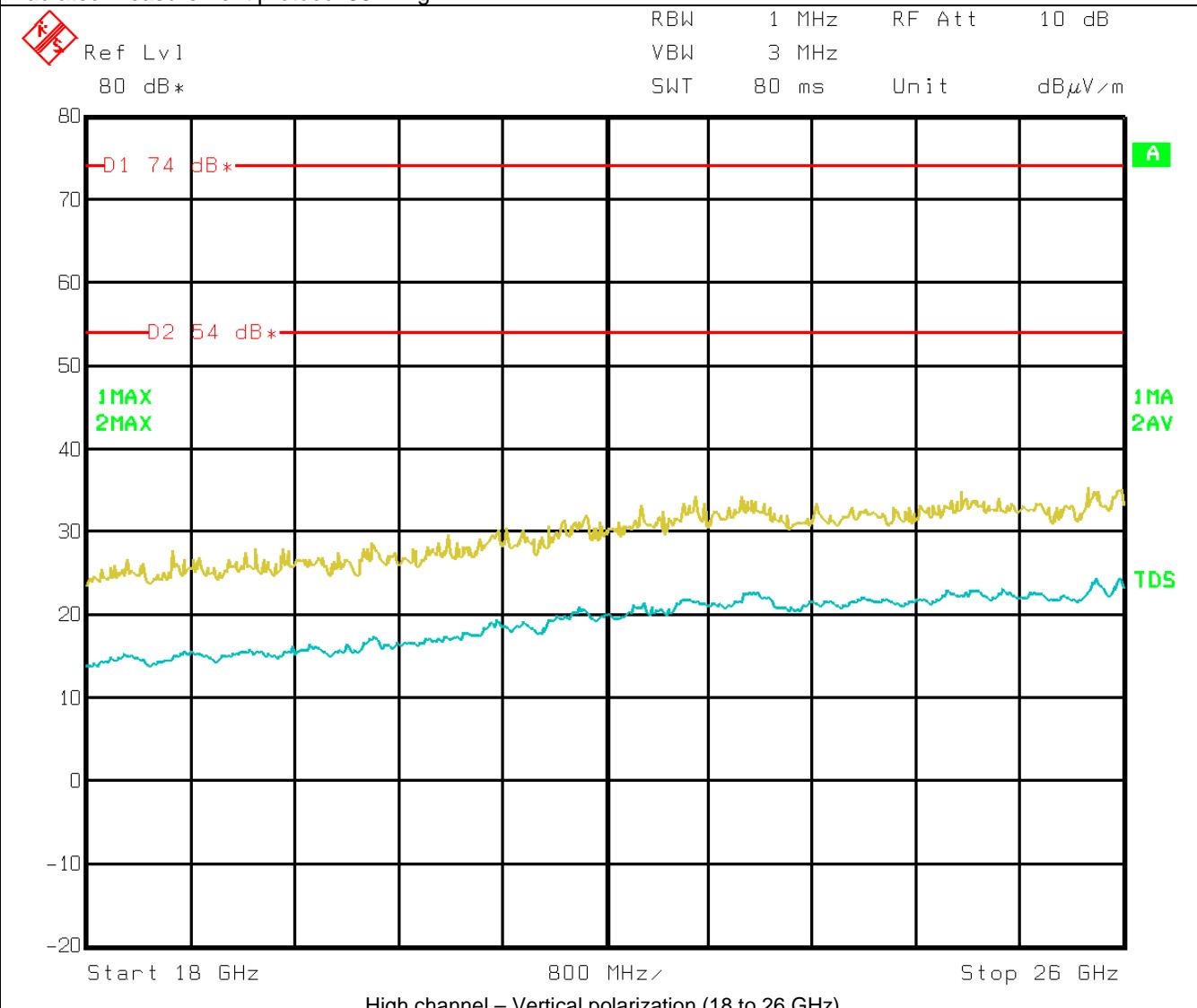
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11g



#### Radiated Measurements

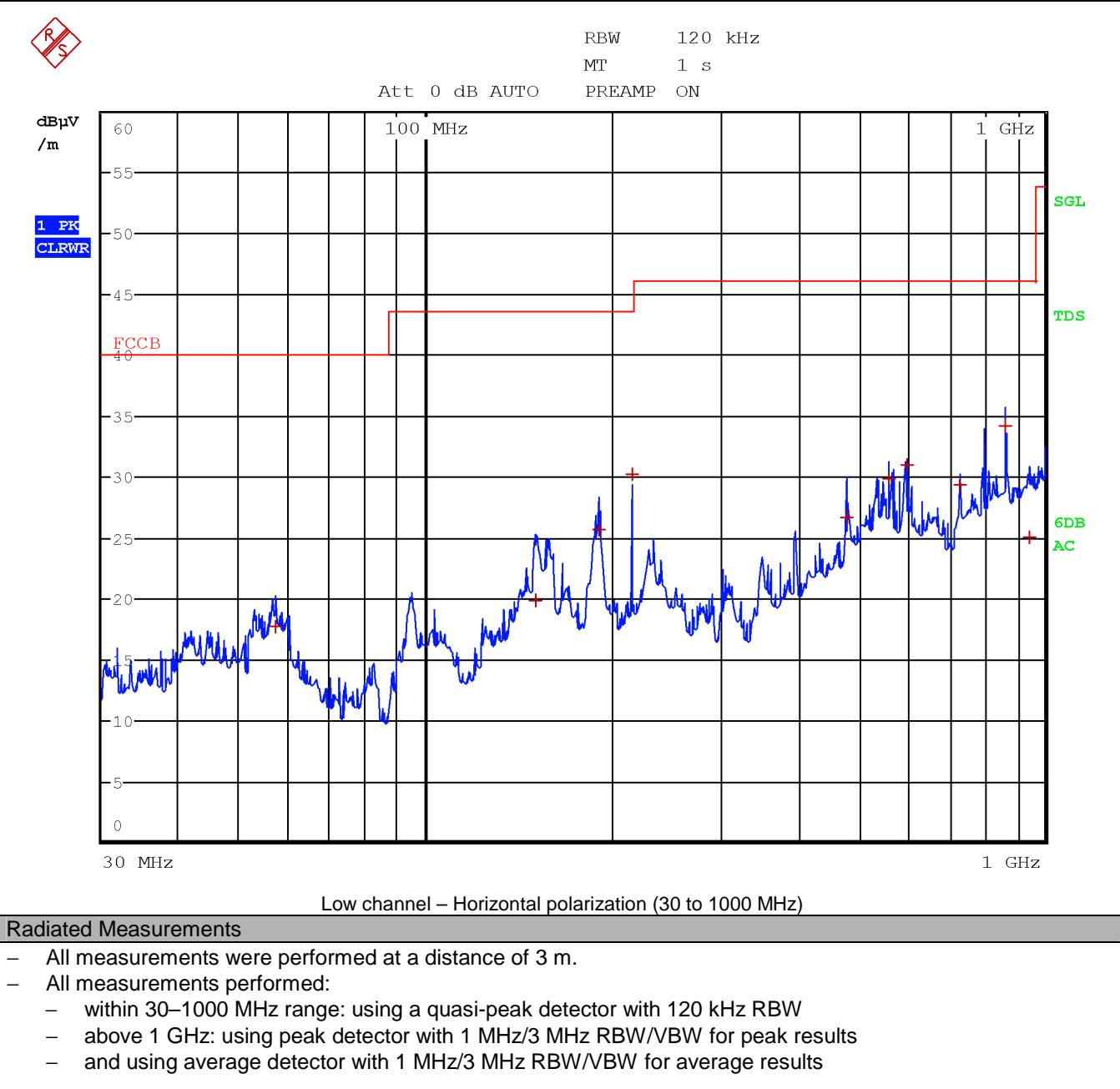
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
57.3500	17.7	40.0	-22.3	QP
150.3500	19.8	43.5	-23.7	QP
190.5000	25.6	43.5	-17.9	QP
216.0000	30.2	46.0	-15.8	QP
480.1000	26.6	46.0	-19.4	QP
559.1000	29.9	46.0	-16.2	QP
600.0000	31.0	46.0	-15.0	QP
729.0000	29.2	46.0	-16.8	QP
864.0000	34.3	46.0	-11.8	QP
947.8500	25.0	46.0	-21.0	QP

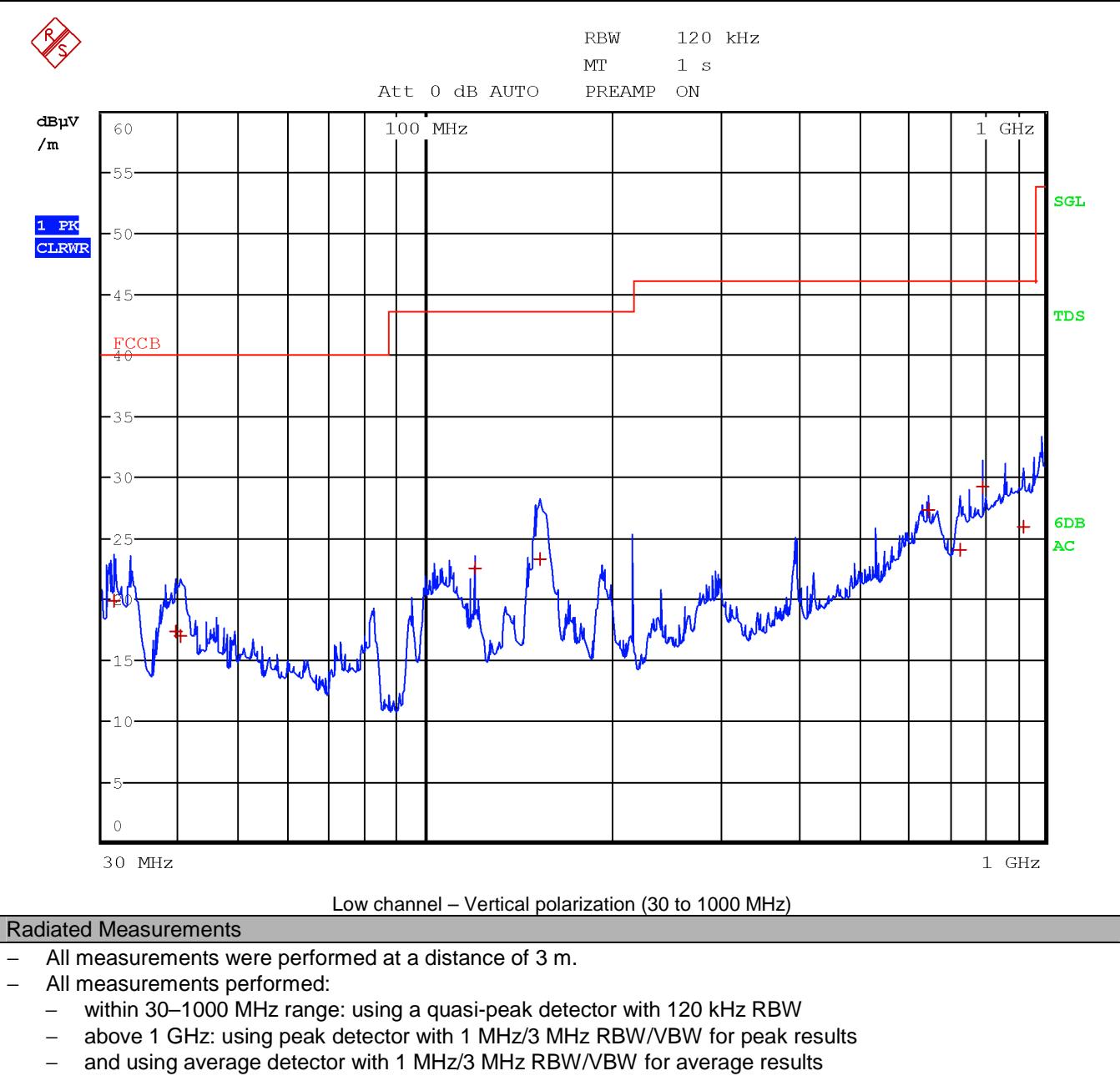
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n





<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
31.3000	19.8	40.0	-20.2	QP
39.4000	17.3	40.0	-22.7	QP
40.2000	16.9	40.0	-23.1	QP
120.0000	22.5	43.5	-21.0	QP
153.3500	23.2	43.5	-20.3	QP
648.0000	27.3	46.0	-18.8	QP
729.0000	24.1	46.0	-21.9	QP
792.0000	29.2	46.0	-16.8	QP
923.4000	25.9	46.0	-20.1	QP

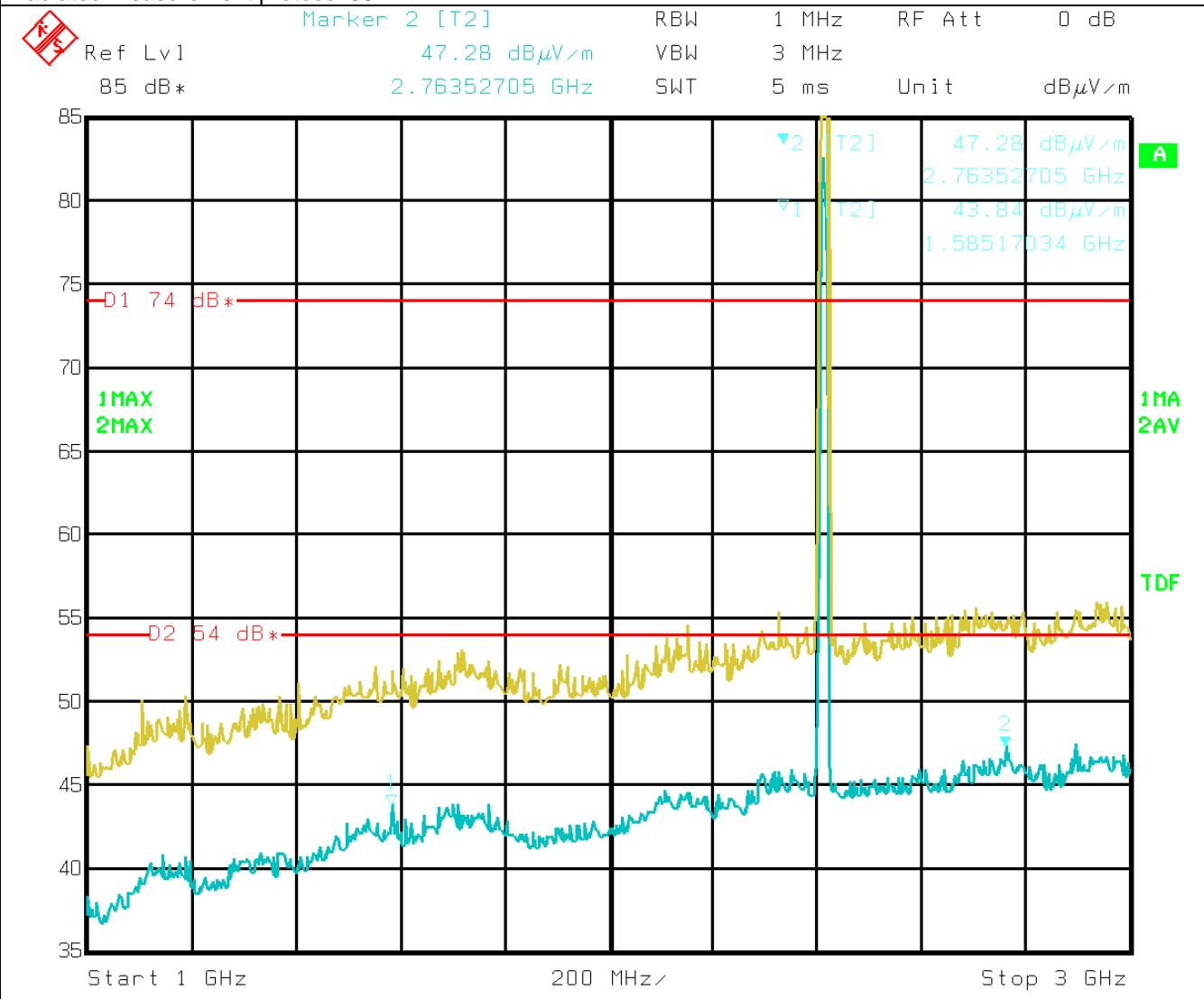
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

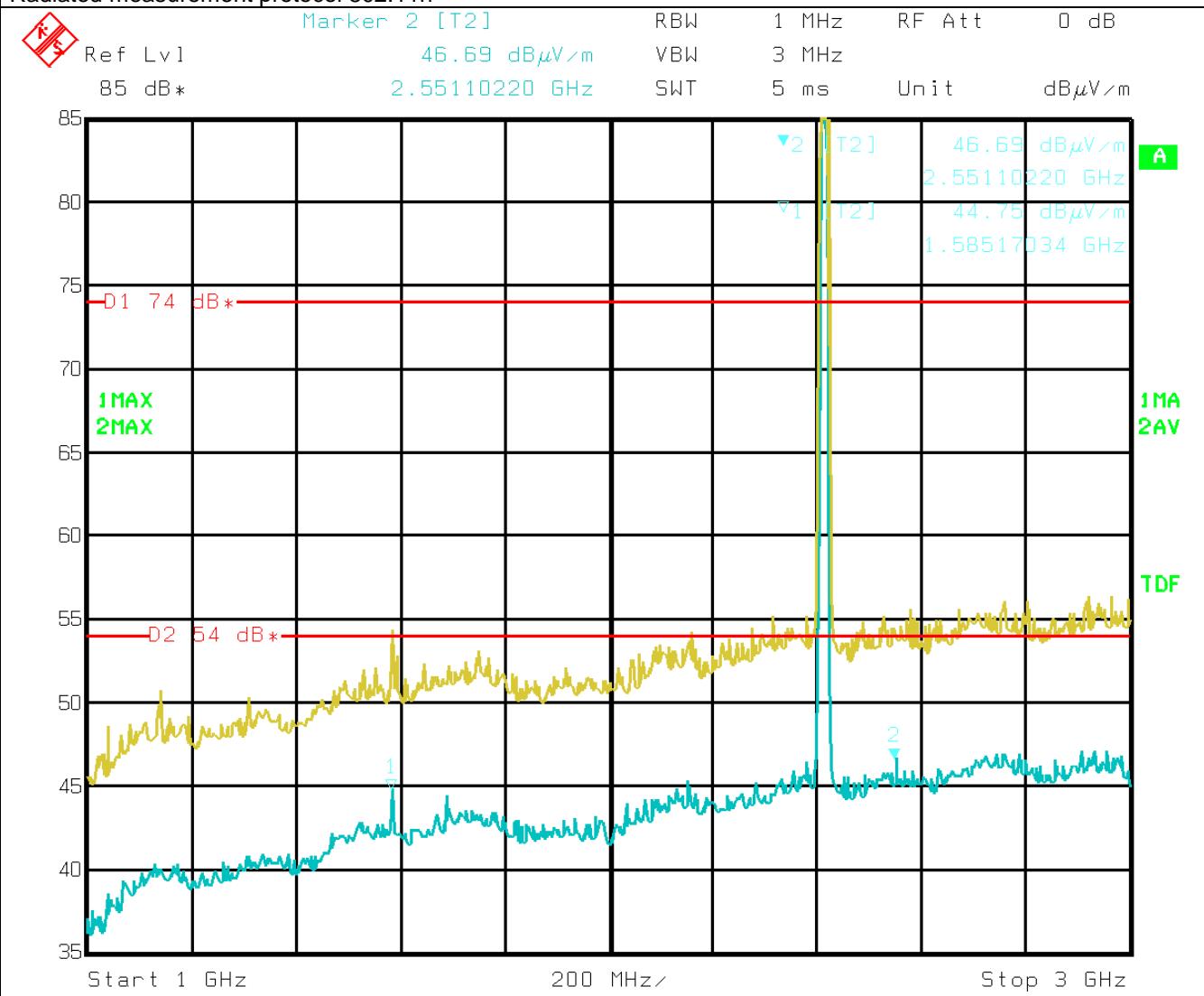
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

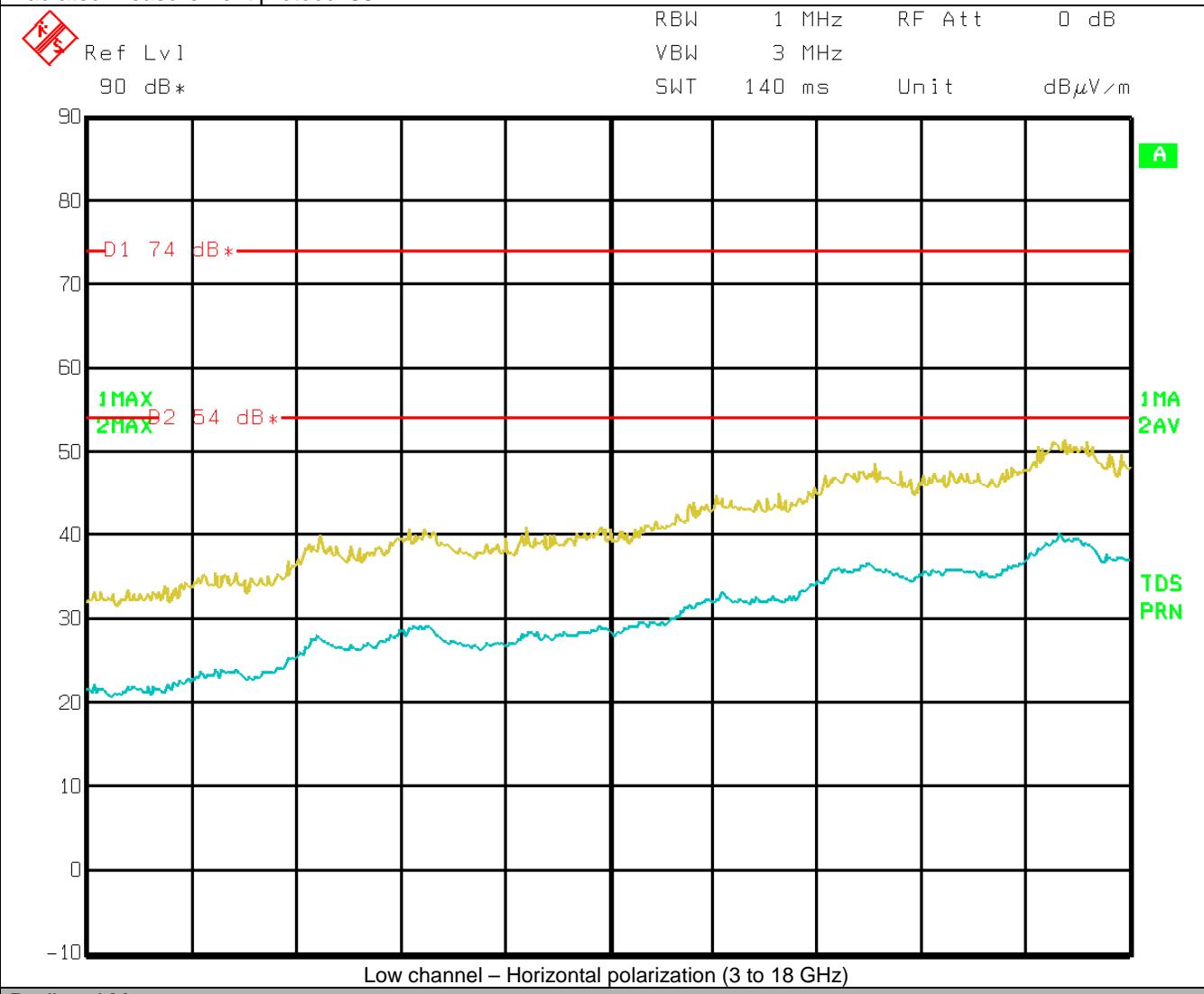
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

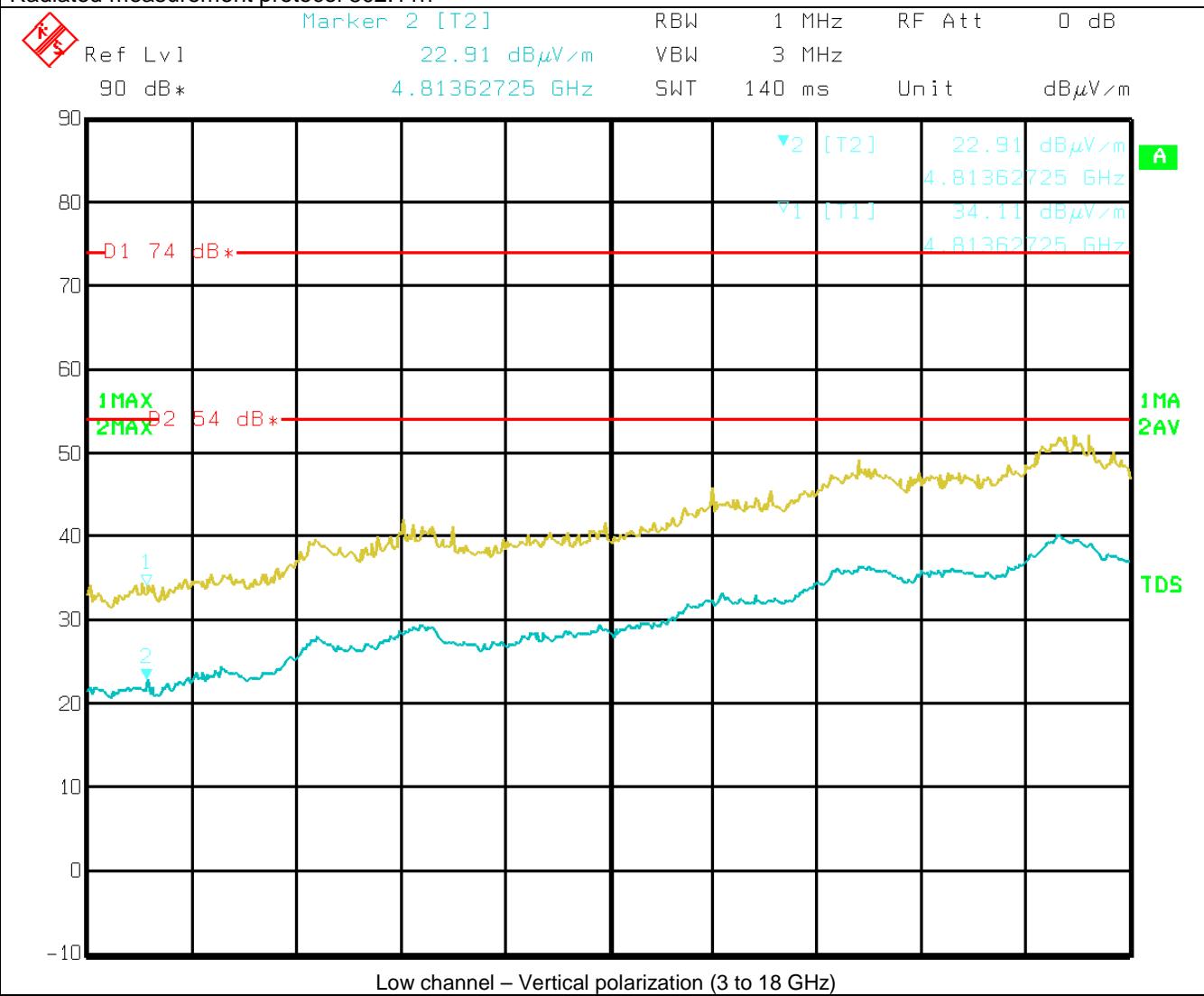
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

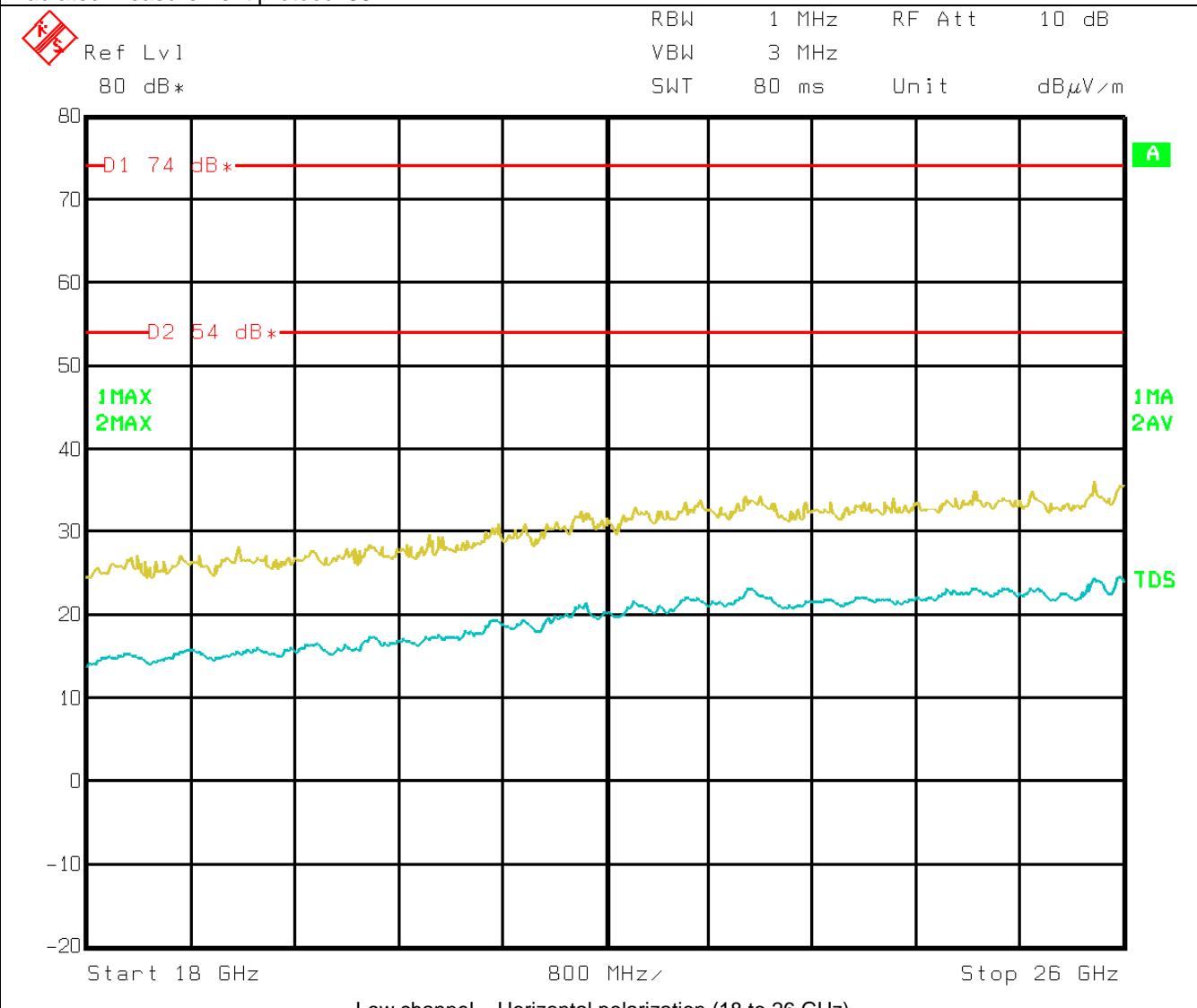
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

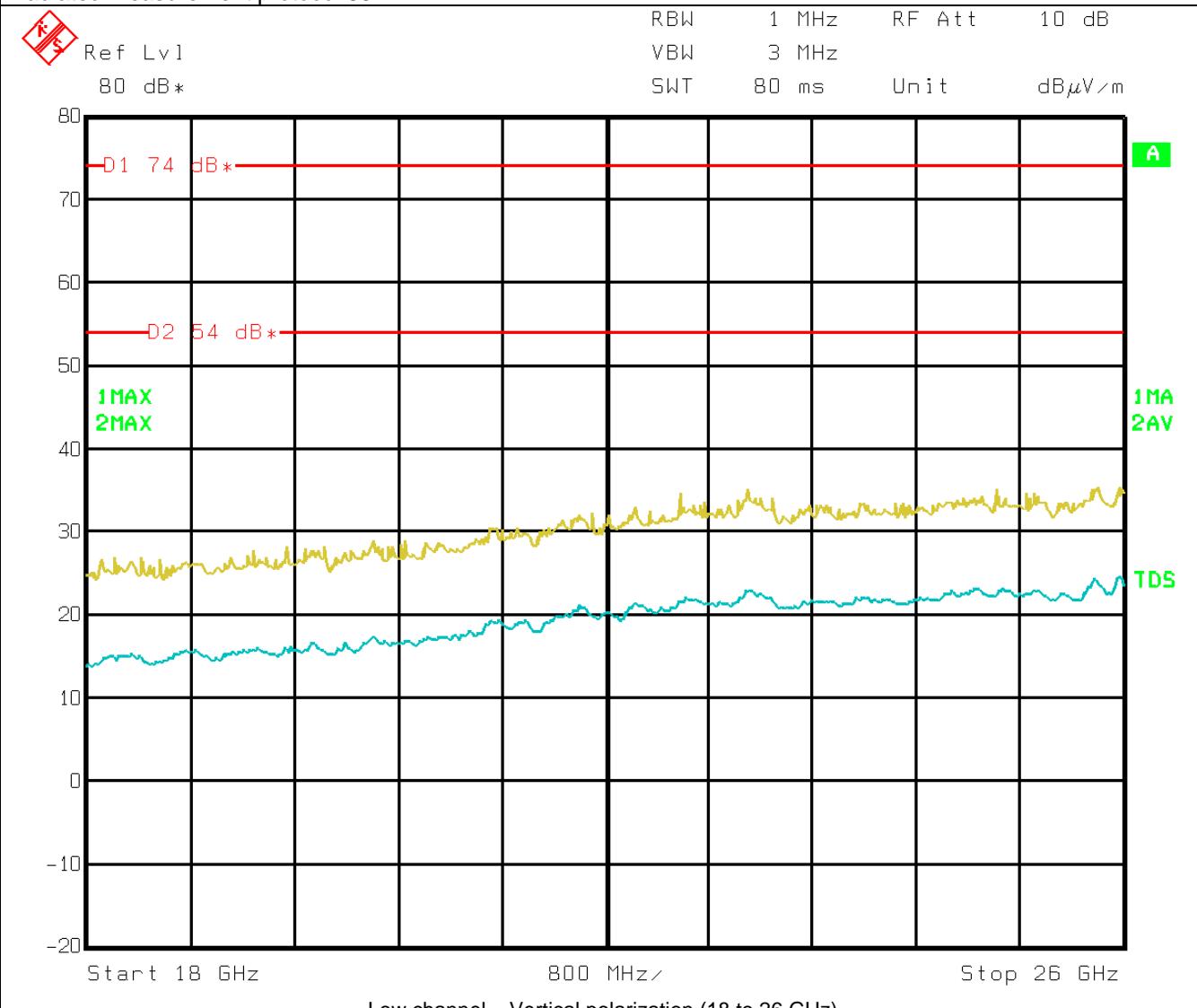
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

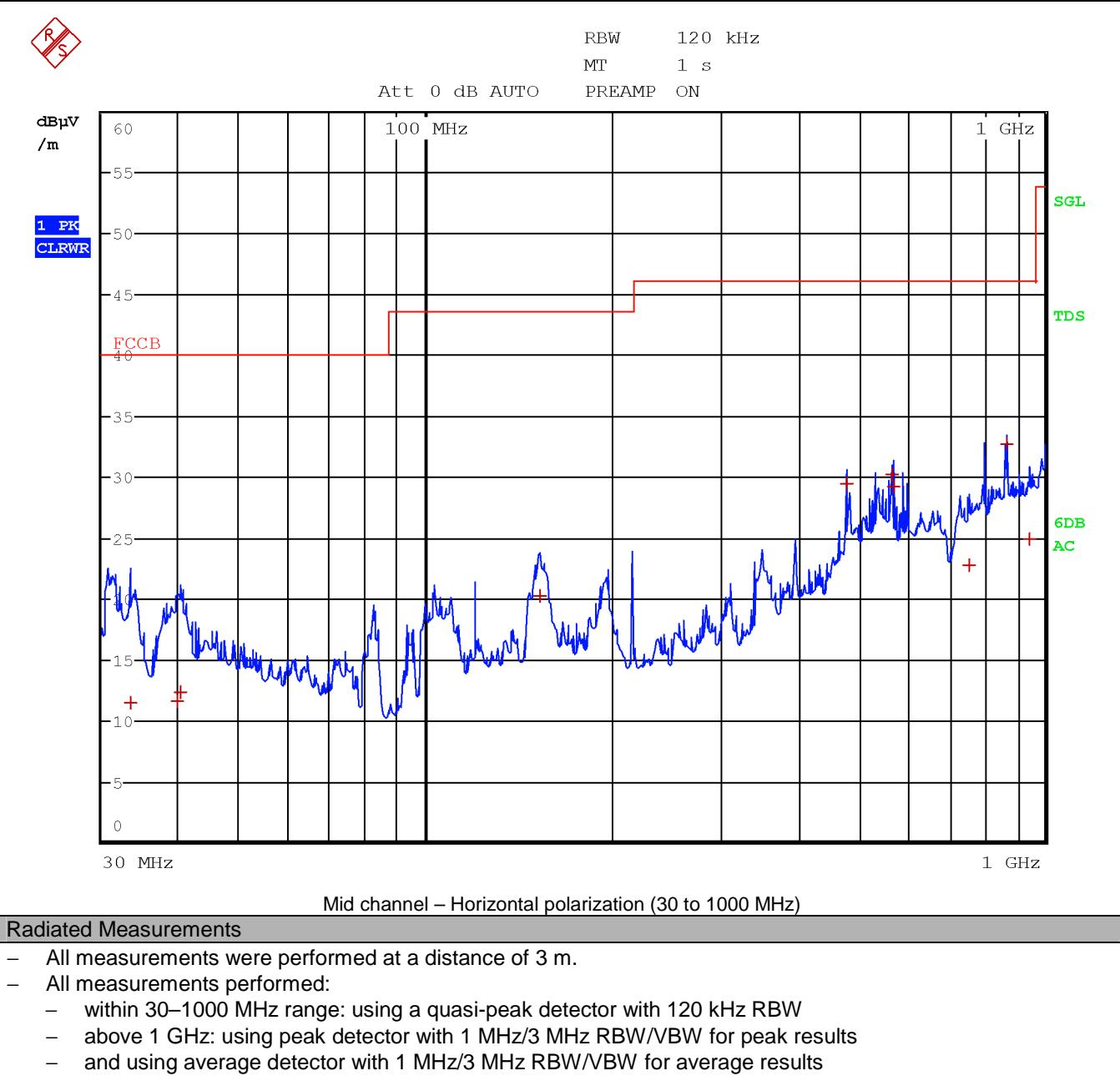
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n





<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
33.3500	11.4	40.0	-28.6	QP
39.6000	11.5	40.0	-28.5	QP
40.0500	12.3	40.0	-27.7	QP
152.6000	20.2	43.5	-23.3	QP
480.1500	29.5	46.0	-16.6	QP
566.6500	30.2	46.0	-15.8	QP
571.4000	29.2	46.0	-16.8	QP
753.9500	22.7	46.0	-23.3	QP
866.6500	32.7	46.0	-13.4	QP
946.2500	25.0	46.0	-21.1	QP

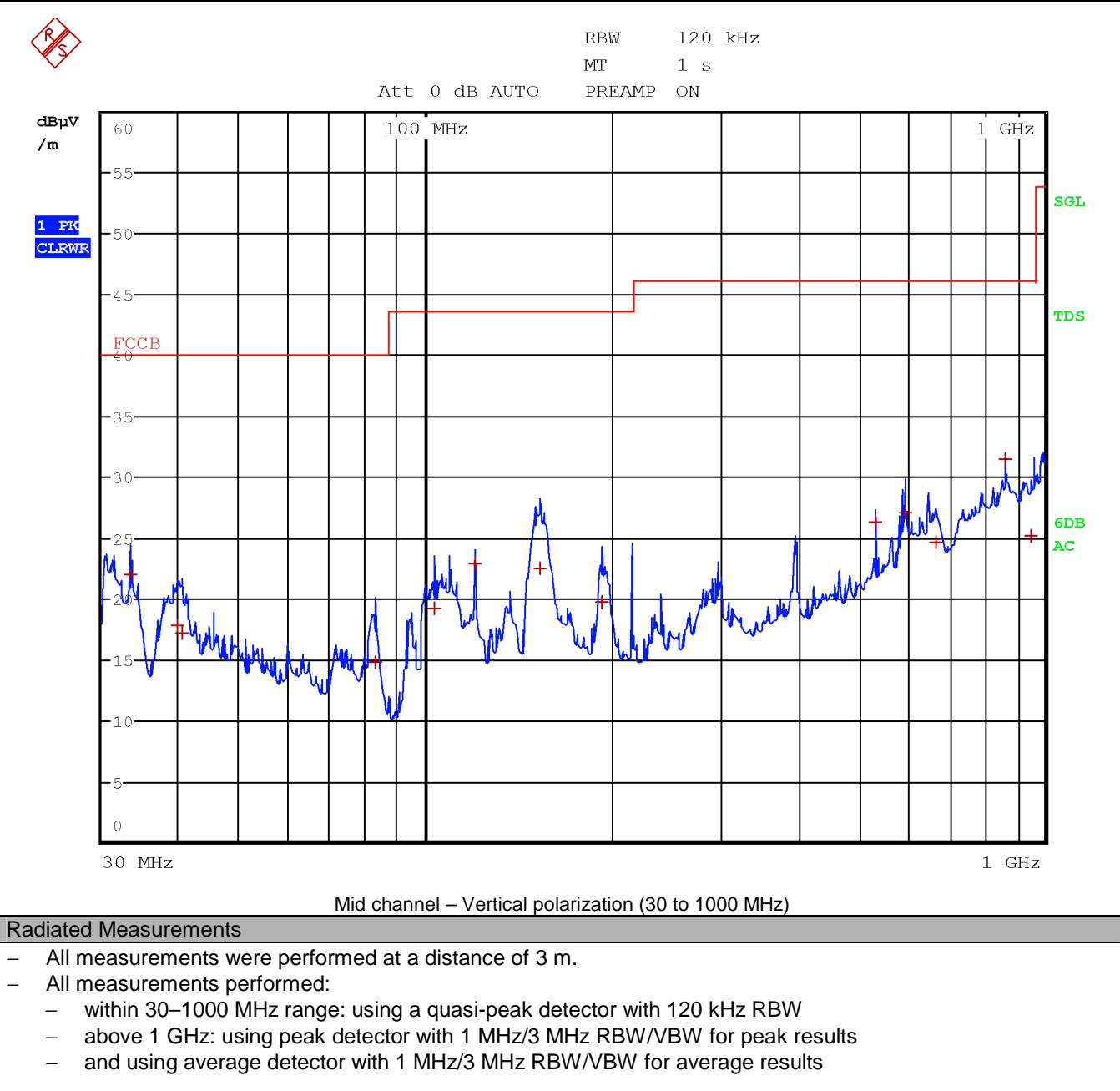
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11n





<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
33.3500	22.0	40.0	-18.0	QP
39.7000	17.8	40.0	-22.2	QP
40.3000	17.2	40.0	-22.8	QP
82.7500	14.8	40.0	-25.2	QP
103.1000	19.3	43.5	-24.3	QP
120.0000	22.9	43.5	-20.6	QP
152.6500	22.5	43.5	-21.0	QP
192.3500	19.8	43.5	-23.8	QP
533.3500	26.3	46.0	-19.7	QP
597.6000	27.0	46.0	-19.0	QP
666.6500	24.6	46.0	-21.4	QP
864.0000	31.4	46.0	-14.6	QP
951.9000	25.1	46.0	-20.9	QP

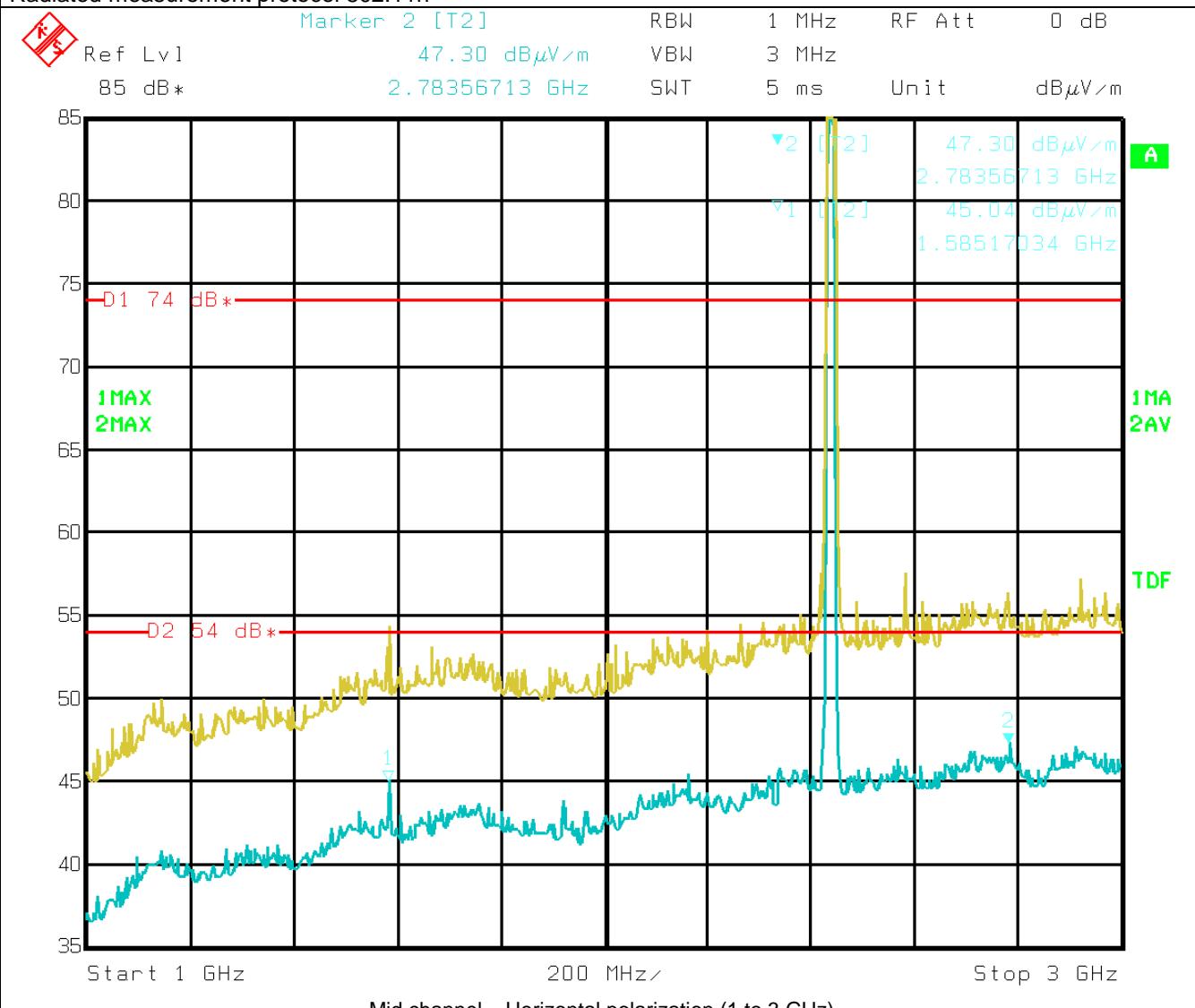
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11n



### Radiated Measurements

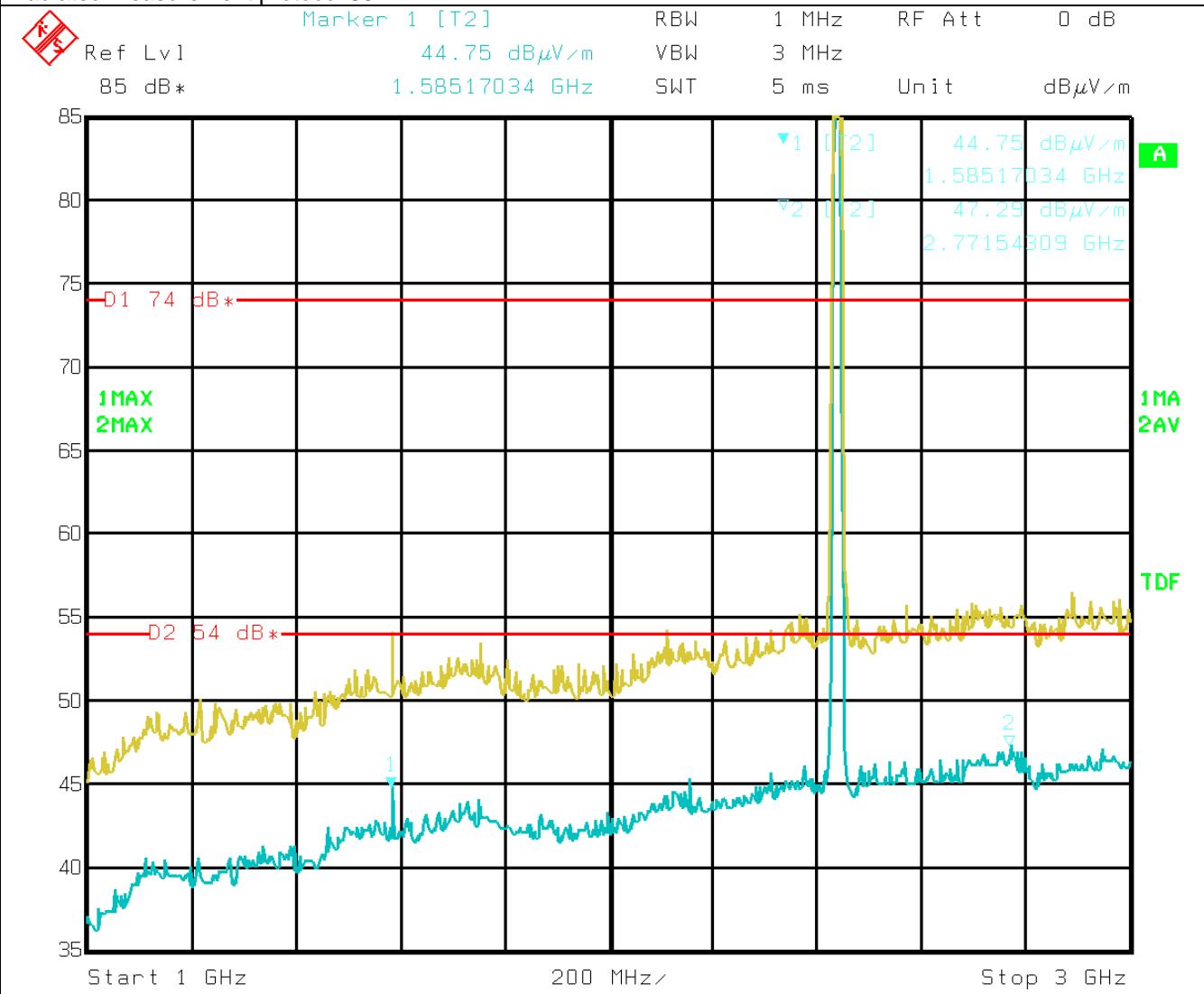
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11n



### Radiated Measurements

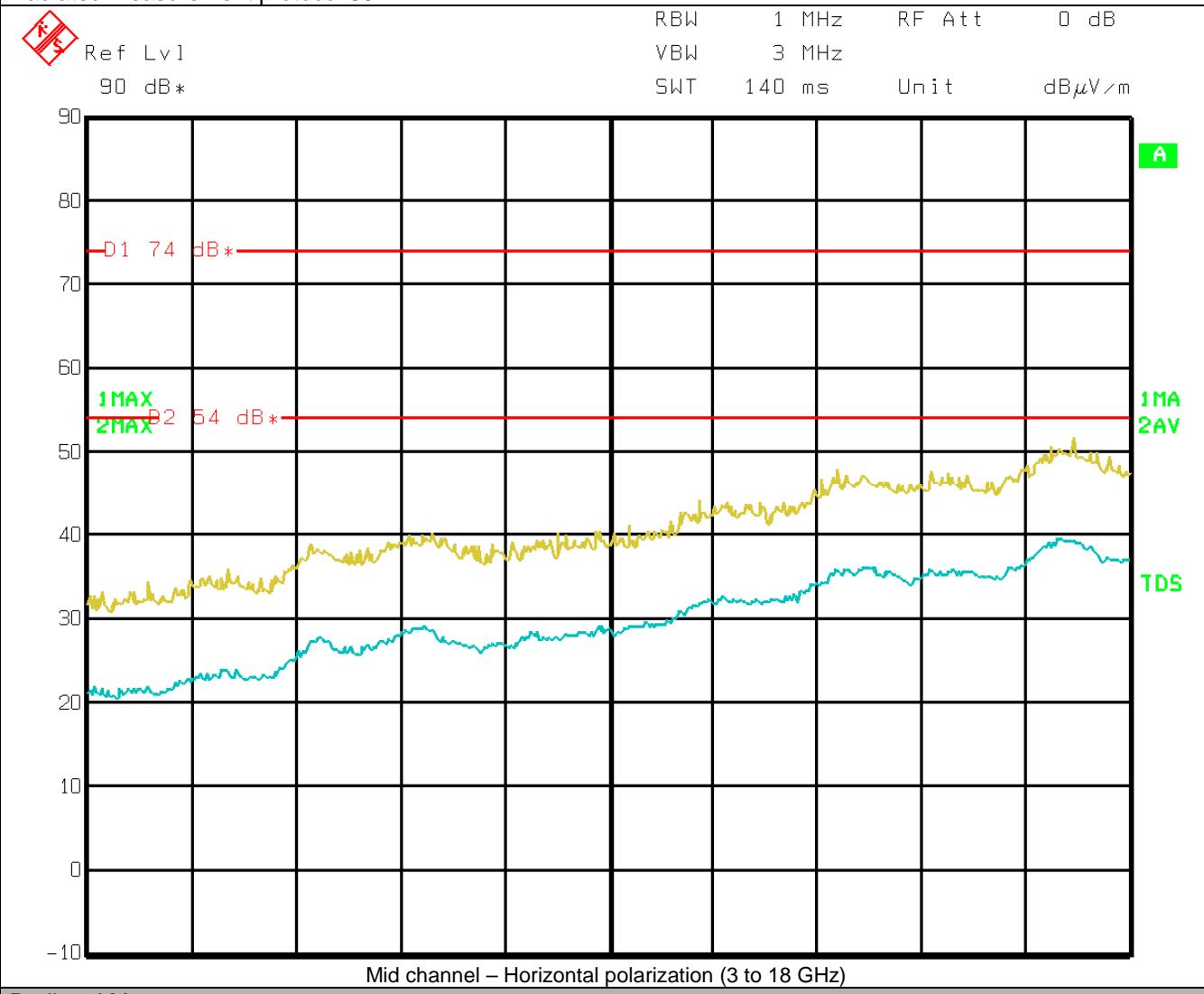
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

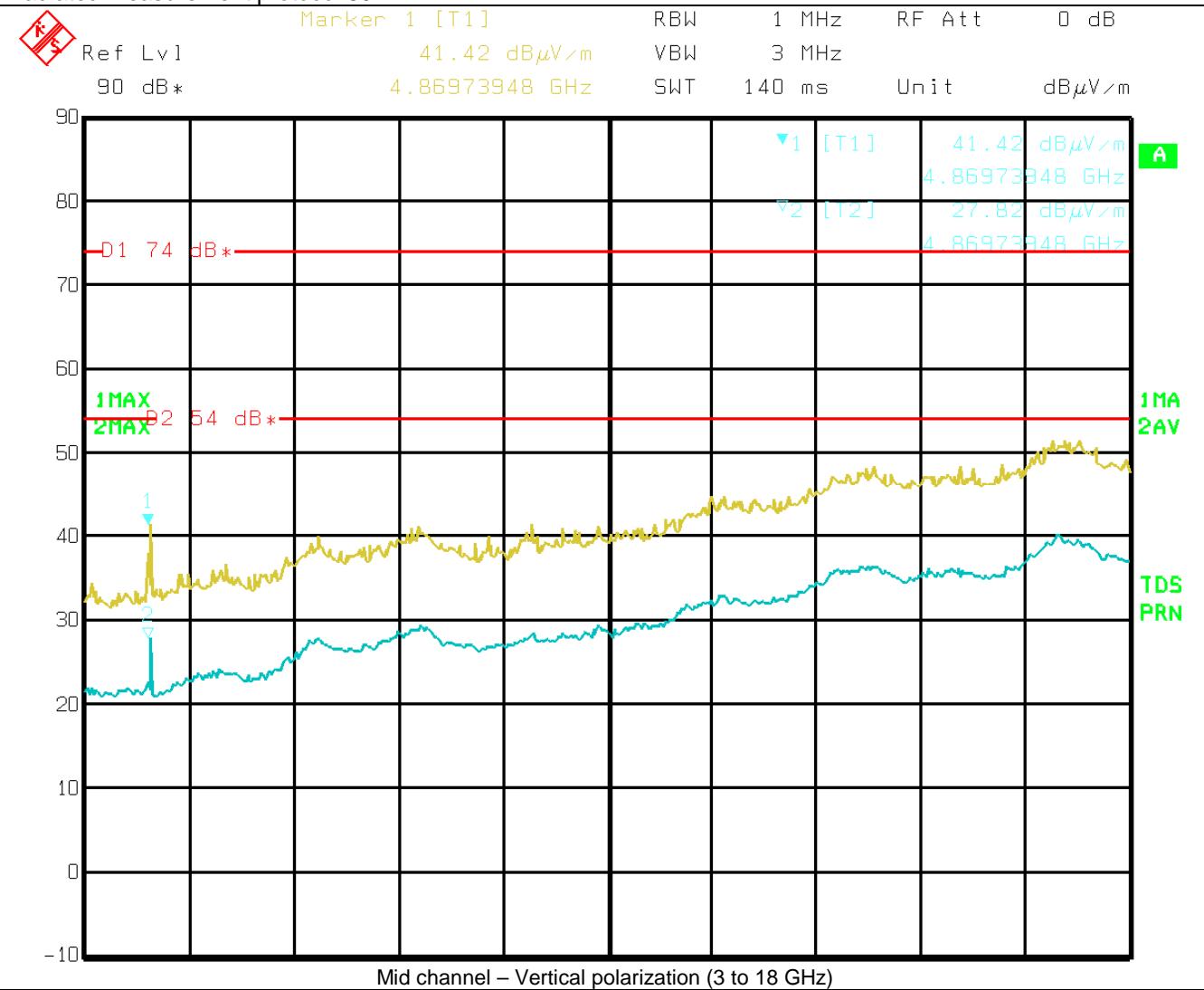
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

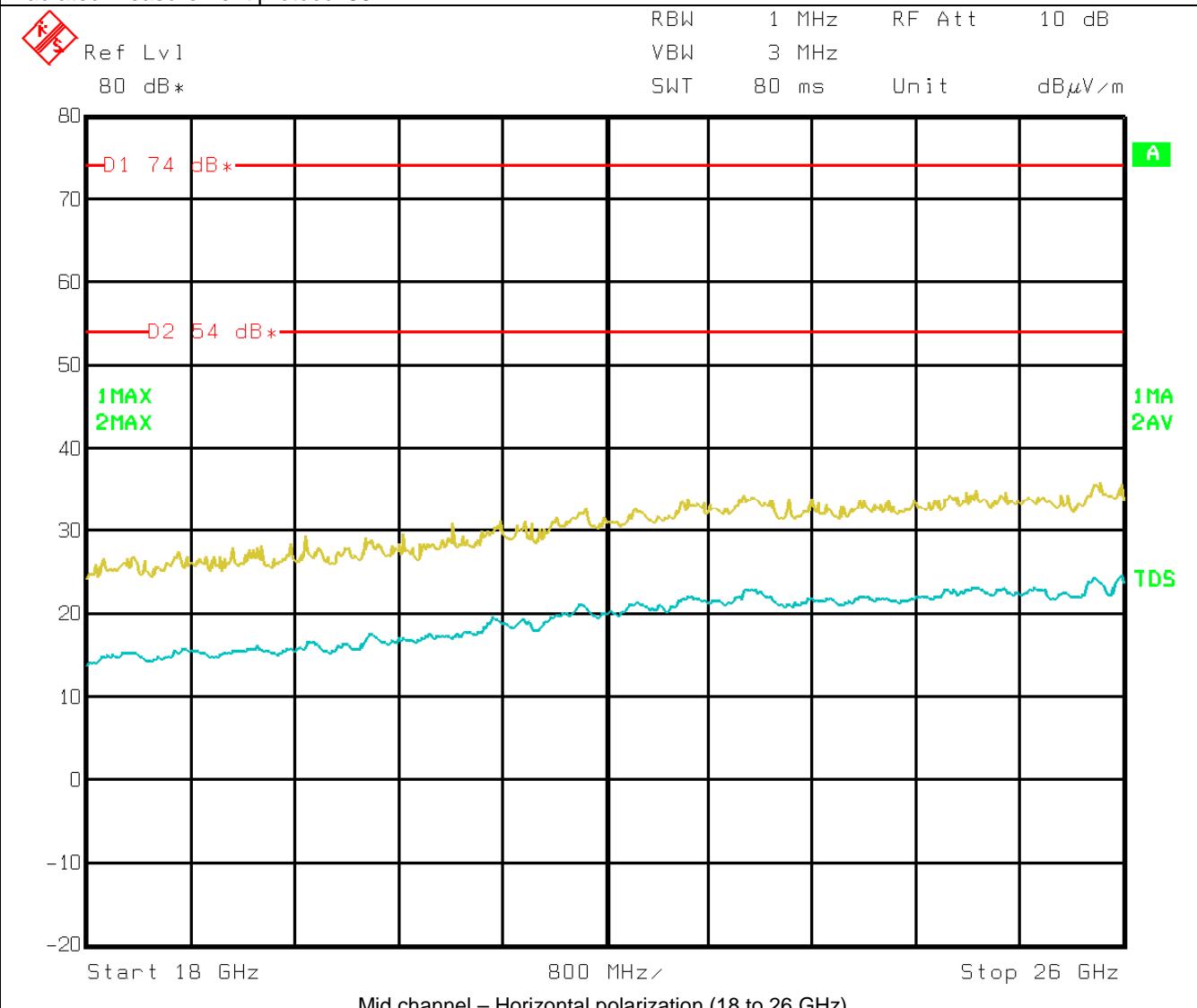
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

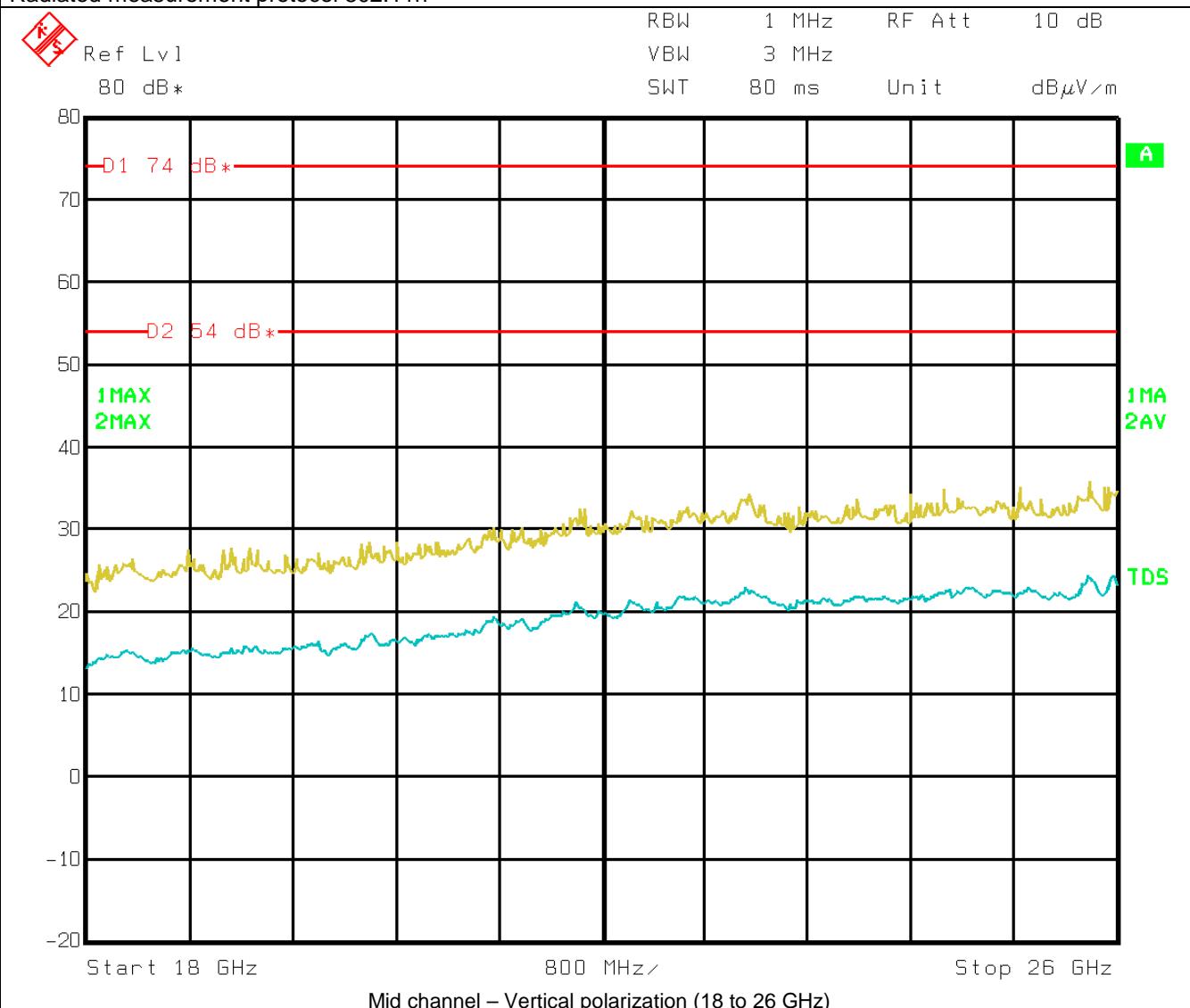
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

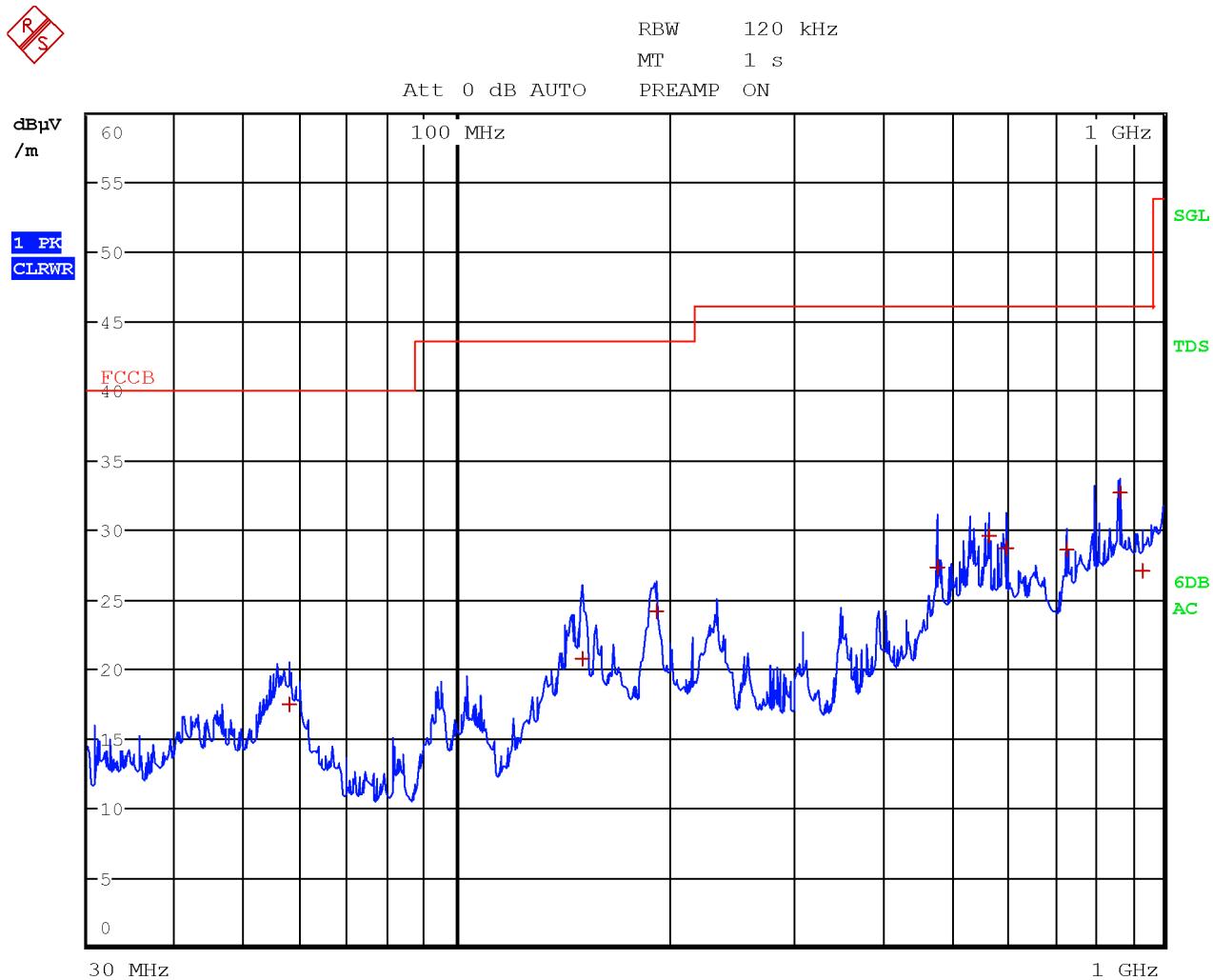
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



High channel – Horizontal polarization (30 to 1000 MHz)

#### Radiated Measurements

- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
58.0000	17.4	40.0	-22.6	QP
150.2500	20.8	43.5	-22.8	QP
192.0000	24.1	43.5	-19.4	QP
480.1000	27.3	46.0	-18.8	QP
566.7000	29.5	46.0	-16.5	QP
600.0500	28.7	46.0	-17.3	QP
729.0000	28.6	46.0	-17.5	QP
866.6500	32.8	46.0	-13.3	QP
933.3500	27.0	46.0	-19.0	QP

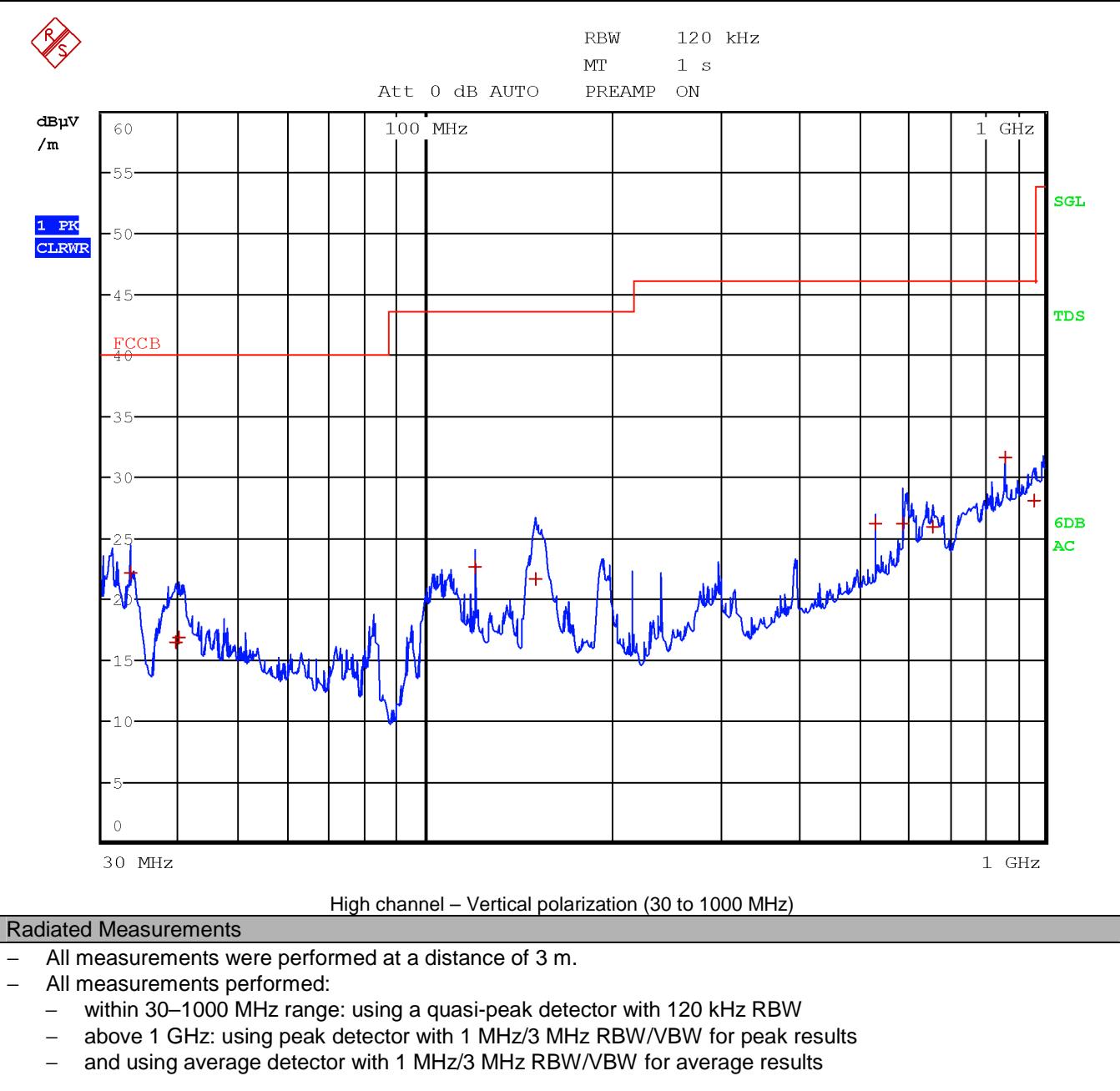
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11n





<b>Section 8: Testing data</b>		<b>Product:</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Tabular data

Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Detector
33.3500	22.2	40.0	-17.8	QP
39.5500	16.5	40.0	-23.5	QP
39.9500	16.9	40.0	-23.1	QP
120.0000	22.6	43.5	-20.9	QP
150.3000	21.6	43.5	-22.0	QP
533.3500	26.2	46.0	-19.8	QP
590.4000	26.2	46.0	-19.8	QP
660.2000	25.9	46.0	-20.1	QP
864.0000	31.5	46.0	-14.5	QP
959.9500	28.0	46.0	-18.0	QP

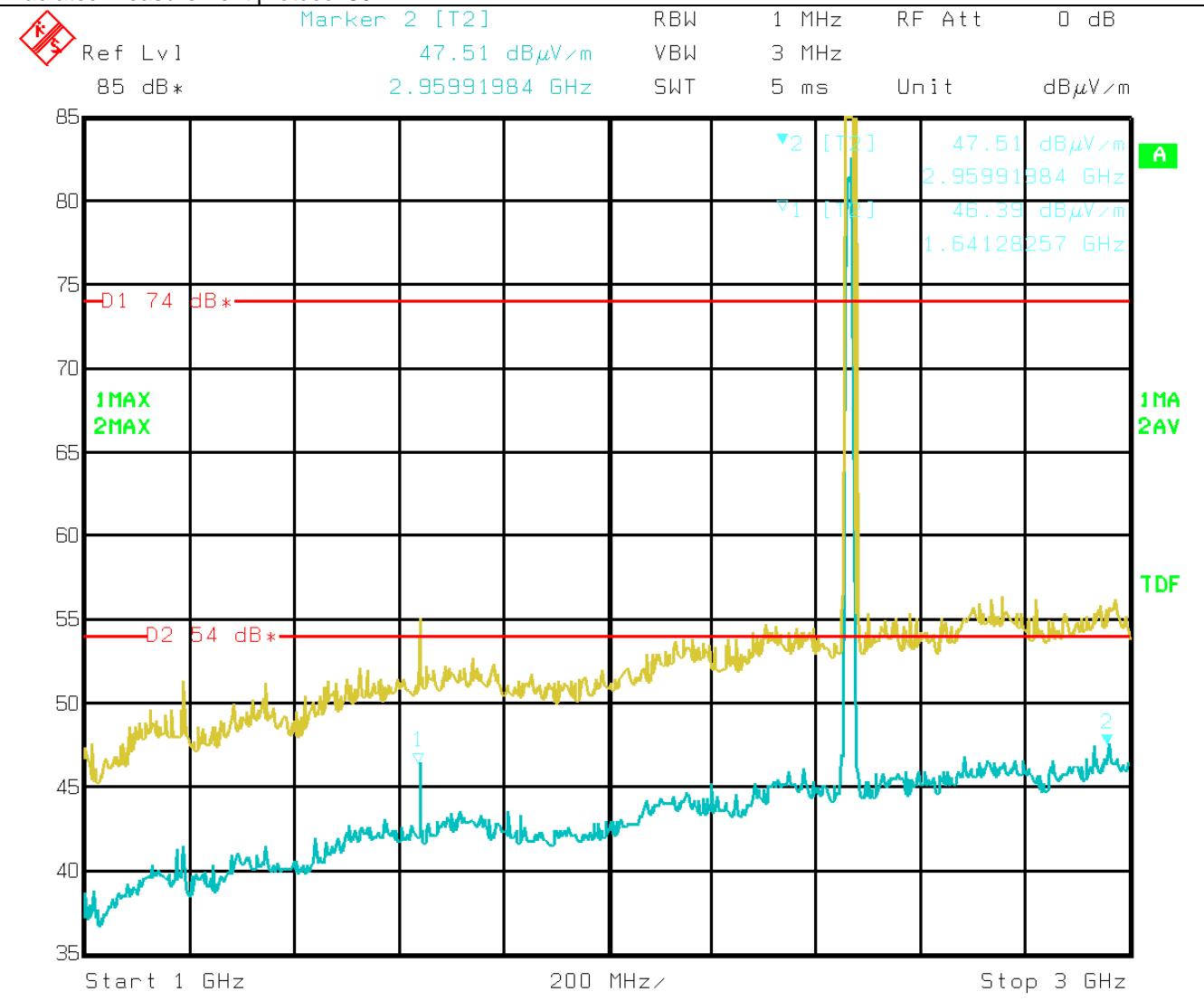
Note: Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

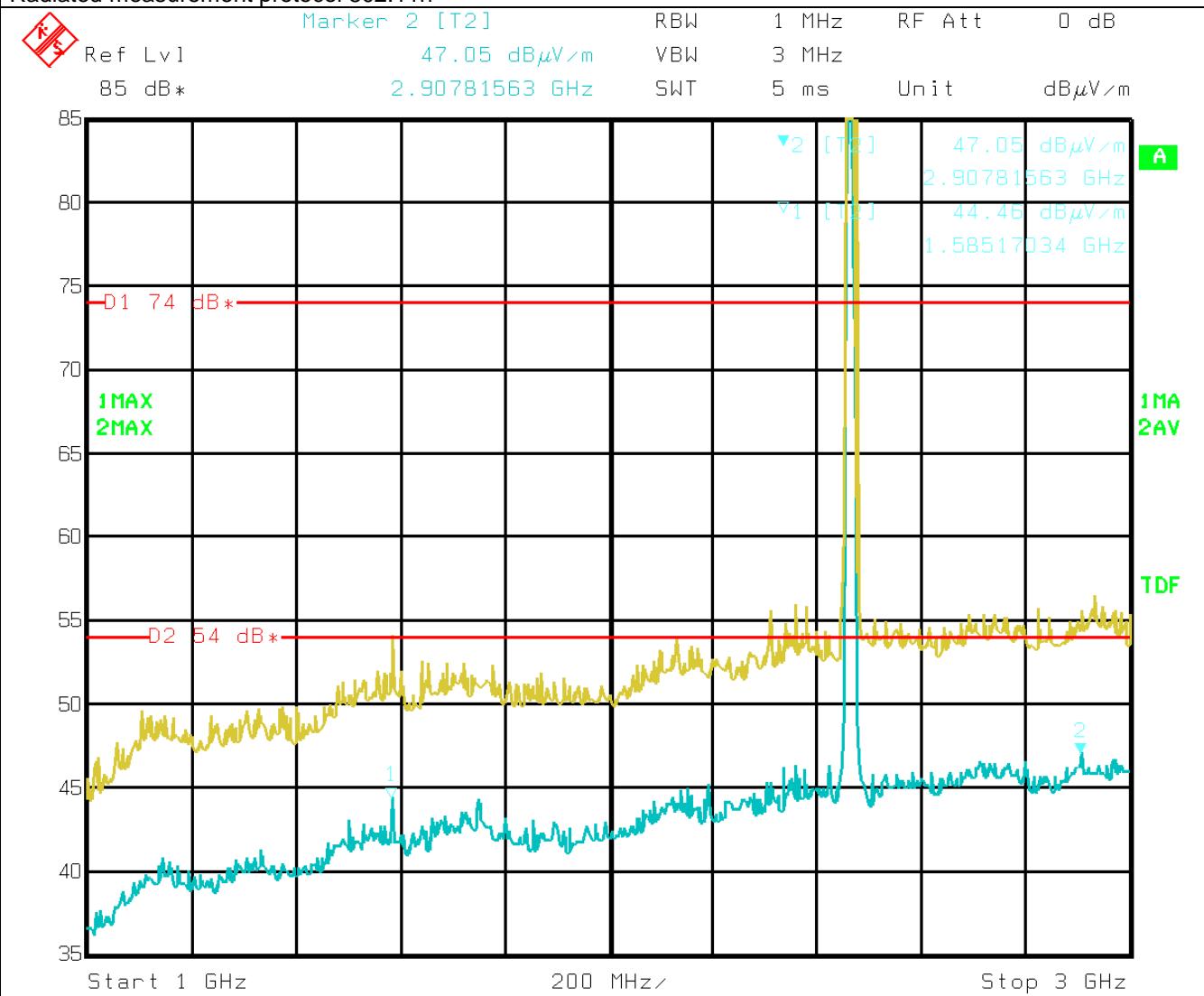
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

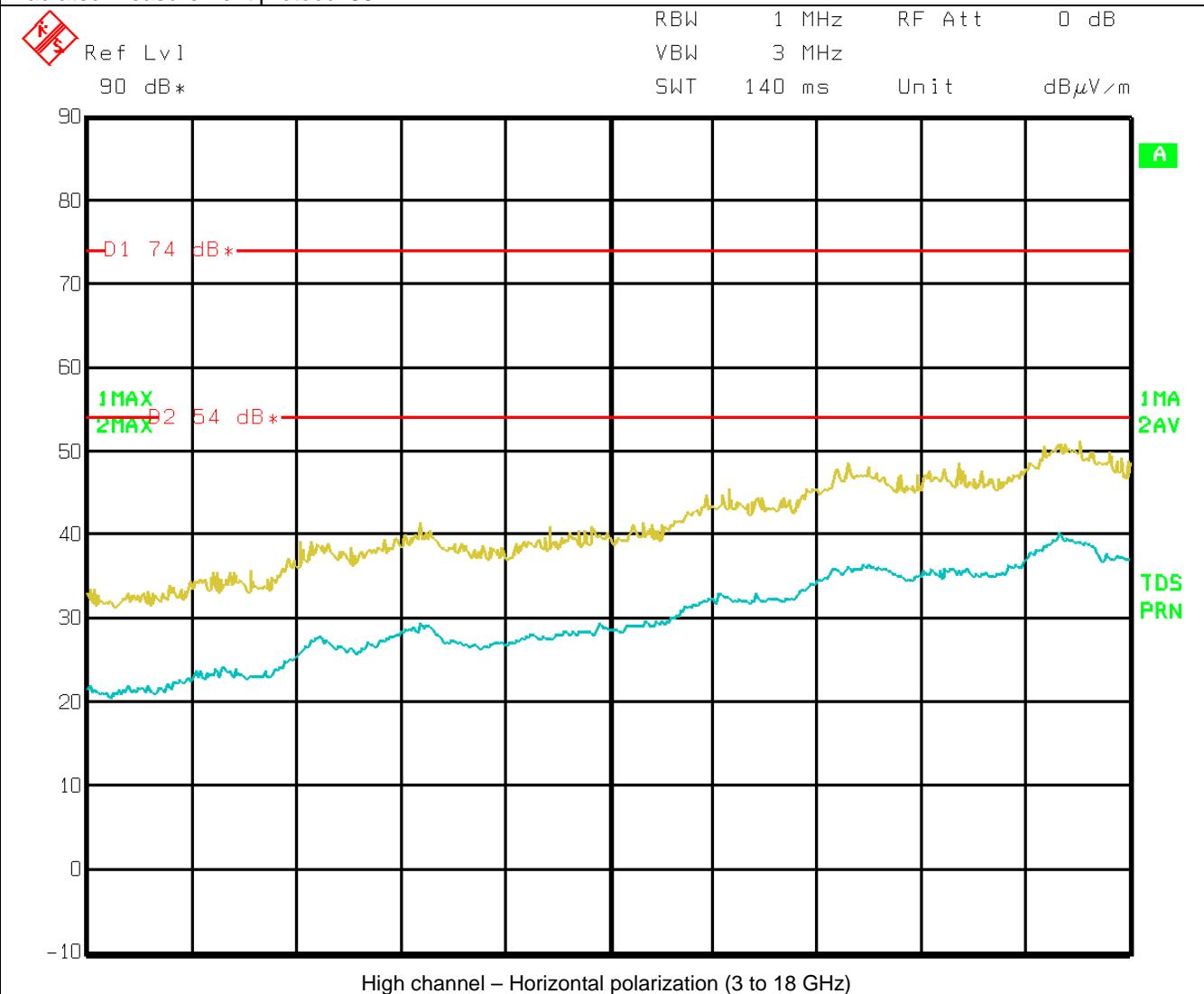
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

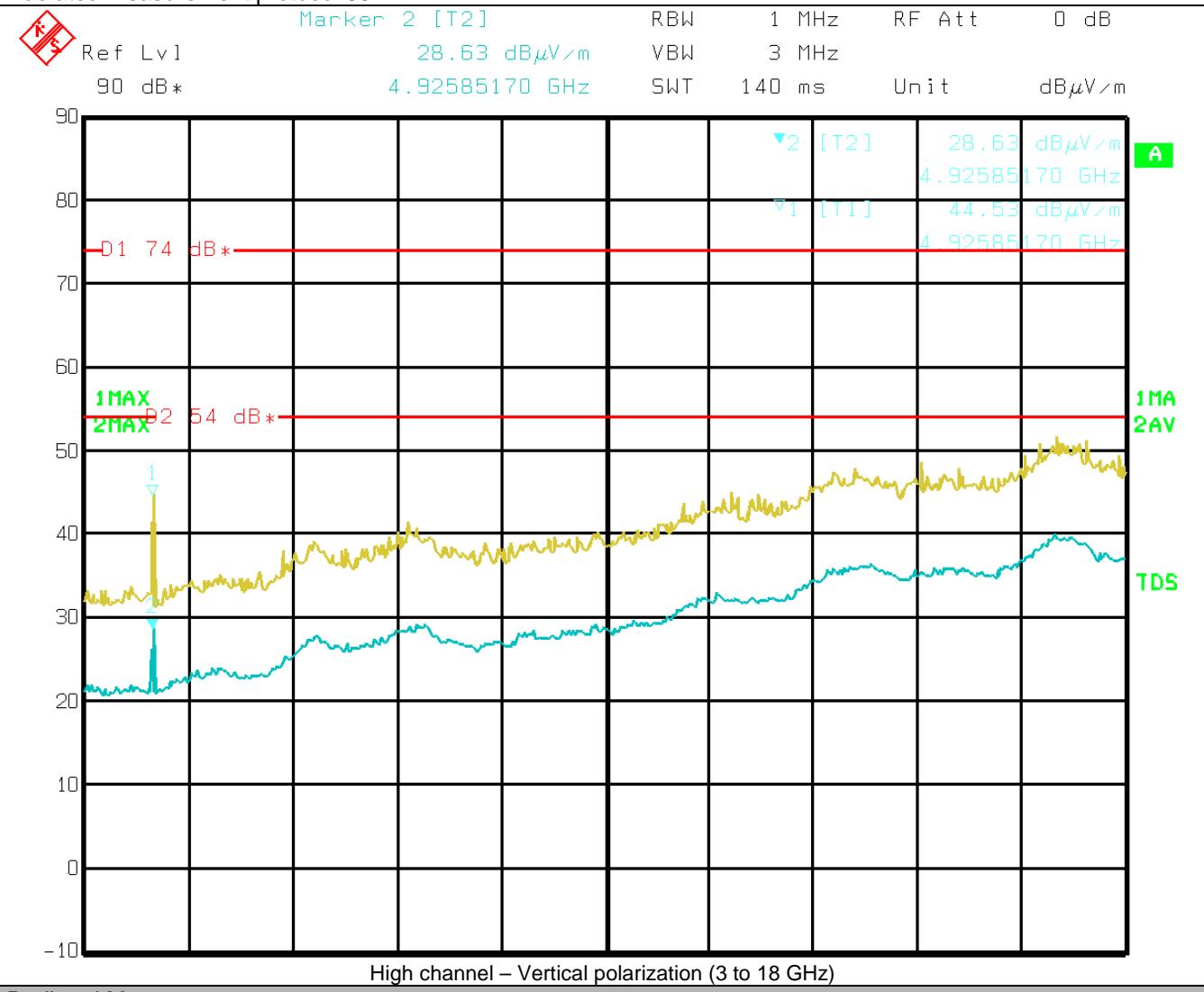
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
Test name: Clause 15.247(d) Spurious emissions		
Test date: 2011-12-12	Test engineer: Paolo Barbieri	
Verdict: Pass	Supply input: 120 Vac, 60 Hz	
Temperature: 22 °C	Air pressure: 1008 mbar	Relative humidity: 45 %
Specification: FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

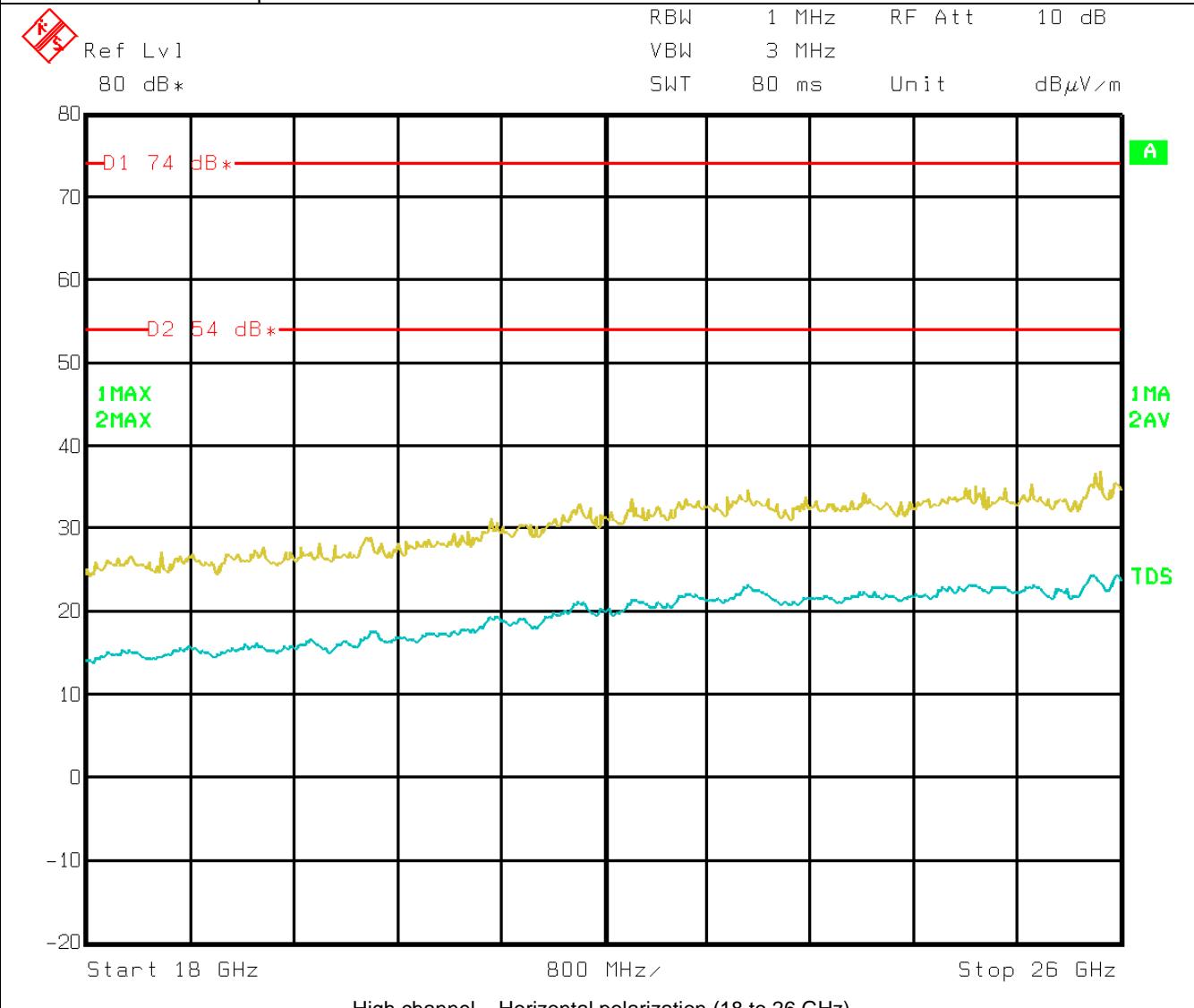
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

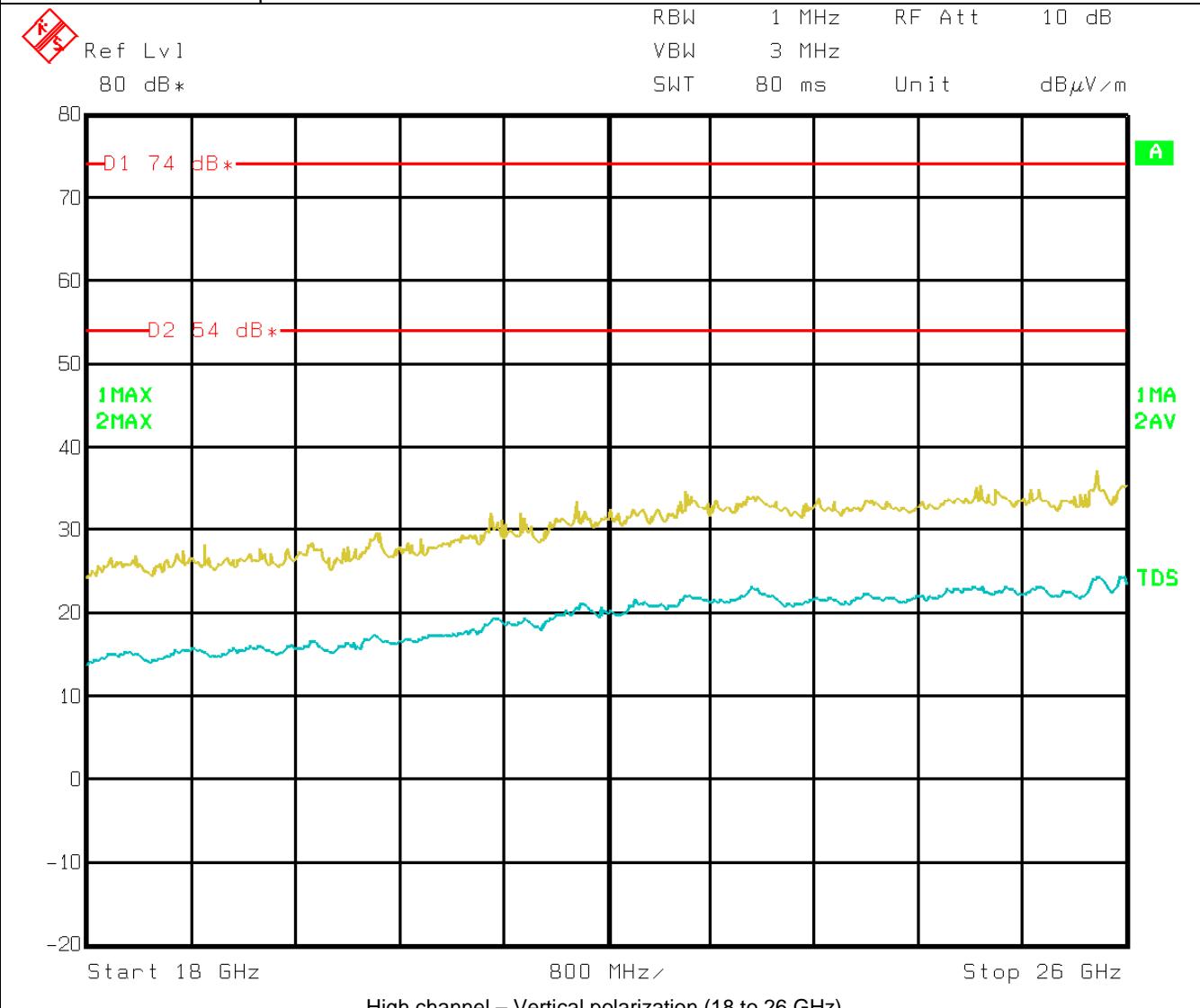
- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



<b>Section 8: Testing data</b>		<b>Product: STNH4C7A82GDL</b>
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

#### Radiated measurement protocol 802.11n



#### Radiated Measurements

- All measurements were performed at a distance of 3 m.
- All measurements performed:
  - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
  - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
  - and using average detector with 1 MHz/3 MHz RBW/VBW for average results



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<b>Section 8: Testing data</b>	<b>Product: STNH4C7A82GDL</b>	
<b>Test name:</b> Clause 15.247(d) Spurious emissions		
<b>Test date:</b> 2011-12-12	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 22 °C	<b>Air pressure:</b> 1008 mbar	<b>Relative humidity:</b> 45 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Setup photos





Section 8: Testing data		Product STNH4C7A82GDL
Test name: Clause 15.247(e) Power spectral density for digitally modulated devices		
Test date: 2011-12-27	Test engineer: Paolo Barbieri	
Verdict: Pass		Supply input: 120 Vac, 60 Hz
Temperature: 23 °C	Air pressure: 1045 mbar	Relative humidity: 52 %
Specification: FCC Part 15 Subpart C		

## 8.8 Clause 15.247(e) Power spectral density for digitally modulated devices

### § 15.247 Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.

(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

#### Special notes

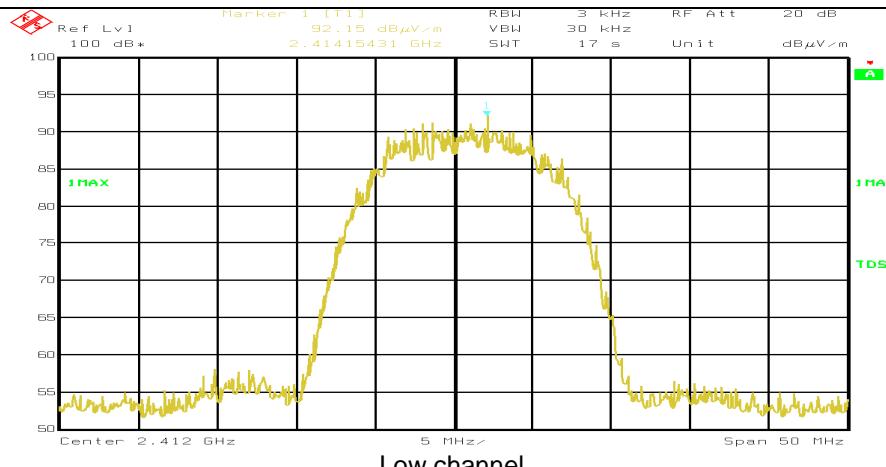
- The test was performed using guidelines of ANSI C63.10-2009, Clause 6.11.2.
- PSD option 1 was used since output power option 1 was used.
- Emission peak was located and zoomed in. RBW was set to 3 kHz, VBW was set > RBW.
- Sweep time was set to Span/3 kHz. Peak level was measured.



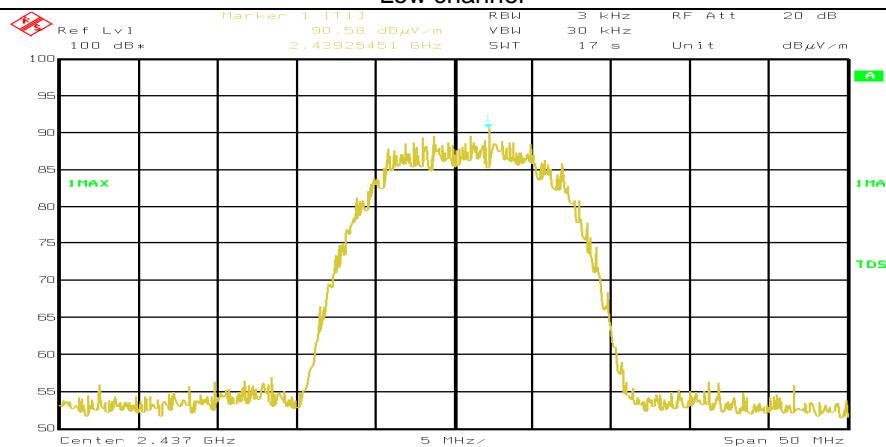
<b>Section 8: Testing data</b>		<b>Product</b> STNH4C7A82GDL
Test name: Clause 15.247(e) Power spectral density for digitally modulated devices		
Test date: 2011-12-27	<b>Test engineer:</b> Paolo Barbieri	
Verdict: Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
Temperature: 23 °C	Air pressure: 1045 mbar	<b>Relative humidity:</b> 52 %
<b>Specification:</b> FCC Part 15 Subpart C		

## Test data

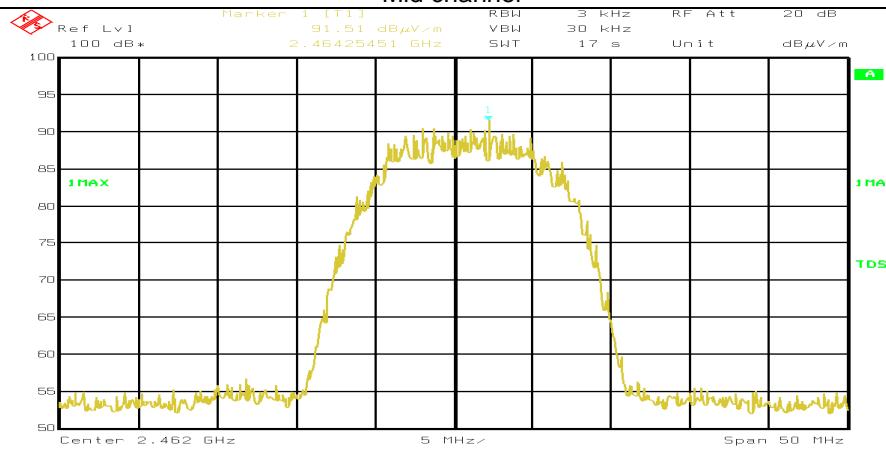
### Radiated measurement protocol 802.11b



Low channel



Mid channel



High channel



<b>Section 8: Testing data</b>		<b>Product</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(e) Power spectral density for digitally modulated devices		
<b>Test date:</b> 2011-12-27	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 23 °C	<b>Air pressure:</b> 1045 mbar	<b>Relative humidity:</b> 52 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

Frequency (MHz)	PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Margin (dB)
2412	-5.58	8	-13.58
2437	-7.15	8	-15.15
2462	-6.22	8	-14.22

Sweep time = Span/RBW

Sweep time = (300 kHz/3 kHz)

Sweep time = 100 s

Theoretical conversion from Field Strength measured at 3 m to power conducted from the intentional radiator to the antenna:

$$P (W) = \frac{E^2 R^2}{30G}$$

*E* = Measured field strength value (V/m/3 kHz)

*R* = Measurement distance (m)

*G* = Antenna Gain (numeric)

Therefore dBW = dBV/m + 20Log(3) – 10Log(30) – 10Log(G)

From which we obtain

$$dBmW = dB\mu V/m - 120 + 20Log(3) - 10Log(30) - 10Log(G) + 30 = dB\mu V/m - 95.23 - 10Log(G)$$

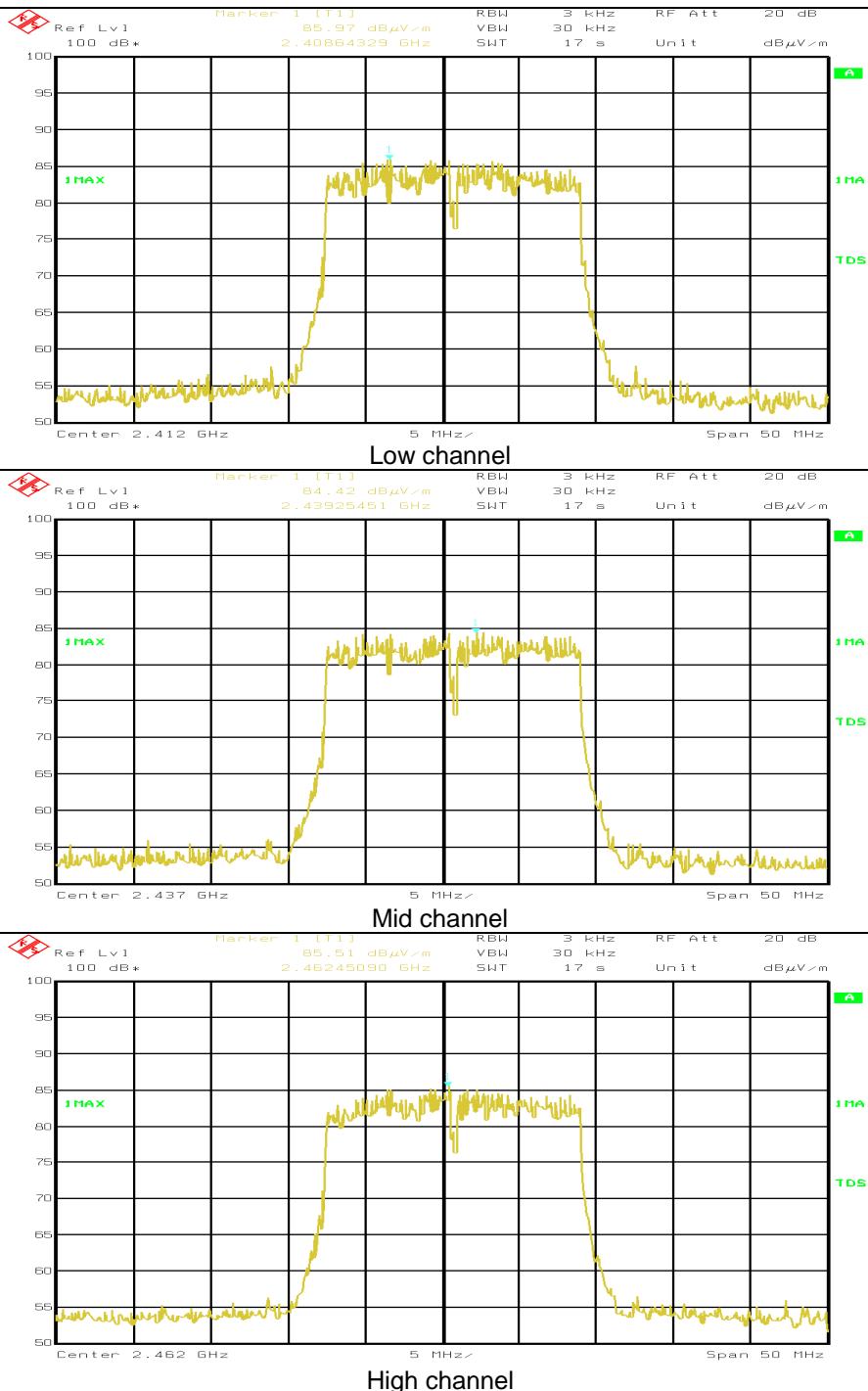
$$PSD [dBm/3 kHz] = \text{Field Strength [dB}\mu V/m/3 \text{ kHz]} - 95.23 \text{ [dB]} - \text{Antenna gain [dBi]}$$



<b>Section 8: Testing data</b>		<b>Product</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(e) Power spectral density for digitally modulated devices		
<b>Test date:</b> 2011-12-27	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 23 °C	<b>Air pressure:</b> 1045 mbar	<b>Relative humidity:</b> 52 %
<b>Specification:</b> FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11g





<b>Section 8: Testing data</b>		<b>Product</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(e) Power spectral density for digitally modulated devices		
<b>Test date:</b> 2011-12-27	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 23 °C	<b>Air pressure:</b> 1045 mbar	<b>Relative humidity:</b> 52 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

Frequency (MHz)	PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Margin (dB)
2412	-11.76	8	-19.76
2437	-13.31	8	-21.31
2462	-12.22	8	-20.22

Sweep time = Span/RBW

Sweep time = (300 kHz/3 kHz)

Sweep time = 100 s

Theoretical conversion from Field Strength measured at 3 m to power conducted from the intentional radiator to the antenna:

$$P (W) = \frac{E^2 R^2}{30G}$$

*E* = Measured field strength value (V/m/3 kHz)

*R* = Measurement distance (m)

*G* = Antenna Gain (numeric)

Therefore dBW = dBV/m + 20Log(3) – 10Log(30) – 10Log(G)

From which we obtain

$$dBmW = dB\mu V/m - 120 + 20Log(3) - 10Log(30) - 10Log(G) + 30 = dB\mu V/m - 95.23 - 10Log(G)$$

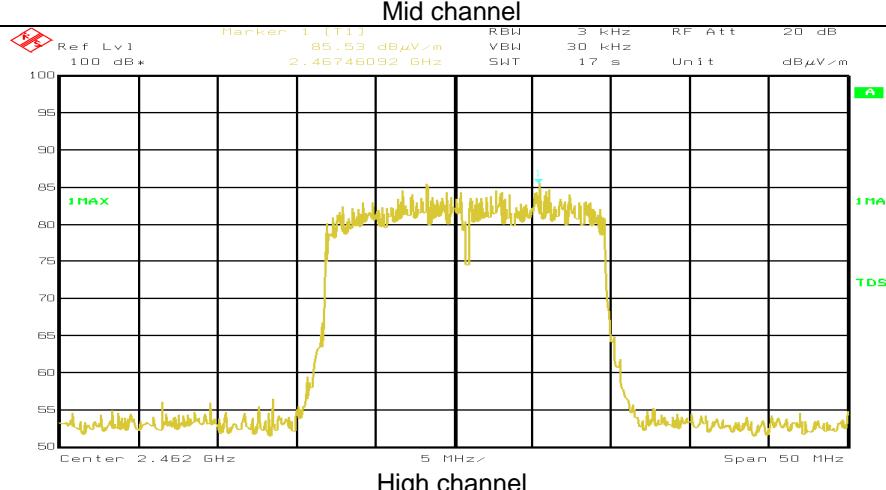
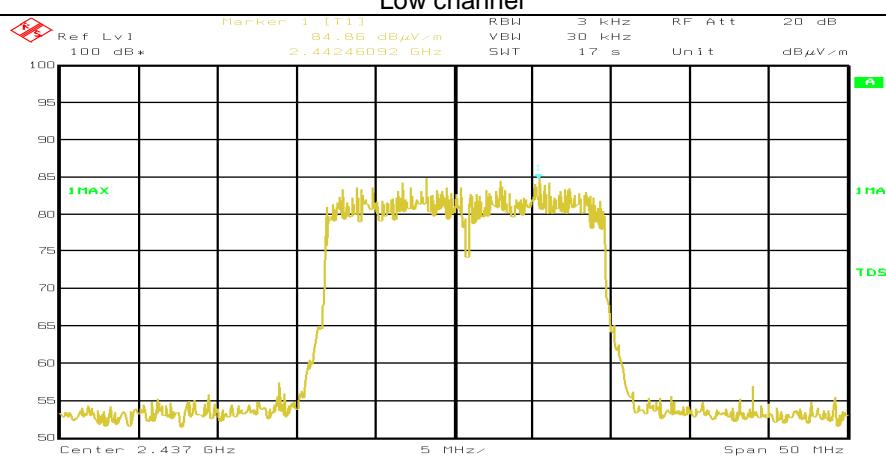
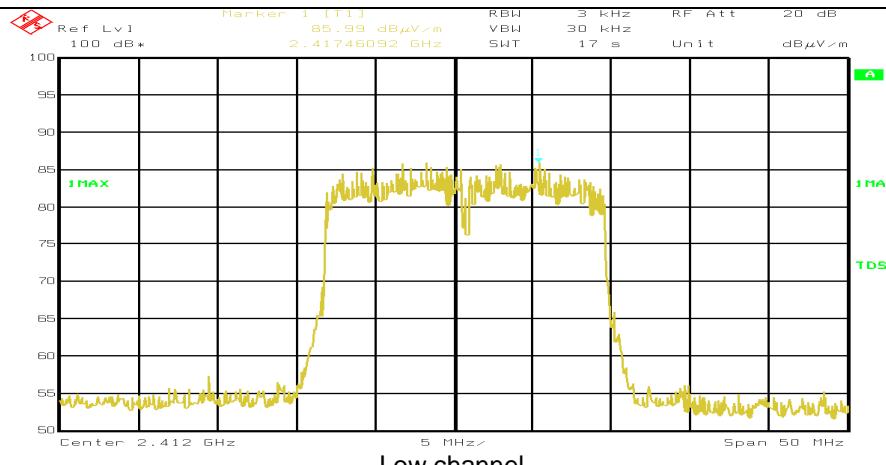
$$PSD [dBm/3 kHz] = \text{Field Strength [dB}\mu V/m/3 \text{ kHz]} - 95.23 \text{ [dB]} - \text{Antenna gain [dBi]}$$



<b>Section 8: Testing data</b>		<b>Product</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(e) Power spectral density for digitally modulated devices		
<b>Test date:</b> 2011-12-27	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 23 °C	<b>Air pressure:</b> 1045 mbar	<b>Relative humidity:</b> 52 %
<b>Specification:</b> FCC Part 15 Subpart C		

## Test data, continued

### Radiated measurement protocol 802.11n





<b>Section 8: Testing data</b>		<b>Product</b> STNH4C7A82GDL
<b>Test name:</b> Clause 15.247(e) Power spectral density for digitally modulated devices		
<b>Test date:</b> 2011-12-27	<b>Test engineer:</b> Paolo Barbieri	
<b>Verdict:</b> Pass	<b>Supply input:</b> 120 Vac, 60 Hz	
<b>Temperature:</b> 23 °C	<b>Air pressure:</b> 1045 mbar	<b>Relative humidity:</b> 52 %
<b>Specification:</b> FCC Part 15 Subpart C		

### Test data, continued

Frequency (MHz)	PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Margin (dB)
2412	-11.74	8	-19.74
2437	-12.87	8	-20.87
2462	-12.20	8	-20.20

Sweep time = Span/RBW

Sweep time = (300 kHz/3 kHz)

Sweep time = 100 s

Theoretical conversion from Field Strength measured at 3 m to power conducted from the intentional radiator to the antenna:

$$P (W) = \frac{E^2 R^2}{30G}$$

*E* = Measured field strength value (V/m/3 kHz)

*R* = Measurement distance (m)

*G* = Antenna Gain (numeric)

Therefore dBW = dBV/m + 20Log(3) – 10Log(30) – 10Log(G)

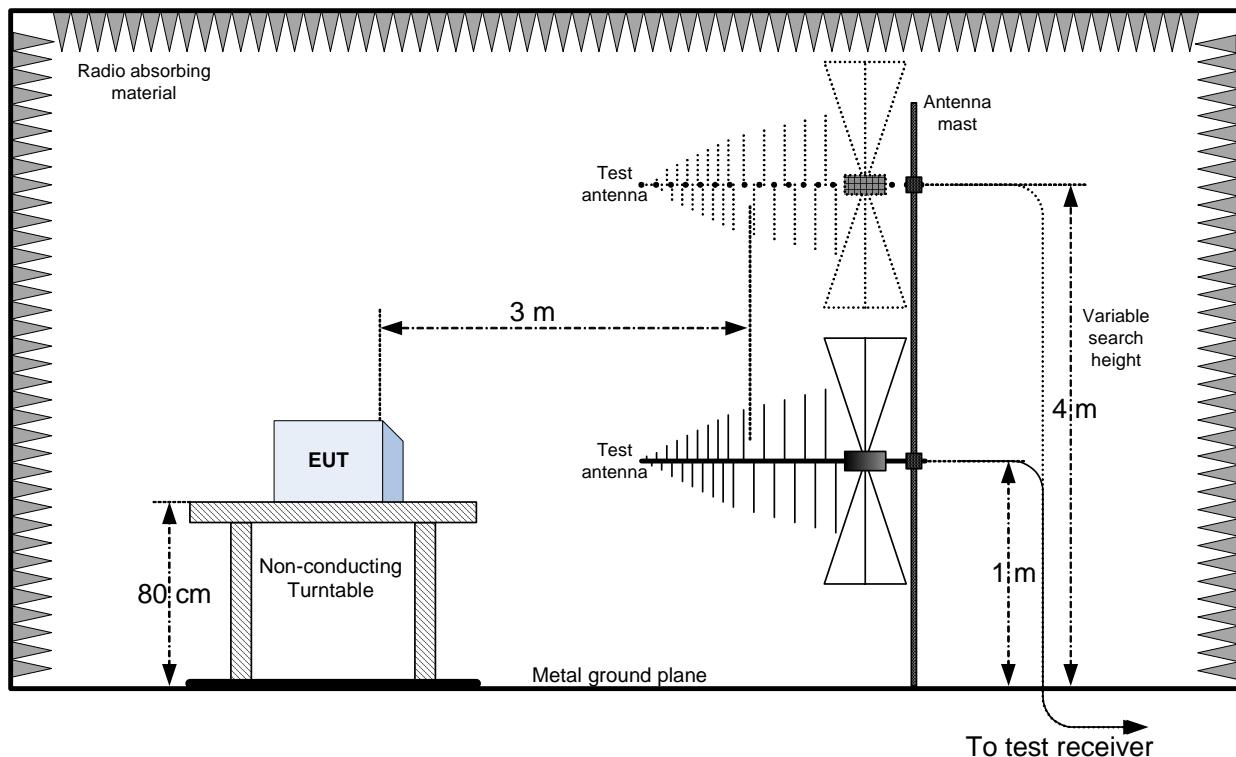
From which we obtain

$$dBmW = dB\mu V/m - 120 + 20Log(3) - 10Log(30) - 10Log(G) + 30 = dB\mu V/m - 95.23 - 10Log(G)$$

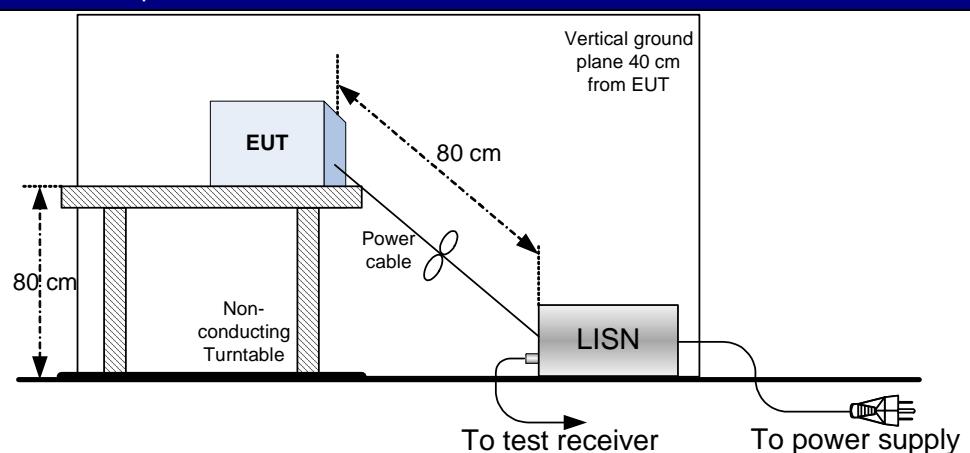
$$PSD [dBm/3 kHz] = \text{Field Strength [dB}\mu V/m/3 \text{ kHz]} - 95.23 \text{ [dB]} - \text{Antenna gain [dBi]}$$

## Section 8: Block diagrams of test set-ups

### Radiated emissions set-up



### Conducted emissions set-up





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## Section 9: EUT photos

Product: STNH4C7A82GDL

### Section 9: EUT photos

#### EUT photos



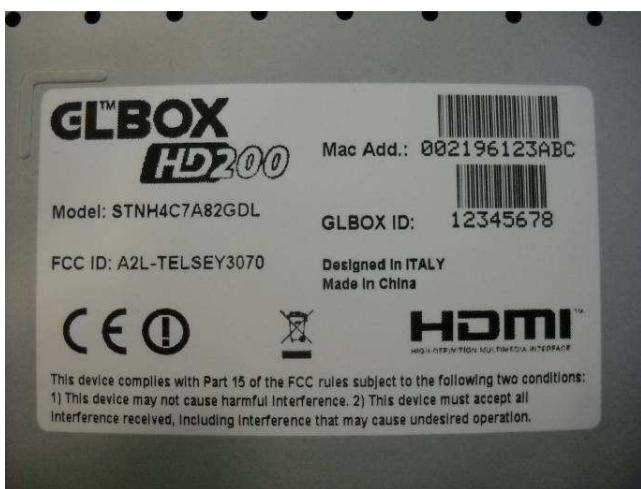


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### Section 9: EUT photos

Product: STNH4C7A82GDL

#### EUT Photos, continued



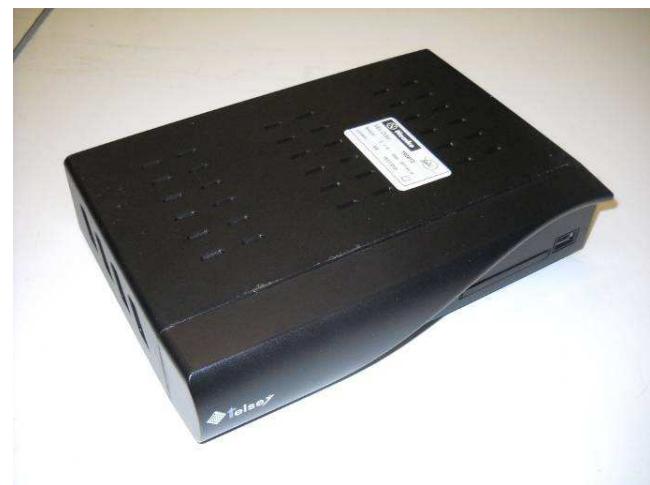
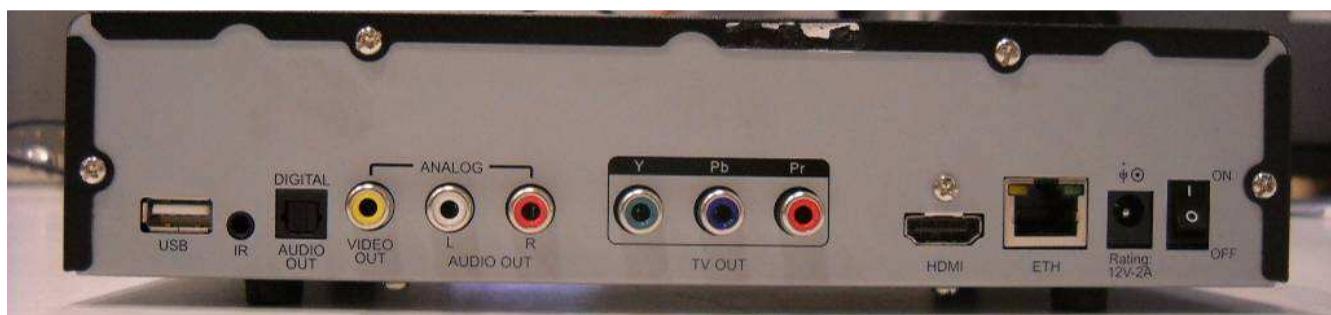


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Section 9: EUT photos

Product: STNH4C7A82GDL

EUT Photos, continued





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### Section 9: EUT photos

Product: STNH4C7A82GDL

#### EUT Photos, continued

