

## ***EMC Test Report***

### ***Application for Grant of Equipment Authorization***

### ***Industry Canada RSS-Gen Issue 4 / RSS 247 Issue 1 FCC Part 15 Subpart C***

***Model: APINM210***

IC CERTIFICATION #: 4675A-APINM210  
FCC ID: Q9DAPINM210

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IC SITE REGISTRATION #: 2845B-4, 2845B-5, 2845B-7

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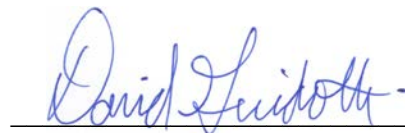
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**REVISION HISTORY**

Rev#	Date	Comments	Modified By
-	January 22, 2016	First release	
1.0	February 29, 2016	Updated model number	MEH

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## **SCOPE**

An electromagnetic emissions test has been performed on the Ericsson Canada model APINM210, pursuant to the following rules:

Industry Canada RSS-Gen Issue 4

RSS 247 Issue 1 “Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices”

FCC Part 15 Subpart C

Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in the following reference standards and as outlined in National Technical Systems - Silicon Valley test procedures:

ANSI C63.10-2013

FCC DTS Measurement Guidance KDB558074

The intentional radiator above has been tested in a simulated typical installation to demonstrate compliance with the relevant Industry Canada performance and procedural standards.

Final system data was gathered in a mode that tended to maximize emissions by varying orientation of EUT, orientation of power and I/O cabling, antenna search height, and antenna polarization.

Every practical effort was made to perform an impartial test using appropriate test equipment of known calibration. All pertinent factors have been applied to reach the determination of compliance.

## **OBJECTIVE**

The primary objective of the manufacturer is compliance with the regulations outlined in the previous section.

Prior to marketing in the USA, all unlicensed transmitters and transceivers require certification. Receive-only devices operating between 30 MHz and 960 MHz are subject to either certification or a manufacturer’s declaration of conformity, with all other receive-only devices exempt from the technical requirements.

Prior to marketing in Canada, Class I transmitters, receivers and transceivers require certification. Class II devices are required to meet the appropriate technical requirements but are exempt from certification requirements.

Certification is a procedure where the manufacturer submits test data and technical information to a certification body and receives a certificate or grant of equipment authorization upon successful completion of the certification body’s review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units, which are subsequently manufactured.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

Testing was performed only on model APINM210.

### **STATEMENT OF COMPLIANCE**

The tested sample of Ericsson Canada model APINM210 complied with the requirements of the following regulations:

Industry Canada RSS-Gen Issue 4

RSS 247 Issue 1 “Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices”

FCC Part 15 Subpart C

Maintenance of compliance is the responsibility of the manufacturer. Any modifications to the product should be assessed to determine their potential impact on the compliance status of the device with respect to the standards detailed in this test report.

The test results recorded herein are based on a single type test of Ericsson Canada model APINM210 and therefore apply only to the tested sample. The sample was selected and prepared by Nancy Langford of Ericsson Canada.

### **DEVIATIONS FROM THE STANDARDS**

No deviations were made from the published requirements listed in the scope of this report.

## TEST RESULTS SUMMARY

### DIGITAL TRANSMISSION SYSTEMS (2400 – 2483.5MHz)

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.247(a)	RSS 247 5.2	Digital Modulation	Systems use OFDM / DSSS techniques	System must utilize a digital transmission technology	Complies
15.247 (a) (2)	RSS 247 5.2 (1)	6 dB Bandwidth	11b: 9.1 MHz 11g: 16.3 MHz n20: 17.6 MHz n40: 36.3 MHz	> 500 kHz	Complies
15.247 (b) (3)	RSS 247 5.4 (4)	Output Power (multipoint systems)	11b: 27.4dBm (551mW) 11g: 24.9dBm (312mW) n20: 24.4dBm (276mW) n40: 21.1dBm (129mW) EIRP = 0.873 W <sup>Note 1</sup>	1 Watt, EIRP limited to 4 Watts.	Complies
15.247(d)	RSS 247 5.2 (2)	Power Spectral Density	11b: 5.2 dBm/3 kHz 11g: 0.3 dBm/3 kHz n20: -0.2 dBm/3 kHz n40: -5.2 dBm/3 kHz	8 dBm/3 kHz	Complies
15.247(c)	RSS 247 5.5	Antenna Port Spurious Emissions 30 MHz – 25 GHz	All emissions > -30 dBc	< -30 dBc <sup>Note 2</sup>	Complies
15.247(c) / 15.209	RSS 247 5.5 / RSS-GEN	Radiated Spurious Emissions 30 MHz – 25 GHz	53.0 dBμV/m @ 2483.6 MHz (-1.0 dB)	15.207 in restricted bands, all others < -30 dBc <sup>Note 2</sup>	Complies
<p>Note 1: EIRP calculated using maximum (BF) antenna gain for the highest EIRP system.</p> <p>Note 2: Limit of -30 dBc used because the power was measured using the UNII test procedure (maximum power averaged over a transmission burst).</p>					

### GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Antennas are integral to the module	Unique or integral antenna required	Complies
15.207	RSS GEN Table 3	AC Conducted Emissions	35.6 dBμV @ 0.207 MHz	Refer to page 17	Complies (- 17.7 dB)
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to MPE calculations in separate exhibit, RSS 102 declaration and User Manual statements.	Refer to OET 65, FCC Part 1 and RSS 102	Complies
-	RSP 100 RSS GEN 6.6	Occupied Bandwidth	a: 16.9 MHz n20: 18.5 MHz n40: 36.4 MHz ac80: 75.7 MHz	Information only	N/A

**MEASUREMENT UNCERTAINTIES**

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level and were calculated in accordance with UKAS document LAB 34.

Measurement Type	Measurement Unit	Frequency Range	Expanded Uncertainty
RF power, conducted (power meter)	dBm	25 to 7000 MHz	$\pm 0.52$ dB
RF power, conducted (Spectrum analyzer)	dBm	25 to 7000 MHz	$\pm 0.7$ dB
Conducted emission of transmitter	dBm	25 to 26500 MHz	$\pm 0.7$ dB
Conducted emission of receiver	dBm	25 to 26500 MHz	$\pm 0.7$ dB
Radiated emission (substitution method)	dBm	25 to 26500 MHz	$\pm 2.5$ dB
Radiated emission (field strength)	dB $\mu$ V/m	25 to 1000 MHz	$\pm 3.6$ dB
		1000 to 40000 MHz	$\pm 6.0$ dB
Conducted Emissions (AC Power)	dB $\mu$ V	0.15 to 30 MHz	$\pm 2.4$ dB

**EQUIPMENT UNDER TEST (EUT) DETAILS****GENERAL**

The Ericsson Canada model APINM210 is an IEEE 802.11 a/b/g/n wireless module that operates in both the 2.4 GHz and 5 GHz bands. The module supports n20, n40 and ac80 modes.

This test report covers 2400 – 2483.5 MHz band of operation.

The sample was received on November 19, 2015 and tested on November 19, 23, 25 and 30 and December 1, 3, 4, 7, 8, 9, 14, 17, 18 and 23, 2015. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
Aruba	APINM210	Radio Module	-	Q9DAPINM210

**OTHER EUT DETAILS**

The radiated emission tests were performed with the host unit.

**ANTENNA SYSTEM**

PCB trace, integral antennas (3 chains)

**ENCLOSURE**

The EUT has no enclosure. It is designed to be installed within the enclosure of a host unit.

**MODIFICATIONS**

No modifications were made to the EUT during the time the product was at NTS Silicon Valley.

**SUPPORT EQUIPMENT**

No local support equipment was used during testing.

The following equipment was used as remote support equipment for emissions testing:

Company	Model	Description	Serial Number	FCC ID
Dell	LATITUDE E5440	Laptop Computer	HMPNP12	-
Dell	LA65NM130	AC Adaptor	CN-0JNKWD-72438	-

**EUT INTERFACE PORTS**

The I/O cabling configuration during testing was as follows:

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Ethernet	Laptop Computer	Cat5e Ethernet	Unshielded	10
DC Power	AC Adaptor	Two-wire	Unshielded	1
AC Adaptor	AC Mains	Three-wire	Unshielded	1

**EUT OPERATION**

During testing, the EUT was configured to continuously transmit at maximum output power and noted data rate on the channel indicated.



**TEST SITE****GENERAL INFORMATION**

Final test measurements were taken at the test sites listed below. Pursuant to section 2.948 of the FCC's Rules and section 3.3 of RSP-100, construction, calibration, and equipment data has been filed with the Commission and with industry Canada.

Site	Designation / Registration Numbers		Location
	FCC	Canada	
Chamber 4	US0027	2845B-4	41039 Boyce Road Fremont, CA 94538-2435
Chamber 5	US0027	2845B-5	
Chamber 7	US0027	2845B-7	

ANSI C63.4 recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Ambient levels are below this requirement. The test site(s) contain separate areas for radiated and conducted emissions testing. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent requirements of ANSI C63.4.

**CONDUCTED EMISSIONS CONSIDERATIONS**

Conducted emissions testing is performed in conformance with ANSI C63.10. Measurements are made with the EUT connected to the public power network through a nominal, standardized RF impedance, which is provided by a line impedance stabilization network, known as a LISN. A LISN is inserted in series with each current-carrying conductor in the EUT power cord.

**RADIATED EMISSIONS CONSIDERATIONS**

The FCC has determined that radiation measurements made in a shielded enclosure are not suitable for determining levels of radiated emissions. Radiated measurements are performed in an open field environment or in a semi-anechoic chamber. The test sites are maintained free of conductive objects within the CISPR defined elliptical area incorporated in ANSI C63.4 guidelines and meet the Normalized Site Attenuation (NSA) requirements of ANSI C63.4.

## **MEASUREMENT INSTRUMENTATION**

### **RECEIVER SYSTEM**

An EMI receiver as specified in CISPR 16-1-1 is used for emissions measurements. The receivers used can measure over the frequency range of 9 kHz up to 2000 MHz. These receivers allow both ease of measurement and high accuracy to be achieved. The receivers have Peak, Average, and CISPR (Quasi-peak) detectors built into their design so no external adapters are necessary. The receiver automatically sets the required bandwidth for the CISPR detector used during measurements. If the repetition frequency of the signal being measured is below 20Hz, peak measurements are made in lieu of Quasi-Peak measurements.

For measurements above the frequency range of the receivers, a spectrum analyzer is utilized because it provides visibility of the entire spectrum along with the precision and versatility required to support engineering analysis. Average measurements above 1000MHz are performed on the spectrum analyzer using the linear-average method with a resolution bandwidth of 1 MHz and a video bandwidth of 10 Hz, unless the signal is pulsed in which case the average (or video) bandwidth of the measuring instrument is reduced to onset of pulse desensitization and then increased.

### **INSTRUMENT CONTROL COMPUTER**

The receivers utilize either a Rohde & Schwarz EZM Spectrum Monitor/Controller or contain an internal Spectrum Monitor/Controller to view and convert the receiver measurements to the field strength at an antenna or voltage developed at the LISN measurement port, which is then compared directly with the appropriate specification limit. This provides faster, more accurate readings by performing the conversions described under Sample Calculations within the Test Procedures section of this report. Results are printed in a graphic and/or tabular format, as appropriate. A personal computer is used to record all measurements made with the receivers. The software used for radiated and conducted emissions measurements is NTS EMI Test Software (rev 2.10)

The Spectrum Monitor provides a visual display of the signal being measured. In addition, the controller or a personal computer run automated data collection programs which control the receivers. This provides added accuracy since all site correction factors, such as cable loss and antenna factors are added automatically.

### **LINE IMPEDANCE STABILIZATION NETWORK (LISN)**

Line conducted measurements utilize a 50  $\mu$ H Line Impedance Stabilization Network as the monitoring point. The LISN used also contains a 250  $\mu$ H CISPR adapter. This network provides for calibrated radio frequency noise measurements by the design of the internal low pass and high pass filters on the EUT and measurement ports, respectively.

**FILTERS/ATTENUATORS**

External filters and precision attenuators are often connected between the receiving antenna or LISN and the receiver. This eliminates saturation effects and non-linear operation due to high amplitude transient events.

**ANTENNAS**

A loop antenna is used below 30 MHz. For the measurement range 30 MHz to 1000 MHz either a combination of a biconical antenna and a log periodic or a bi-log antenna is used. Above 1000 MHz, horn antennas are used. The antenna calibration factors to convert the received voltage to an electric field strength are included with appropriate cable loss and amplifier gain factors to determine an overall site factor, which is then programmed into the test receivers or incorporated into the test software.

**ANTENNA MAST AND EQUIPMENT TURNTABLE**

The antennas used to measure the radiated electric field strength are mounted on a non-conductive antenna mast equipped with a motor-drive to vary the antenna height.

ANSI C63.10 specifies that the test height above ground for table mounted devices shall be 0.8 meters for below 1 GHz measurements and 1.5 meters for above 1 GHz measurements.

During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

**INSTRUMENT CALIBRATION**

All test equipment is regularly checked to ensure that performance is maintained in accordance with the manufacturer's specifications. All antennas are calibrated at regular intervals with respect to tuned half-wave dipoles. An exhibit of this report contains the list of test equipment used and calibration information.

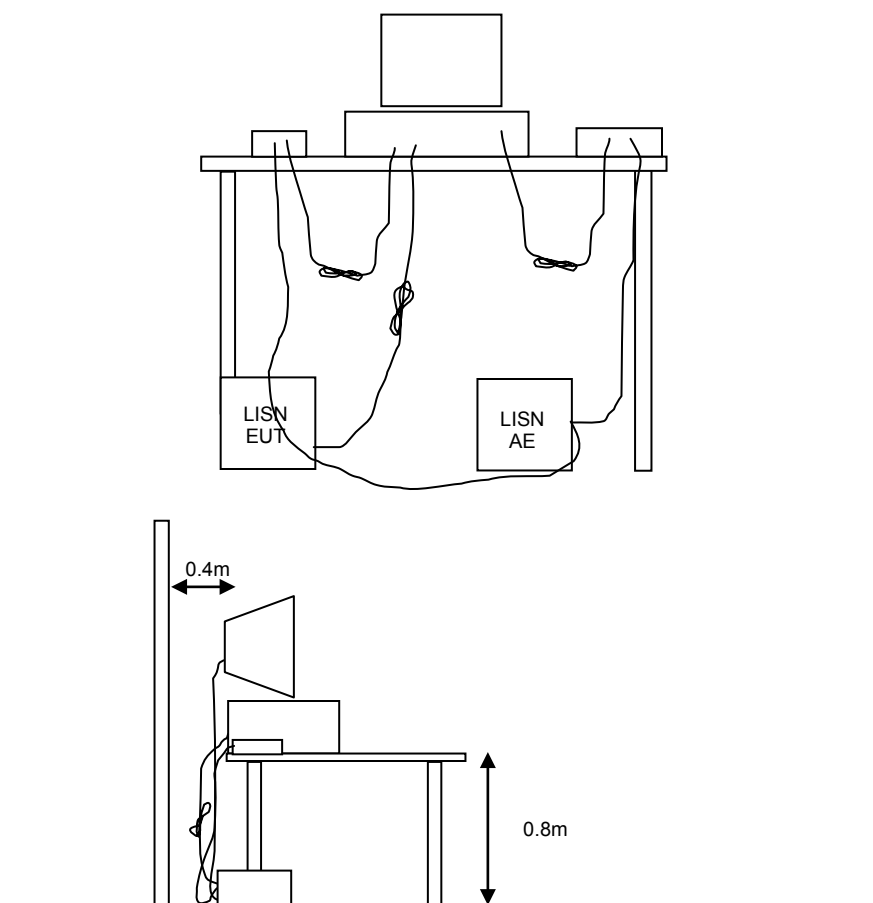
## TEST PROCEDURES

### EUT AND CABLE PLACEMENT

The regulations require that interconnecting cables be connected to the available ports of the unit and that the placement of the unit and the attached cables simulate the worst case orientation that can be expected from a typical installation, so far as practicable. To this end, the position of the unit and associated cabling is varied within the guidelines of ANSI C63.10, and the worst-case orientation is used for final measurements.

### CONDUCTED EMISSIONS

Conducted emissions are measured at the plug end of the power cord supplied with the EUT. Excess power cord length is wrapped in a bundle between 30 and 40 centimeters in length near the center of the cord. Preliminary measurements are made to determine the highest amplitude emission relative to the specification limit for all the modes of operation. Placement of system components and varying of cable positions are performed in each mode. A final peak mode scan is then performed in the position and mode for which the highest emission was noted on all current carrying conductors of the power cord.



**Figure 1 Typical Conducted Emissions Test Configuration**

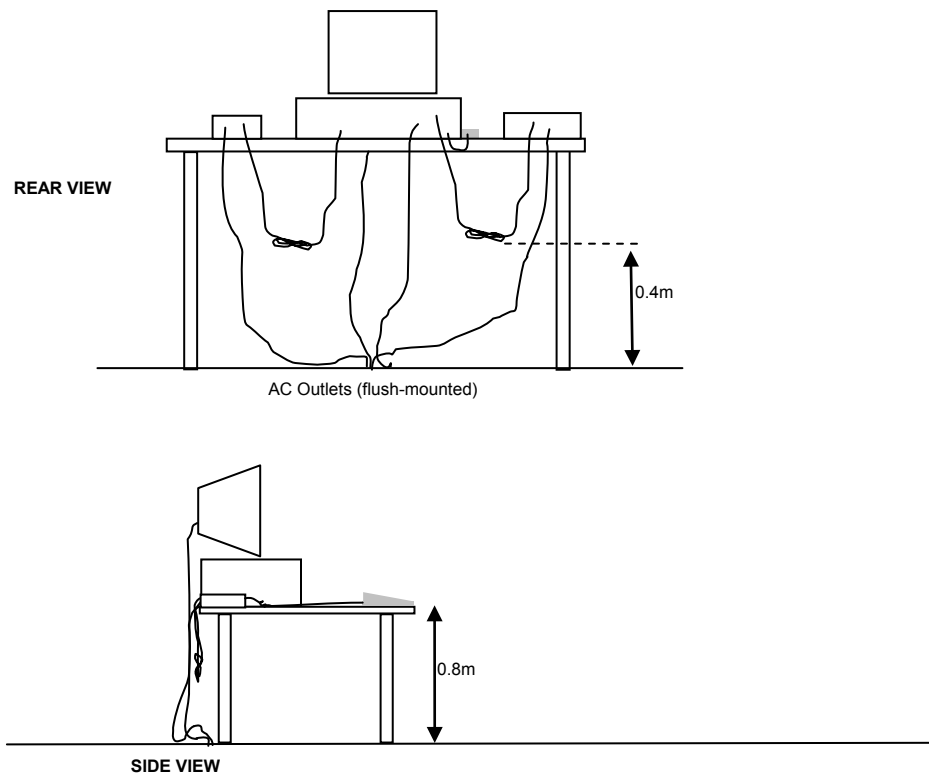
**RADIATED EMISSIONS**

A preliminary scan of the radiated emissions is performed in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed, one scan for each antenna polarization (horizontal and vertical; loop parallel and perpendicular to the EUT). During the preliminary scans, the EUT is rotated through 360°, the antenna height is varied (for measurements above 30 MHz) and cable positions are varied to determine the highest emission relative to the limit. Preliminary scans may be performed in a fully anechoic chamber for the purposes of identifying the frequencies of the highest emissions from the EUT.

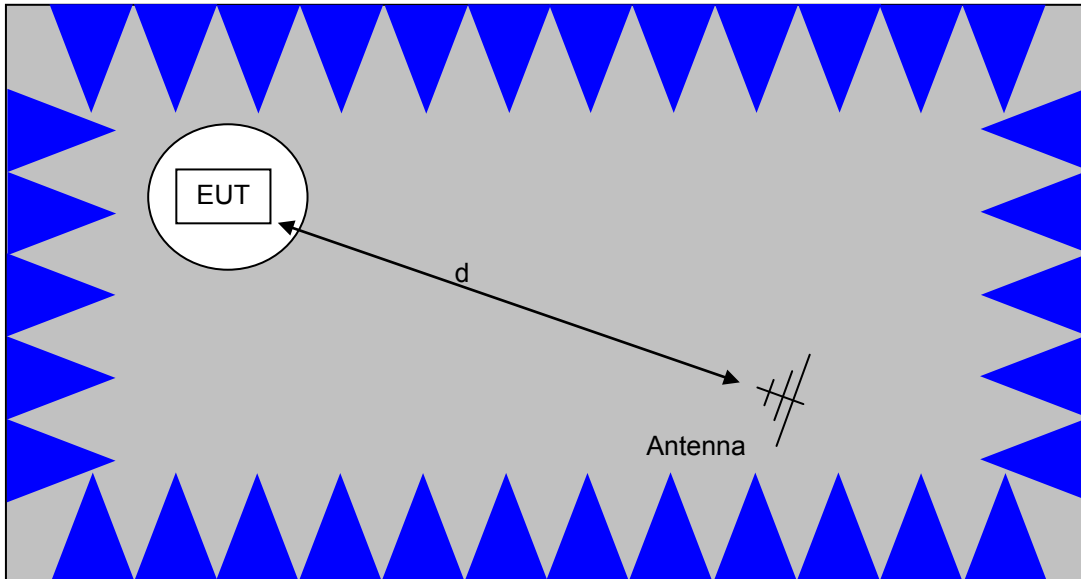
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth, which results in the highest emission is then maintained while varying the antenna height from one to four meters (for measurements above 30 MHz, measurements below 30 MHz are made with the loop antenna at a fixed height of 1m). The result is the identification of the highest amplitude for each of the highest peaks. Each recorded level is corrected in the receiver using appropriate factors for cables, connectors, antennas, and preamplifier gain.

When testing above 18 GHz, the receive antenna is located at 1 meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.

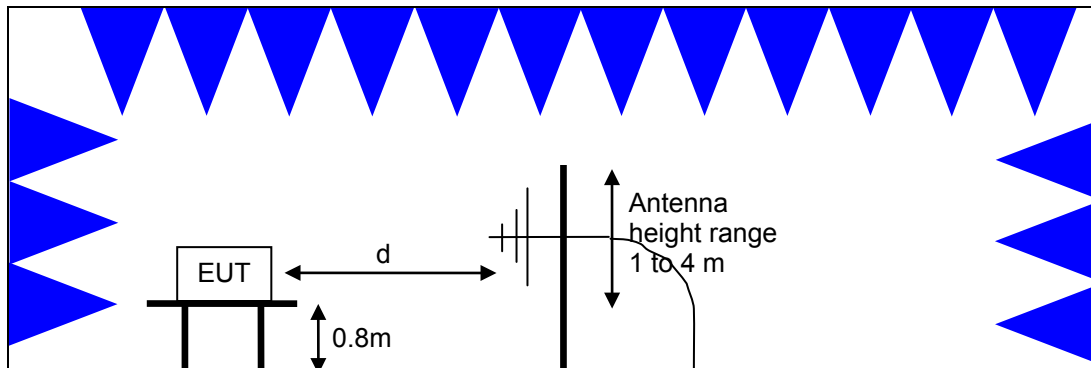


Typical Test Configuration for Radiated Field Strength Measurements



The anechoic materials on the walls and ceiling ensure compliance with the normalized site attenuation requirements of CISPR 16 / CISPR 22 / ANSI C63.4 for an alternate test site at the measurement distances used.

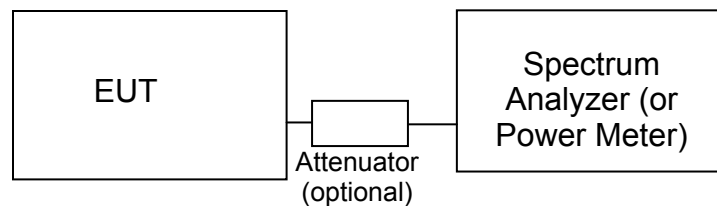
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



Test Configuration for Radiated Field Strength Measurements  
Semi-Anechoic Chamber, Plan and Side Views

**CONDUCTED EMISSIONS FROM ANTENNA PORT**

Direct measurements of power, bandwidth and power spectral density are performed, where possible, with the antenna port of the EUT connected to either the power meter or spectrum analyzer via a suitable attenuator and/or filter. These are used to ensure that the front end of the measurement instrument is not overloaded by the fundamental transmission.

**Test Configuration for Antenna Port Measurements**

Measurement bandwidths (video and resolution) are set in accordance with the relevant standards and NTS Silicon Valley's test procedures for the type of radio being tested. When power measurements are made using a resolution bandwidth less than the signal bandwidth the power is calculated by summing the power across the signal bandwidth using either the analyzer channel power function or by capturing the trace data and calculating the power using software. In both cases the summed power is corrected to account for the equivalent noise bandwidth (ENBW) of the resolution bandwidth used.

If power averaging is used (typically for certain digital modulation techniques), the EUT is configured to transmit continuously. Power averaging is performed using either the built-in function of the analyzer or, if the analyzer does not feature power averaging, using external software. In both cases the average power is calculated over a number of sweeps (typically 100). When the EUT cannot be configured to continuously transmit then either the analyzer is configured to perform a gated sweep to ensure that the power is averaged over periods that the device is transmitting or power averaging is disabled and a max-hold feature is used.

If a power meter is used to make output power measurements the sensor head type (peak or average) is stated in the test data table.

**BANDWIDTH MEASUREMENTS**

The 6 dB, 20 dB, 26 dB and/or 99% signal bandwidth are measured using the bandwidths recommended by ANSI C63.10 and RSS GEN.



**SPECIFICATION LIMITS AND SAMPLE CALCULATIONS**

The limits for conducted emissions are given in units of microvolts, and the limits for radiated emissions are given in units of microvolts per meter at a specified test distance. Data is measured in the logarithmic form of decibels relative to one microvolt, or dB microvolts (dB $\mu$ V). For radiated emissions, the measured data is converted to the field strength at the antenna in dB microvolts per meter (dB $\mu$ V/m). The results are then converted to the linear forms of  $\mu$ V and  $\mu$ V/m for comparison to published specifications.

For reference, converting the specification limits from linear to decibel form is accomplished by taking the base ten logarithm, then multiplying by 20. These limits in both linear and logarithmic form are as follows:

**CONDUCTED EMISSIONS SPECIFICATION LIMITS: FCC 15.207; FCC 15.107(a), RSS GEN**

The table below shows the limits for the emissions on the AC power line from an intentional radiator and a receiver.

Frequency (MHz)	Average Limit (dB $\mu$ V)	Quasi Peak Limit (dB $\mu$ V)
0.150 to 0.500	Linear decrease on logarithmic frequency axis between 56.0 and 46.0	Linear decrease on logarithmic frequency axis between 66.0 and 56.0
0.500 to 5.000	46.0	56.0
5.000 to 30.000	50.0	60.0

### GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands<sup>1</sup> (with the exception of transmitters operating under FCC Part 15 Subpart D and RSS 210 Annex 9), the limits for all emissions from a low power device operating under the general rules of RSS 310 (tables 3 and 4), RSS 210 (table 2) and FCC Part 15 Subpart C section 15.209.

Frequency Range (MHz)	Limit (μV/m)	Limit (dBμV/m @ 3m)
0.009-0.490	2400/F <sub>KHz</sub> @ 300m	67.6-20*log <sub>10</sub> (F <sub>KHz</sub> ) @ 300m
0.490-1.705	24000/F <sub>KHz</sub> @ 30m	87.6-20*log <sub>10</sub> (F <sub>KHz</sub> ) @ 30m
1.705 to 30	30 @ 30m	29.5 @ 30m
30 to 88	100 @ 3m	40 @ 3m
88 to 216	150 @ 3m	43.5 @ 3m
216 to 960	200 @ 3m	46.0 @ 3m
Above 960	500 @ 3m	54.0 @ 3m

### OUTPUT POWER LIMITS – DIGITAL TRANSMISSION SYSTEMS

The table below shows the limits for output power and output power density. Where the signal bandwidth is less than 20 MHz the maximum output power is reduced to the power spectral density limit plus 10 times the log of the bandwidth (in MHz).

Operating Frequency (MHz)	Output Power	Power Spectral Density
902 – 928	1 Watt (30 dBm)	8 dBm/3 kHz
2400 – 2483.5	1 Watt (30 dBm)	8 dBm/3 kHz
5725 – 5850	1 Watt (30 dBm)	8 dBm/3 kHz

The maximum permitted output power is reduced by 1 dB for every dB the antenna gain exceeds 6dBi.

### TRANSMIT MODE SPURIOUS RADIATED EMISSIONS LIMITS – FHSS and DTS SYSTEMS

The limits for unwanted (spurious) emissions from the transmitter falling in the restricted bands are those specified in the general limits sections of FCC Part 15 and RSS GEN. All other unwanted (spurious) emissions shall be at least 20 dB below the level of the highest in-band signal level (30 dB if the power is measured using the sample detector/power averaging method).

### SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

<sup>1</sup> The restricted bands are detailed in FCC 15.203, RSS 210 Table 1 and RSS 310 Table 2

Receiver readings are compared directly to the conducted emissions specification limit (decibel form) as follows:

$$R_r - S = M$$

where:

$R_r$  = Receiver Reading in dB $\mu$ V

$S$  = Specification Limit in dB $\mu$ V

$M$  = Margin to Specification in +/- dB

#### **SAMPLE CALCULATIONS - RADIATED EMISSIONS**

Receiver readings are compared directly to the specification limit (decibel form). The receiver internally corrects for cable loss, preamplifier gain, and antenna factor. The calculations are in the reverse direction of the actual signal flow, thus cable loss is added and the amplifier gain is subtracted. The Antenna Factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

A distance factor, when used for electric field measurements above 30 MHz, is calculated by using the following formula:

$$F_d = 20 * \text{LOG}_{10} (D_m/D_s)$$

where:

$F_d$  = Distance Factor in dB

$D_m$  = Measurement Distance in meters

$D_s$  = Specification Distance in meters

For electric field measurements below 30MHz the extrapolation factor is either determined by making measurements at multiple distances or a theoretical value is calculated using the formula:

$$F_d = 40 * \text{LOG}_{10} (D_m/D_s)$$

Measurement Distance is the distance at which the measurements were taken and Specification Distance is the distance at which the specification limits are based. The antenna factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

The margin of a given emission peak relative to the limit is calculated as follows:

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

$R_r$  = Receiver Reading in dB $\mu$ V/m

$F_d$  = Distance Factor in dB

$R_c$  = Corrected Reading in dB $\mu$ V/m

$L_s$  = Specification Limit in dB $\mu$ V/m

$M$  = Margin in dB Relative to Spec

#### **SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION**

Where the radiated electric field strength is expressed in terms of the equivalent isotropic radiated power (eirp), or where a field strength measurement of output power is made in lieu of a direct measurement, the following formula is used to convert between eirp and field strength at a distance of d (meters) from the equipment under test:

$$E = \frac{1000000 \sqrt{30 P}}{d} \quad \text{microvolts per meter}$$

where P is the eirp (Watts)

For a measurement at 3m the conversion from a logarithmic value for field strength (dBμV/m) to an eirp power (dBm) is -95.3 dB.

## Appendix A Test Equipment Calibration Data

<u>Manufacturer</u>	<u>Description</u>	<u>Model</u>	<u>Asset #</u>	<u>Calibrated</u>	<u>Cal Due</u>
<b>Radiated Emissions, 1000 - 6,000 MHz, 19-Nov-15</b>					
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/26/2014	6/26/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	12/20/2014	12/20/2015
<b>Radiated Emissions, 1000 - 6,000 MHz, 23-Nov-15</b>					
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/26/2014	6/26/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	12/20/2014	12/20/2015
<b>Radiated Spurious Emissions, 1000 - 6,500 MHz, Bandedges, 25-Nov-15</b>					
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/26/2014	6/26/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	12/20/2014	12/20/2015
<b>Radiated Emissions, 1000 - 18,000 MHz, 25-Nov-15</b>					
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/26/2014	6/26/2016
Hewlett Packard	High Pass filter, 3.5 GHz	P/N 84300-80038	1157	7/10/2015	7/10/2016
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	1683	7/13/2015	7/13/2016
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	10/9/2015	10/9/2016
Hewlett Packard	Spectrum Analyzer (SA40) Purple 9 kHz - 40 GHz,	8564E (84125C)	2415	3/7/2015	3/7/2016
<b>Radio Antenna Port (Power and Spurious Emissions), 30-Nov-15</b>					
Agilent Technologies	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HX,	E4446A	2139	6/22/2015	6/22/2016
<b>Radio Antenna Port (Power and Spurious Emissions), 01-Dec-15</b>					
Agilent Technologies	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HX,	E4446A	2139	6/22/2015	6/22/2016
<b>Radiated Emissions, 1000 - 25,000 MHz, 03-Dec-15</b>					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	2/20/2015	2/20/2016
Hewlett Packard	SA40 Head (Red)	Miteq	1145	7/17/2015	7/17/2016
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/17/2015	10/17/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/27/2014	6/27/2016
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	7/8/2015	7/8/2016
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
<b>Radiated Emissions, 1000 - 12,000 MHz, 04-Dec-15</b>					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	2/20/2015	2/20/2016
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/17/2015	10/17/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/27/2014	6/27/2016

<b><u>Manufacturer</u></b>	<b><u>Description</u></b>	<b><u>Model</u></b>	<b><u>Asset #</u></b>	<b><u>Calibrated</u></b>	<b><u>Cal Due</u></b>
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	1682	7/8/2015	7/8/2016
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	7/8/2015	7/8/2016
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	7/10/2015	7/10/2016
<b>Radiated Emissions, 1,000 - 12,000 MHz, 07-Dec-15</b>					
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/26/2014	6/26/2016
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	1682	7/8/2015	7/8/2016
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	2199	10/9/2015	10/9/2016
<b>Radiated Emissions, 30 - 1,000 MHz, 08-Dec-15</b>					
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	7/6/2015	7/6/2016
Sunol Sciences	Biconilog, 30-3000 MHz	JB3	2237	8/29/2014	8/29/2016
Com-Power	Preamplifier, 1-1000 MHz	PAM-103	2885	10/13/2015	10/13/2016
<b>Radiated Emissions, 1000 - 40,000 MHz, 08-Dec-15</b>					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	2/20/2015	2/20/2016
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/17/2015	10/17/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/27/2014	6/27/2016
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2239	9/16/2015	9/16/2016
Hewlett Packard	SA40 Head (Red)	Miteq	1145	7/17/2015	7/17/2016
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
<b>Conducted Emissions - AC Power Ports, 9-Dec-15</b>					
Rohde & Schwarz	Pulse Limiter	ESH3 Z2	1401	5/14/2015	5/14/2016
Rohde & Schwarz	EMI Test Receiver, 20 Hz-40 GHz	ESIB40 (1088.7490.40)	2493	1/23/2015	1/23/2016
Com-Power	9KHz-30MHz, 50uH, 15Aac, 10Adc, max	LI-215A	2672	6/26/2015	6/26/2016
<b>Radiated Emissions, 1000 - 40,000 MHz, 14-Dec-15</b>					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	2/20/2015	2/20/2016
Hewlett Packard	SA40 Head (Red)	Miteq	1145	7/17/2015	7/17/2016
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/17/2015	10/17/2016
Hewlett Packard	High Pass filter, 8.2 GHz	P/N 84300-80039	1152	7/10/2015	7/10/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/27/2014	6/27/2016
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	7/8/2015	7/8/2016
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	2238	9/16/2015	9/16/2016



<u>Manufacturer</u>	<u>Description</u>	<u>Model</u>	<u>Asset #</u>	<u>Calibrated</u>	<u>Cal Due</u>
<b>Antenna port measurements, 17-Dec-15</b>					
Agilent Technologies	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HXX,	E4446A	2139	6/22/2015	6/22/2016
<b>Frequency Stability (U-NII), 18-Dec-15</b>					
Fluke	Fluke Multimeter, True RMS	175	1447	7/23/2015	7/23/2016
Watlow	Temp Chamber (w/ F4 watlow Controller)	96A0	2171	7/14/2015	7/14/2016
Agilent Technologies	3Hz -44GHz PSA Spectrum Analyzer	E4446A	2796	3/31/2015	3/31/2016
<b>Radiated Emissions, 1,000 - 40,000 MHz, 23-Dec-15</b>					
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	2/20/2015	2/20/2016
HP / Miteq	SA40 Head (Red)	TTA1840-45-5P-HG-S	1145	7/17/2015	7/17/2016
Hewlett Packard	Spectrum Analyzer (SA40) Red 30 Hz -40 GHz	8564E (84125C)	1148	10/17/2015	10/17/2016
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/27/2014	6/27/2016
Micro-Tronics	Band Reject Filter, 5470-5725 MHz	BRC50704-02	1730	7/10/2015	7/10/2016
Hewlett Packard	High Pass filter, 8.2 GHz (Purple System)	P/N 84300-80039	1767	11/3/2015	11/3/2016
Com-Power	Comb Generator, 1-10 GHz, 100 MHz Step	CGO-5100	2096	5/22/2015	5/22/2016
A. H. Systems	Purple System Horn, 18-40GHz	SAS-574, p/n: 2581	2160	8/28/2014	8/28/2017
Micro-Tronics	Band Reject Filter, 2400-2500 MHz	BRM50702-02	2249	9/16/2015	9/16/2016
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	2251	9/16/2015	9/16/2016

## **Appendix B Test Data**

T99885 Pages 25 - 99



Client:	Ericsson Canada	Job Number:	JD99841
Product	APINM210	T-Log Number:	T99885
System Configuration:	-	Project Manager:	Christine Krebill
Contact:	Nancy Langford	Project Coordinator:	-
Emissions Standard(s):	FCC 15.247/15.E, RSS-247	Class:	-
Immunity Standard(s):	-	Environment:	-

## EMC Test Data

For The

### Ericsson Canada

Product

APINM210

Date of Last Test: 2/17/2016

Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Power vs. Data Rate

In normal operating modes the card uses power settings stored on EEPROM to set the output power. For a given nominal output power the actual transmit power normally is reduced as the data rate increases, therefore testing was performed at the data rate in the mode with highest power to determine compliance with the requirements.

The following power measurements were made using a GATED average power meter and with the device configured in a continuous transmit mode on Chain 1 at the various data rates in each mode to verify the highest power mode:

### Sample Notes

Sample S/N: -

Driver: -

Date of Test: 11/5/2012

Test Engineer: Mark Hill

Test Location: Lab #4

Mode	Data Rate	Power (dBm)	Power setting
802.11b	1	16.0	q66
	2	16.5	
	<b>5.5</b>	<b>16.7</b>	
	11	16.6	
802.11g	6	<b>16.6</b>	q69
	9	16.4	
	12	16.5	
	18	16.5	
	24	16.3	
	36	16.4	
	48	16.2	
	54	16.4	

Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Mode	Data Rate	Power (dBm)	Power setting
802.11n 20MHz	<b>6.5</b>	<b>16.6</b>	q69
	13	16.6	
	19.5	16.5	
	26	16.5	
	39	16.5	
	52	16.5	
	58.5	16.5	
	65	16.5	
	78	16.5	
802.11n/ac 40MHz	<b>13.5</b>	<b>16.9</b>	q70
	27	16.8	
	40.5	16.8	
	54	16.8	
	81	16.8	
	108	16.9	
	121.5	16.9	
	135	16.8	
	162	16.6	
	180	16.7	
802.11ac 80MHz	<b>29.3</b>	<b>17.7</b>	q74
	58.5	17.7	
	87.8	17.7	
	117	17.6	
	175.5	17.7	
	234	17.1	
	266.3	16.7	
	292.5	16.8	
	351	16.3	
	390	15.8	

<<-11ac mode only

<<-11ac mode only

<<-11ac mode only

Note : Power setting - the software power setting used during testing, included for reference only.

Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Duty Cycle

Date of Test: 11/5/2012  
 Test Engineer: Mark Hill  
 Test Location: Lab #4

Duty cycle measurements performed on the worse case data rate for power.

Notes: Measurements taken with maximum RBW/VBW settings allowed.

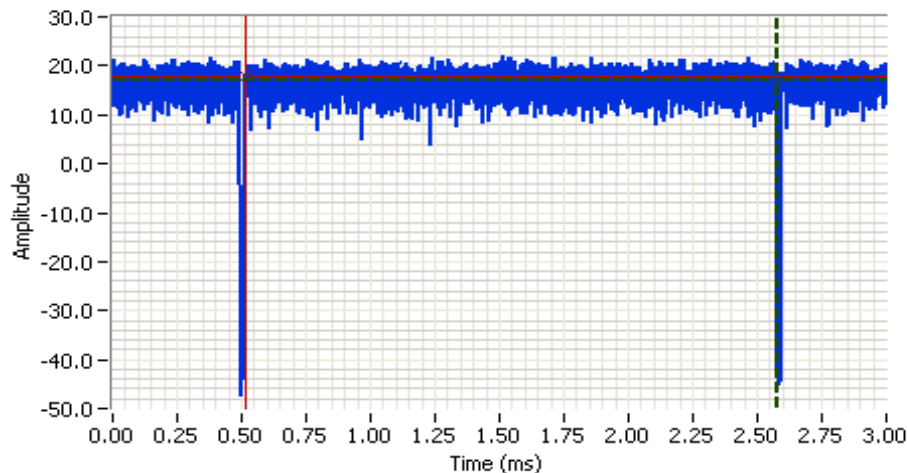
Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11b	5.5	99.4%	Yes	2.32	0	0	10
11g	6	99.0%	Yes	2.06	0	0	10
n20	MCS0	99.0%	Yes	1.92	0	0	10
n40	MCS0	98.0%	Yes	0.94	0	0	10
ac80	VHT0	77.6%	Yes	0.21	1.1	2.2	4739

\* Correction factor when using RMS/Power averaging -  $10 \cdot \log(1/x)$

\*\* Correction factor when using linear voltage average -  $20 \cdot \log(1/x)$

T = Minimum transmission duration

Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A



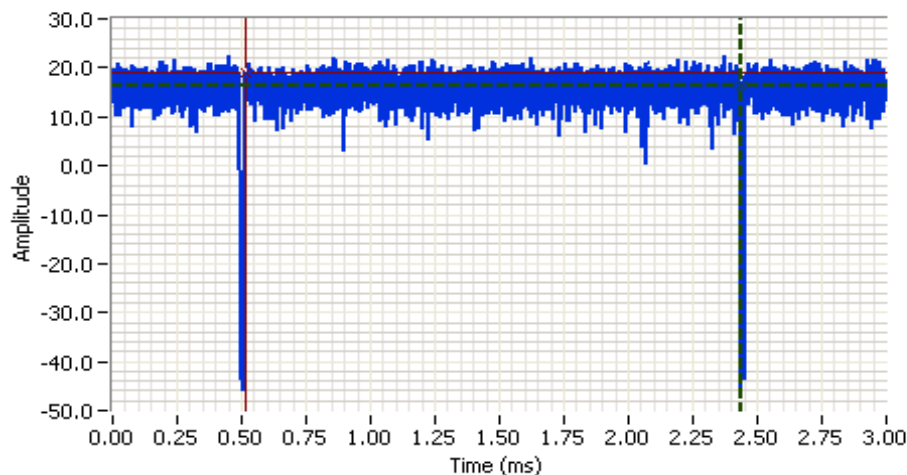
## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 0.000 MHz  
 RB: 8.000 MHz  
 VB: 50.000 MHz  
 Detector: POS  
 Attn: 30 DB  
 RL Offset: 10.5 DB  
 Sweep Time: 3.0ms  
 Ref Lvl: 30.5 DBM

## Comments

11g - 6Mbps  
 Txon = 2.064ms  
 Txoff = 0.020ms

Cursor 1	2.5777	17.1		Delta Time (ms)	2.064
Cursor 1	0.5142	17.7		Delta Amplitude	0.6



## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 0.000 MHz  
 RB: 8.000 MHz  
 VB: 50.000 MHz  
 Detector: POS  
 Attn: 30 DB  
 RL Offset: 10.5 DB  
 Sweep Time: 3.0ms  
 Ref Lvl: 30.5 DBM

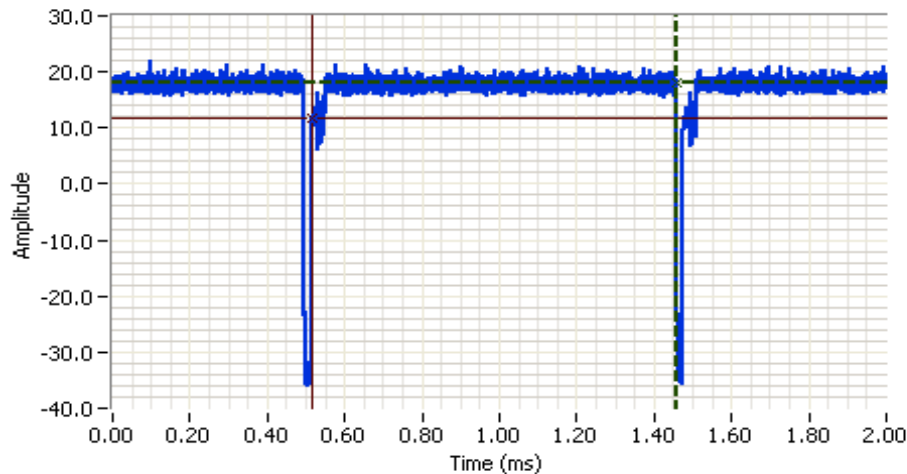
## Comments

n20 - MCS0  
 Txon = 1.919ms  
 Txoff = 0.020ms

Cursor 1	2.4337	16.2		Delta Time (ms)	1.919
Cursor 1	0.5142	18.9		Delta Amplitude	2.7



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A



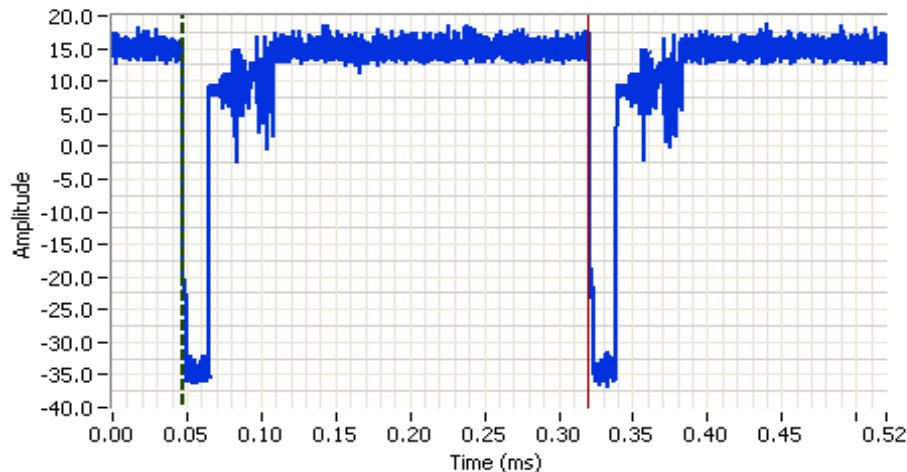
## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 5190.000 MHz  
 SPAN: 0.000 MHz  
 RB: 8.000 MHz  
 VB: 50.000 MHz  
 Detector: POS  
 Attn: 30 DB  
 RL Offset: 10.5 DB  
 Sweep Time: 2.0ms  
 Ref Lvl: 30.5 DBM

## Comments

n40 - MCS0  
 Txon = 0.943ms  
 Txoff = 0.019ms

Cursor 1	1.4572	18.1		Delta Time (ms)	0.943
Cursor 1	0.5146	11.6		Delta Amplitude	6.5



## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 5290.150 MHz  
 SPAN: 0.000 MHz  
 RB: 8.000 MHz  
 VB: 50.000 MHz  
 Detector: POS  
 Attn: 30 DB  
 RL Offset: 10.5 DB  
 Sweep Time: 0.5ms  
 Ref Lvl: 30.5 DBM

## Comments

ac80 - VHT0  
 Txon = 0.211ms  
 Txoff = 0.061ms

Cursor 1	0.0474	24.3		Delta Time (ms)	0.272
Cursor 2	0.3196	26.5		Delta Amplitude	2.3



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## RSS-247 and FCC 15.247 (DTS) Antenna Port Measurements MIMO and Smart Antenna Systems Power, PSD, Bandwidth and Spurious Emissions

### Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 11/30/2015  
 Test Engineer: M. Birgani/R. Varelas  
 Test Location: FT Lab #4A

Config. Used: 1  
 Config Change: None  
 EUT Voltage: 120V/60Hz

### General Test Configuration

The EUT was connected to the spectrum analyzer or power meter via a suitable attenuator. All measurements were made on a single chain.

All measurements have been corrected to allow for the external attenuators used.

### Ambient Conditions:

Temperature: 21.6 °C  
 Rel. Humidity: 35 %

Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Summary of Results

Run #	Pwr setting	Avg Pwr	Test Performed	Limit	Pass / Fail	Result / Margin
<b>3Tx Modes</b>						
1	-	-	Output Power	15.247(b)	Pass	11b:27.4dBm (551mW) 11g:24.9dBm (312mW) n20:24.4dBm (276mW) n40:21.1dBm (129mW)
2	-	-	Power spectral Density (PSD)	15.247(d)	Pass	11b: 5.2 dBm/3kHz 11g: 0.3 dBm/3kHz n20: -0.2 dBm/3kHz n40: -5.2 dBm/3kHz
3	-	-	Minimum 6dB Bandwidth	15.247(a)	Pass	11b: 9.1 MHz 11g: 16.3 MHz n20: 17.6 MHz n40: 36.3 MHz
3	-	-	99% Bandwidth	RSS GEN	Pass	11b: 16.4 MHz 11g: 17.2 MHz n20: 17.8 MHz n40: 36.4 MHz
4	-	-	Spurious emissions	15.247(b)	Pass	All emissions > -30dBc

## Modifications Made During Testing

No modifications were made to the EUT during testing

## Deviations From The Standard

No deviations were made from the requirements of the standard.

## Notes

Beamforming is supported for n20/n40. The conducted power is unchanged for non-beamforming and beamforming operation.



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

## Procedure Comments:

Measurements performed in accordance with FCC KDB 558074

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11b	5.5	99.4%	Yes	2.32	0	0	10
11g	6	99.0%	Yes	2.06	0	0	10
n20	MCS0	99.0%	Yes	1.92	0	0	10
n40	MCS0	98.0%	Yes	0.94	0	0	10

## Sample Notes

Sample S/N: Prototype

Driver:

## Antenna Gain Information

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
2.4GHz	1.76	3.5	1.35		No	Yes	Yes	No	0.6	5.0

## Antenna Gain Information (beamforming)

Freq	Antenna Gain (dBi) / Chain				BF	MultiChain Legacy	CDD	Sectorized / Xpol	Dir G (PWR)	Dir G (PSD)
	1	2	3	4						
2.4GHz	1.76	3.5	1.35		Yes	Yes	Yes	No	5.0	5.0

## For devices that support CDD modes

Min # of spatial streams: 1

Max # of spatial streams: 4

Notes:	BF = beamforming mode supported, Multichain Legacy = 802.11 legacy data rates supported for multichain transmissions, CDD = Cyclic Delay Diversity (or Cyclic Shift Diversity) modes supported, Sectorized / Xpol = antennas are sectorized or cross polarized
Notes:	Dir G (PWR) = total gain (Gant + Array Gain) for power calculations; Dir G (PSD) = total gain for PSD calculations based on FCC KDB 662911. Depending on the modes supported, the Array Gain value for power could be different from the PSD value.
Notes:	Array gain for power/psd calculated per KDB 662911 D01

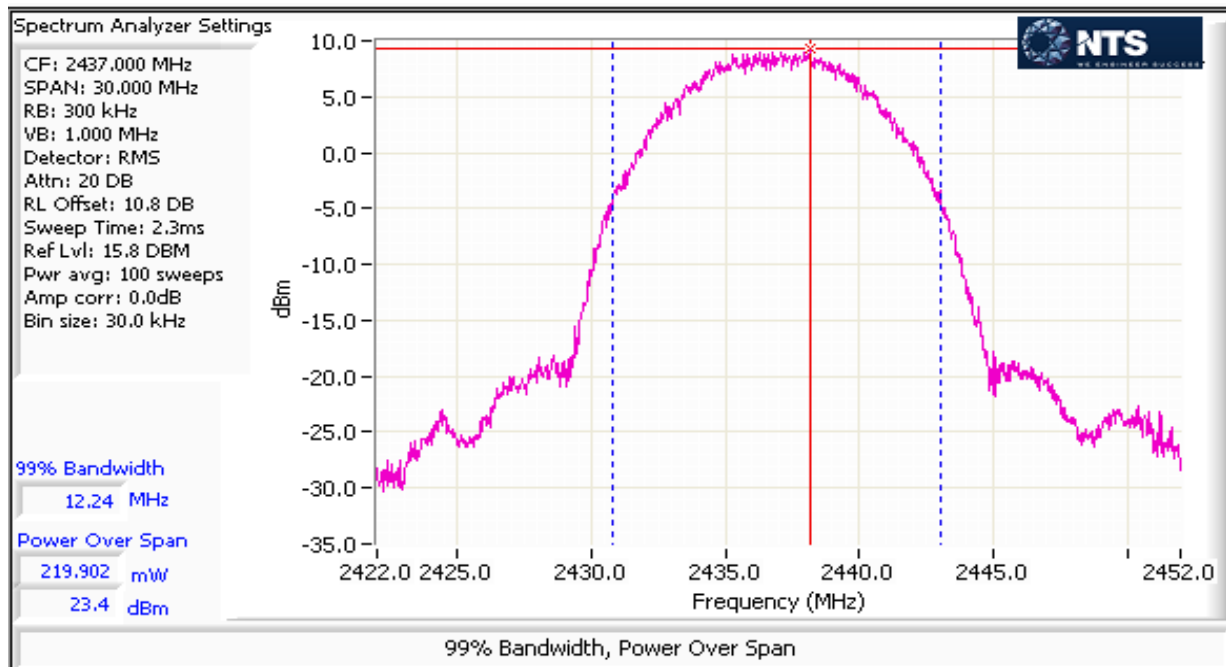
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Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

## Run #1: Output Power

Mode: 11b

Max EIRP (mW): 632.2

Frequency (MHz)	Chain	Software Setting		Duty Cycle %	Power <sup>1</sup> dBm	Total Power mW   dBm		FCC Limit dBm	Max Power (W)	Result
2412	1	q87		99.4	20.6	352.9	25.5	30.0	0.551	Pass
	3				20.5					
	4									
	2				21.0					
2437	1	q92		99.4	21.5	550.6	27.4	30.0		Pass
	3				22.8					
	4									
	2				23.4					
2462	1	q88		99.4	21.3	416.9	26.2	30.0	Pass	
	3				20.5					
	4									
	2				22.3					



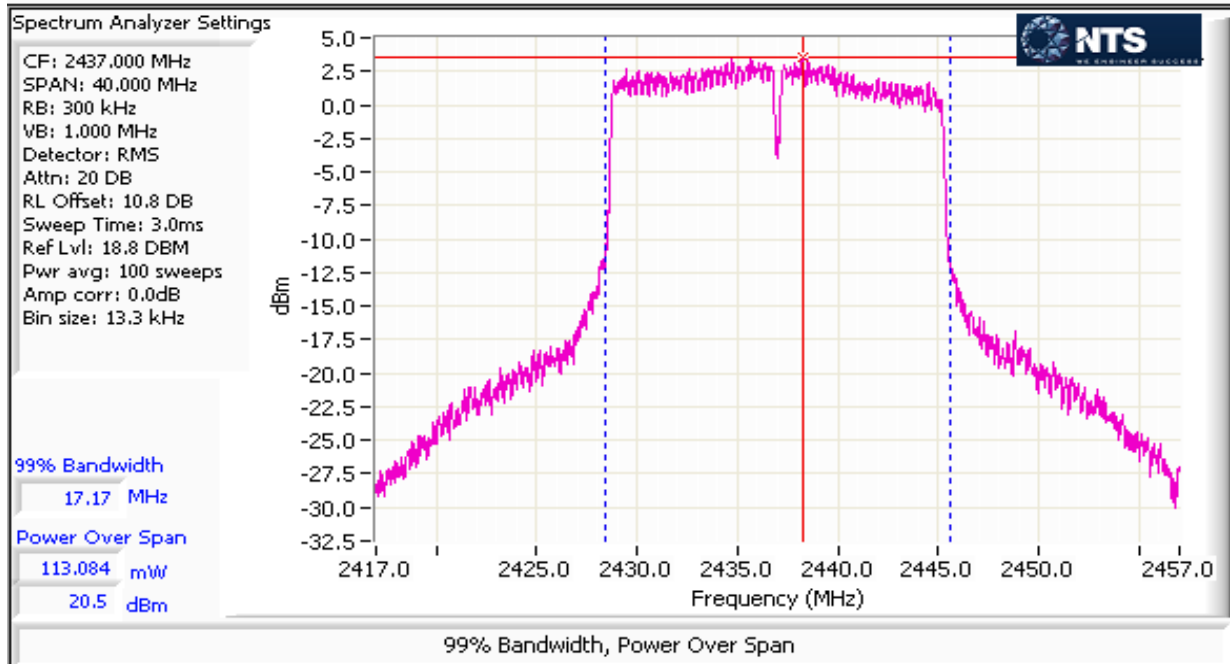
**NTS**

WE ENGINEER SUCCESS

# EMC Test Data

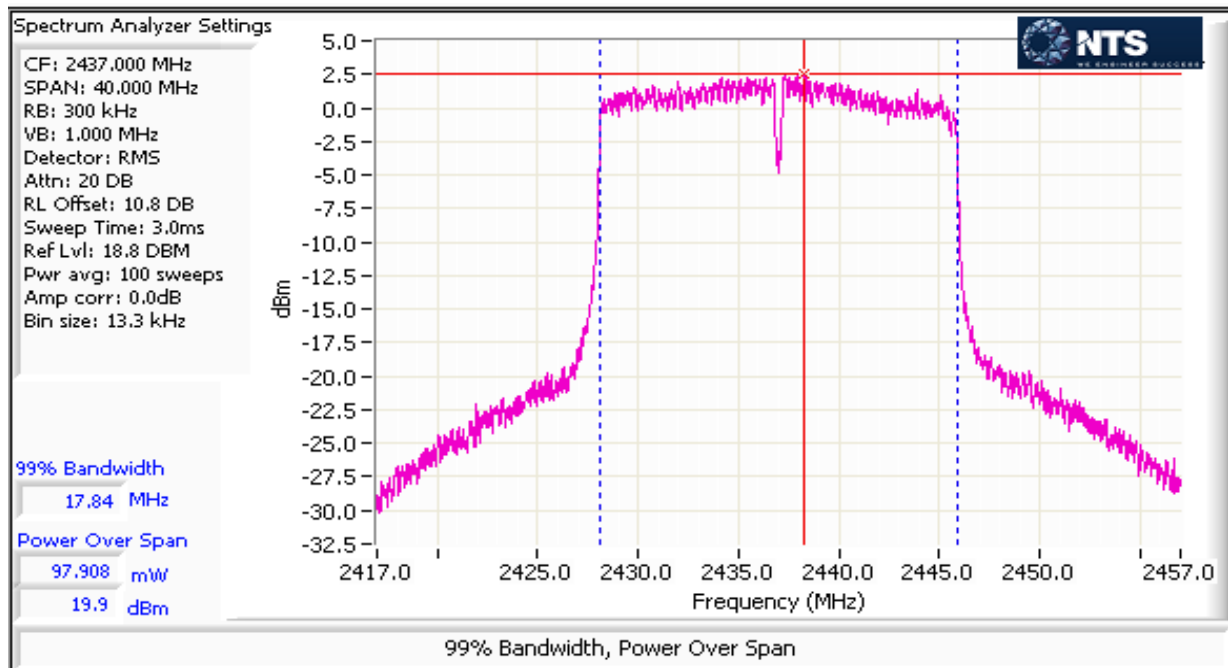
Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Mode: 11g						Max EIRP (mW):			358.6	
Frequency (MHz)	Chain	Software Setting		Duty Cycle %	Power <sup>1</sup> dBm	Total Power mW dBm		FCC Limit dBm	Max Power (W)	Result
2412	1	q73		99.0	17.2	151.6	21.8	30.0	0.312	Pass
	3				16.9					
	4									
	2				17.0					
2437	1	q84		99.0	20.1	312.3	24.9	30.0		Pass
	3				19.9					
	4									
	2				20.5					
2462	1	q63		99.0	14.7	78.7	19.0	30.0	Pass	
	3				13.7					
	4									
	2				14.1					



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

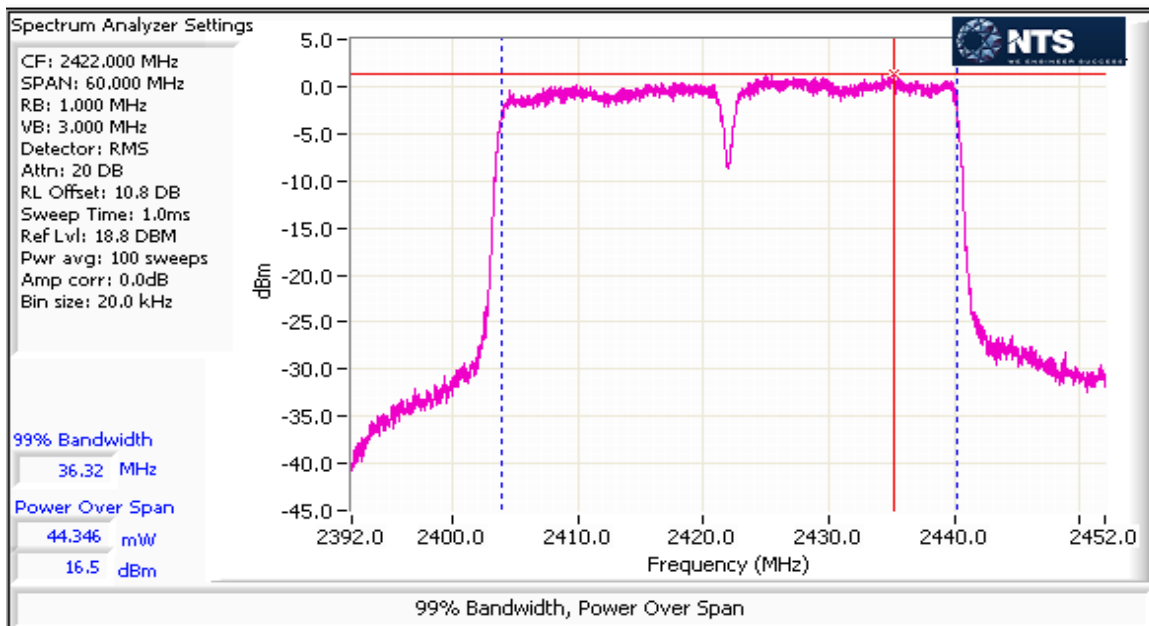
Mode: n20										Max EIRP (mW): 316.9
										Max EIRP (mW) Beamforming: 872.8
Frequency (MHz)	Chain	Software Setting		Duty Cycle %	Power <sup>1</sup> dBm	Total Power		FCC Limit dBm	Max Power (W)	Result
2412	1	q72		99.0	17.0	145.9	21.6	30.0	0.276	Pass
	3				16.7					
	4									
	2				16.9					
2437	1	q82		99.0	19.5	276.0	24.4	30.0		Pass
	3				19.5					
	4									
	2				19.9					
2462	1	q61		99.0	14.2	70.8	18.5	30.0	Pass	
	3				13.0					
	4									
	2				13.9					



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Mode:		n40				Max EIRP (mW):		148.1		
						Max EIRP (mW) Beamforming:		407.9		
Frequency (MHz)	Chain	Software Setting		Duty Cycle %	Power <sup>1</sup> dBm	Total Power mW dBm		FCC Limit dBm	Max Power (W)	Result
2422	1	q67		98.0	16.3	129.0	21.1	30.0	0.129	Pass
	3				16.2					
	4									
	2				16.5					
2437	1	q66		98.0	15.0	91.3	19.6	30.0		Pass
	3				14.7					
	4									
	2				14.8					
2452	1	q54		98.0	13.1	59.6	17.8	30.0	Pass	
	3				12.5					
	4									
	2				13.3					

Note 1:	Duty Cycle ≥ 98%. Output power measured using a spectrum analyzer (see plots below) with RBW= 1-5% of OBW and ≤ 1 MHz, VB≥3* RBW, Span ≥ 1.5 of OBW, auto sweep time, RMS detector, power averaging on, and power integration over the OBW, trace average 100 traces (option AVGSA-1 in ANSI C63.10). Spurious limit becomes -30dBc.
Note 2:	Power setting - the software power setting used during testing, included for reference only.



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Run #2: Power spectral Density

Mode: 11b

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) <sup>Note 1</sup>				Total	Limit dBm/3kHz	Result
		Chain 1	Chain 2	Chain 3	Chain 4			
q87	2412	-0.6	-0.9	-1.9		3.7	8.0	Pass
q92	2437	-0.2	1.0	0.4		5.2	8.0	Pass
q88	2462	0.4	0.1	-2.2		4.3	8.0	Pass

Mode: 11g

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) <sup>Note 1</sup>				Total	Limit dBm/3kHz	Result
		Chain 1	Chain 2	Chain 3	Chain 4			
q73	2412	-7.8	-7.3	-7.6		-2.8	8.0	Pass
q84	2437	-5.1	-3.9	-4.5		0.3	8.0	Pass
q63	2462	-9.7	-10.1	-10.6		-5.3	8.0	Pass

Mode: n20

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) <sup>Note 1</sup>				Total	Limit dBm/3kHz	Result
		Chain 1	Chain 2	Chain 3	Chain 4			
q72	2412	-7.7	-7.8	-7.2		-2.8	8.0	Pass
q82	2437	-5.2	-4.6	-5.2		-0.2	8.0	Pass
q61	2462	-10.4	-10.9	-11.9		-6.3	8.0	Pass

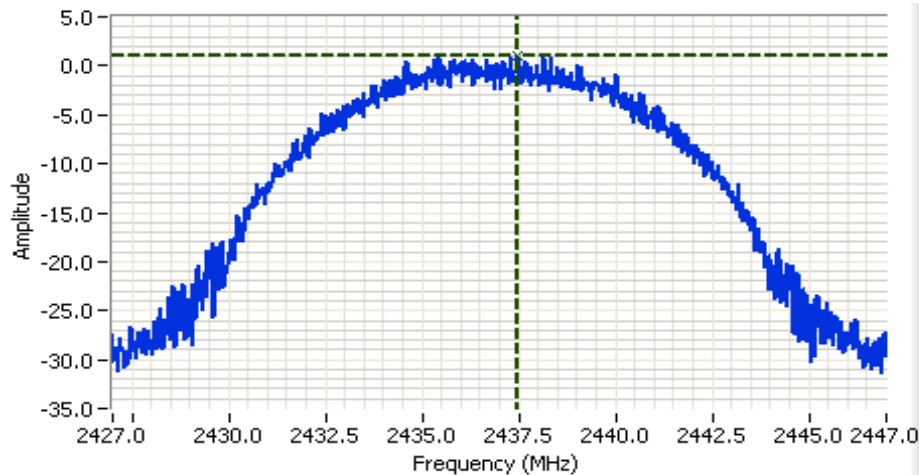
Mode: n40

Power Setting	Frequency (MHz)	PSD (dBm/3kHz) <sup>Note 1</sup>				Total	Limit dBm/3kHz	Result
		Chain 1	Chain 2	Chain 3	Chain 4			
q67	2422	-11.9	-11.6	-10.9		-6.7	8.0	Pass
q72	2437	-10.6	-9.5	-9.9		-5.2	8.0	Pass
q54	2452	-14.2	-14.1	-15.2		-9.7	8.0	Pass

Note 1:

Test performed per method PKSPD, in KDB 558074. Power spectral density measured using:  $3\text{kHz} \leq \text{RBW} \leq 100\text{kHz}$ ,  $\text{VBW}=3*\text{RBW}$ , peak detector, span =  $1.5*\text{DTS BW}$ , auto sweep time, max hold.

Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

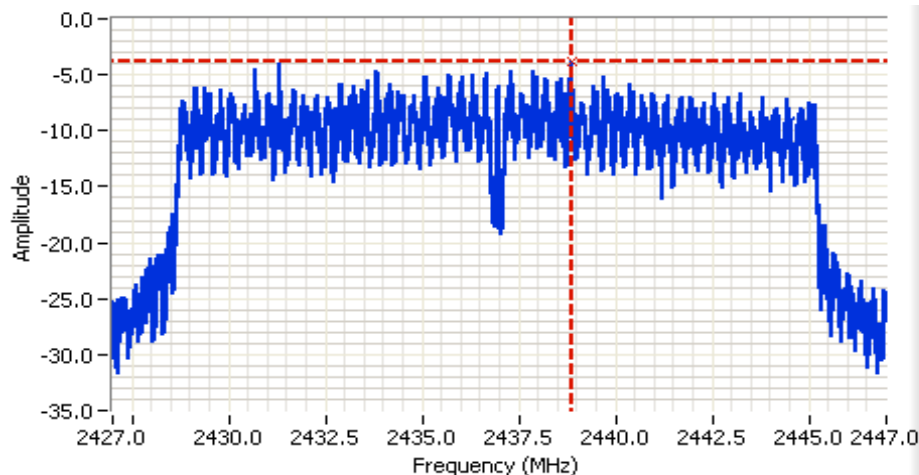
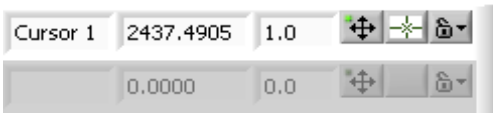


## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 20.000 MHz  
 RB: 3.00 kHz  
 VB: 10.0 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 2.1s  
 Ref Lvl: 15.8 DBM

## Comments

PSD: 1.0 dBm/ 3kHz  
 Chain 2

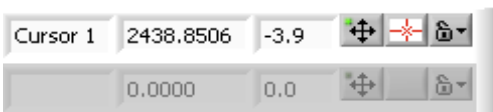


## Analyzer Settings

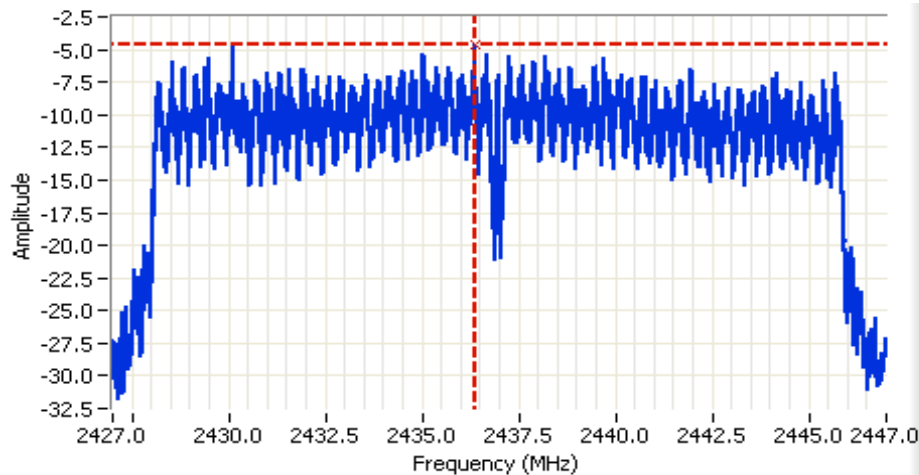
Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 20.000 MHz  
 RB: 3.00 kHz  
 VB: 10.0 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 2.1s  
 Ref Lvl: 18.8 DBM

## Comments

PSD: -3.9 dBm/3kHz  
 g mode, chain 2



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

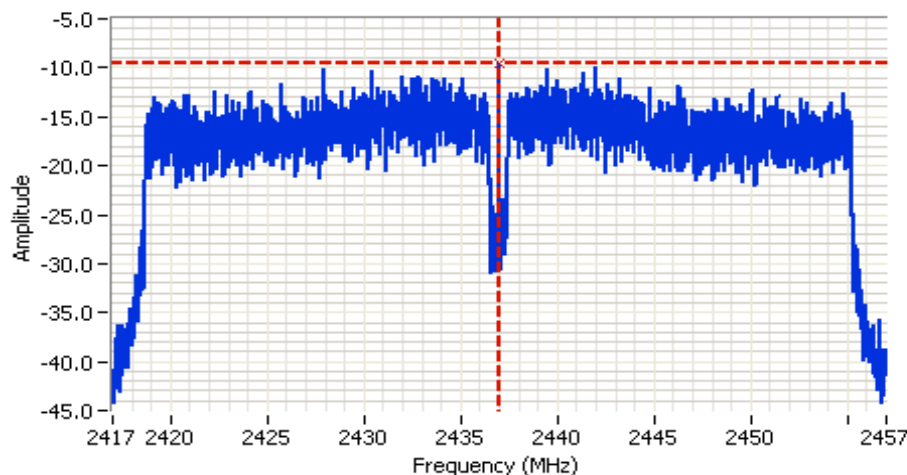
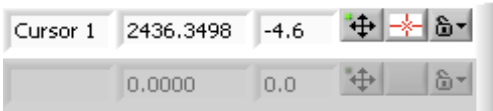


## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 20.000 MHz  
 RB: 3.00 kHz  
 VB: 10.0 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 2.1s  
 Ref Lvl: 18.8 DBM

## Comments

PSD: -4.6 dBm/3kHz  
 n20 mode, chain 2

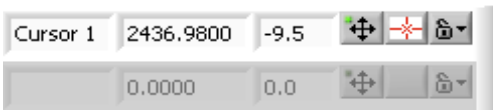


## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 40.000 MHz  
 RB: 3.00 kHz  
 VB: 10.0 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 4.2s  
 Ref Lvl: 18.8 DBM

## Comments

PSD: -9.5 dBm/3kHz  
 n40 mode, chain 2





Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Run #3: Signal Bandwidth

Mode: 11b

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (MHz)	
		6dB	99%	6dB	99%
q87	2412	9.1	14.3	100kHz	300kHz
q92	2437	9.1	12.2	100kHz	300kHz
q88	2462	10.1	16.4	100kHz	300kHz

Mode: 11g

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (MHz)	
		6dB	99%	6dB	99%
q73	2412	16.3	16.5	100kHz	300kHz
q84	2437	16.4	17.2	100kHz	300kHz
q63	2462	16.4	16.5	100kHz	300kHz

Mode: n20

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (MHz)	
		6dB	99%	6dB	99%
q72	2412	17.6	17.7	100kHz	300kHz
q82	2437	17.6	17.8	100kHz	300kHz
q61	2462	17.6	17.7	100kHz	300kHz

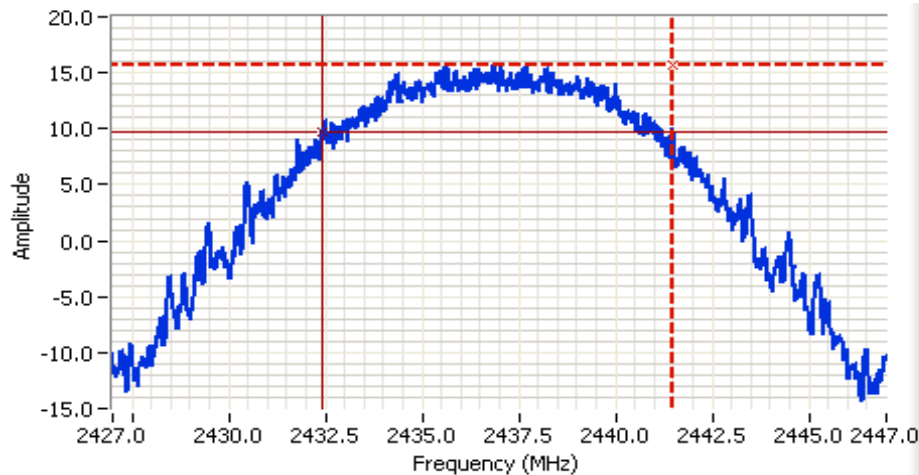
Mode: n40

Power Setting	Frequency (MHz)	Bandwidth (MHz)		RBW Setting (MHz)	
		6dB	99%	6dB	99%
q67	2422	36.3	36.3	100kHz	1MHz
q72	2437	36.3	36.3	100kHz	1MHz
q54	2452	36.4	36.4	100kHz	1MHz

Note 1: DTS BW: RBW=100kHz, VBW ≥ 3\*RBW, peak detector, max hold, auto sweep time, Span 2-5 times measured BW.  
 99% BW: RBW=1-5% of 99%BW, VBW ≥ 3\*RBW, peak detector, max hold, auto sweep time. Span 1.5-5 times OBW.

Note 2: Measurements performed on chain 2

Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A



## Analyzer Settings

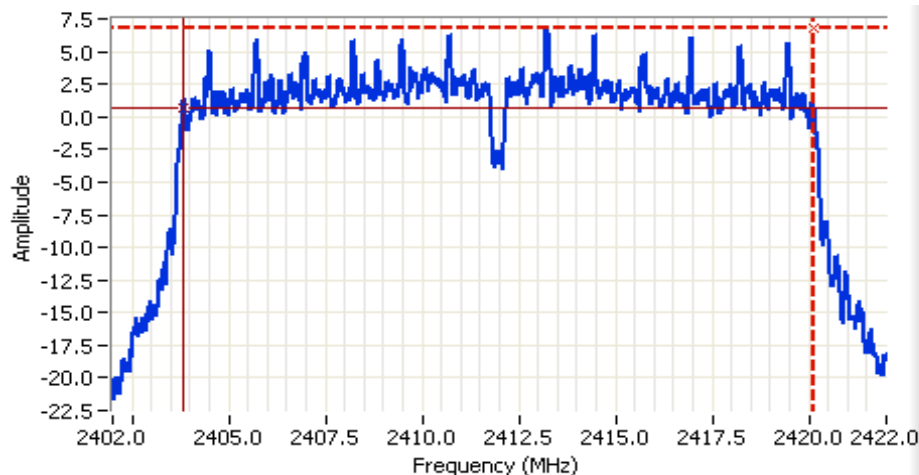
Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 20.000 MHz  
 RB: 100 kHz  
 VB: 300 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 2.0ms  
 Ref Lvl: 18.8 DBM

## Comments

6dB BW: 9.056 MHz  
 b mode

Cursor 1 2441.4982 15.7  
 Cursor 2 2432.4418 9.7

Delta Freq. 9.056  
 Delta Amplitude 6.0



## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2412.000 MHz  
 SPAN: 20.000 MHz  
 RB: 100 kHz  
 VB: 300 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 2.0ms  
 Ref Lvl: 18.8 DBM

## Comments

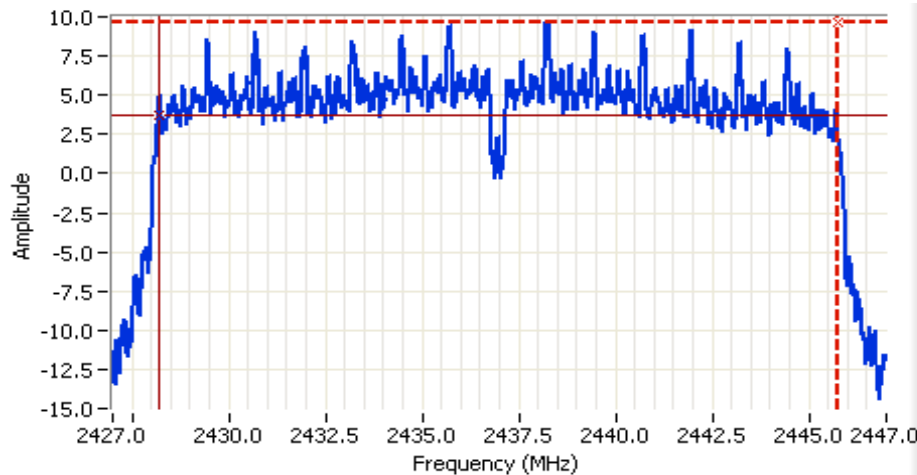
6dB BW: 16.312 MHz  
 g mode

Cursor 1 2420.1394 6.7  
 Cursor 2 2403.8273 0.7

Delta Freq. 16.312  
 Delta Amplitude 6.0



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A



## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 20.000 MHz  
 RB: 100 kHz  
 VB: 300 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 2.0ms  
 Ref Lvl: 18.8 DBM

## Comments

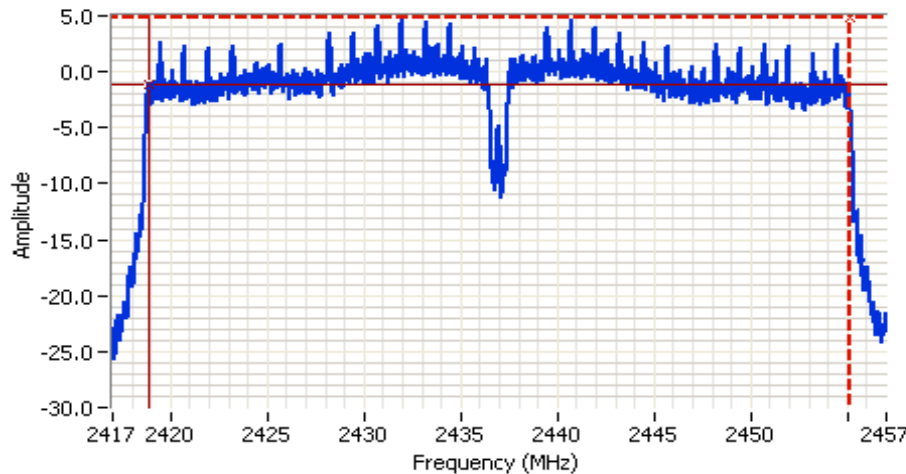
6dB BW: 17.553 MHz  
 n20 mode

Cursor 1 2445.7329 9.7

Cursor 2 2428.1804 3.7

Delta Freq. 17.553

Delta Amplitude 6.0



## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 40.000 MHz  
 RB: 100 kHz  
 VB: 300 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 4.0ms  
 Ref Lvl: 18.8 DBM

## Comments

6dB BW: 36.279 MHz  
 n40 mode

Cursor 1 2455.1194 4.8

Cursor 2 2418.8406 -1.2

Delta Freq. 36.279

Delta Amplitude 6.0



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Run #4a: Out of Band Spurious Emissions

Power Setting Per Chain				Mode	Frequency (MHz)	Reference (dBm)	Limit	Result
#1	#2	#3	#4					
q87	q87	q87		b	2412	15.1	-14.9	Pass
q92	q92	q92			2437	15.1	-14.9	Pass
q88	q88	q88			2462	15.1	-14.9	Pass
q73	q73	q73		g	2412	10.6	-19.4	Pass
q84	q84	q84			2437	10.6	-19.4	Pass
q63	q63	q63			2462	10.6	-19.4	Pass
q72	q72	q72		n20	2412	10.1	-19.9	Pass
q82	q82	q82			2437	10.1	-19.9	Pass
q61	q61	q61			2462	10.1	-19.9	Pass
q67	q67	q67		n40	2422	5.1	-24.9	Pass
q72	q72	q72			2437	5.1	-24.9	Pass
q54	q54	q54			2452	5.1	-24.9	Pass

Note 1: Measurements performed RBW=100kHz, VBW=300kHz, peak detector, max hold.

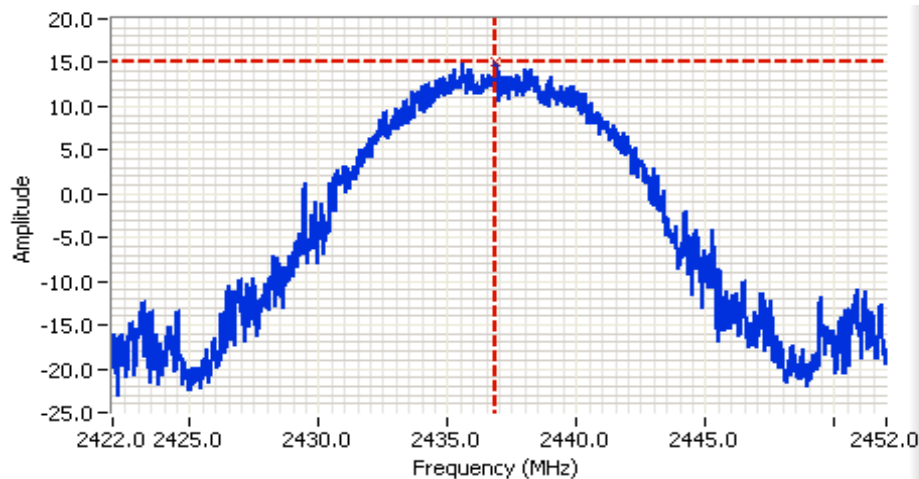
Note 2: Measured on each chain individually.

Note 3: All wide scan measurements performed at target power setting.

Note 4: Limit based on -30dBc.

Measurement performed at the fundamental for each mode at the maximum power setting for the middle channel. The maximum value observed was used as the reference level for the -30dBc limit line on the plots.

Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

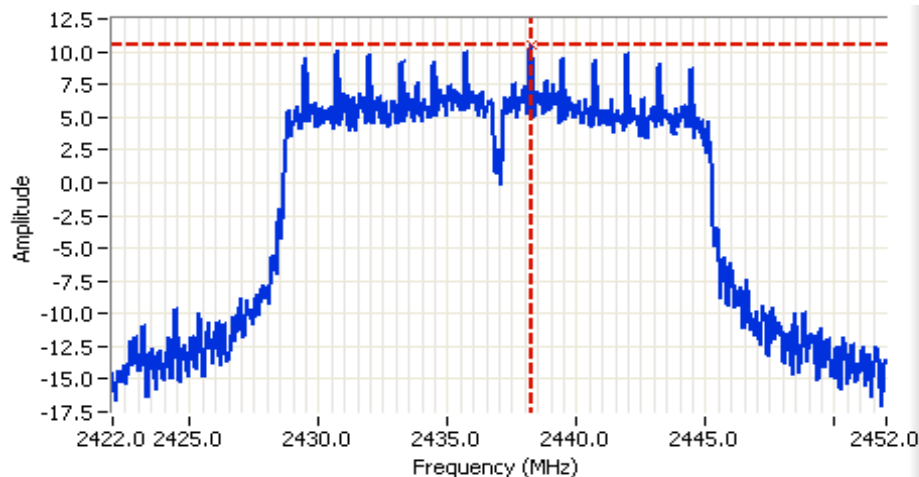


## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 30.000 MHz  
 RB: 100 kHz  
 VB: 300 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 3.0ms  
 Ref Lvl: 18.8 DBM

## Comments

b mode



## Analyzer Settings

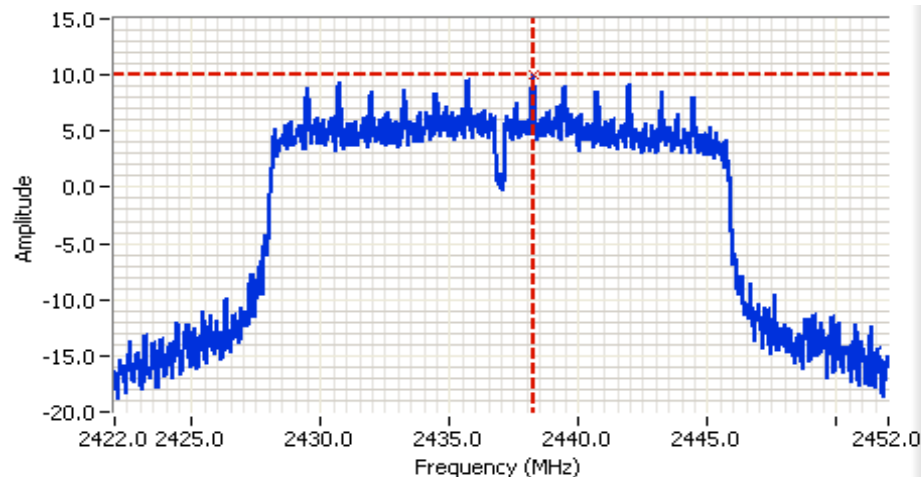
Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 30.000 MHz  
 RB: 100 kHz  
 VB: 300 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 3.0ms  
 Ref Lvl: 18.8 DBM

## Comments

g mode



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

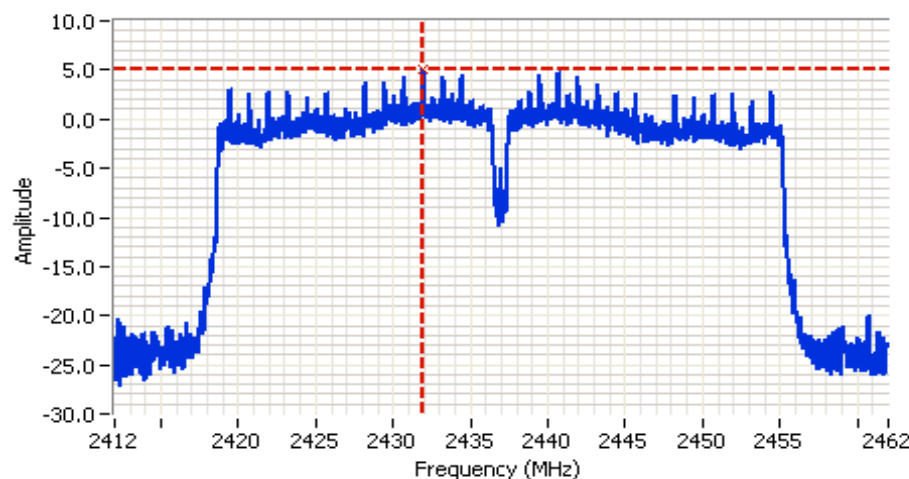


## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 30.000 MHz  
 RB: 100 kHz  
 VB: 300 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 3.0ms  
 Ref Lvl: 18.8 DBM

## Comments

n20 mode



## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2437.000 MHz  
 SPAN: 50.000 MHz  
 RB: 100 kHz  
 VB: 300 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 4.8ms  
 Ref Lvl: 18.8 DBM

## Comments

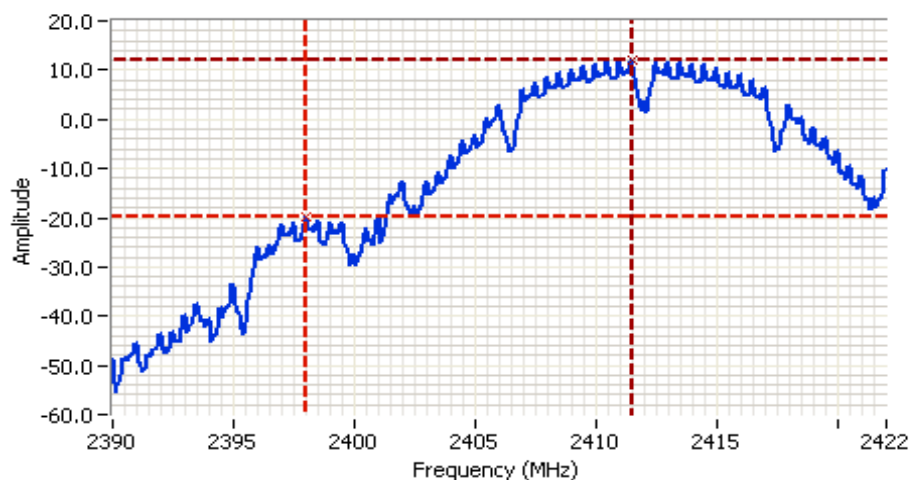
n40 mode 2437 MHz



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

## Plots for low channel

Additional plot showing compliance with -30dBc limit from 2390 MHz to 2400 MHz. Radiated measurements used to show compliance with the limits in the restricted band below 2390 MHz.



### Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2406.000 MHz  
 SPAN: 32.000 MHz  
 RB: 100 kHz  
 VB: 300 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 3.1ms  
 Ref Lvl: 18.8 DBM

### Comments

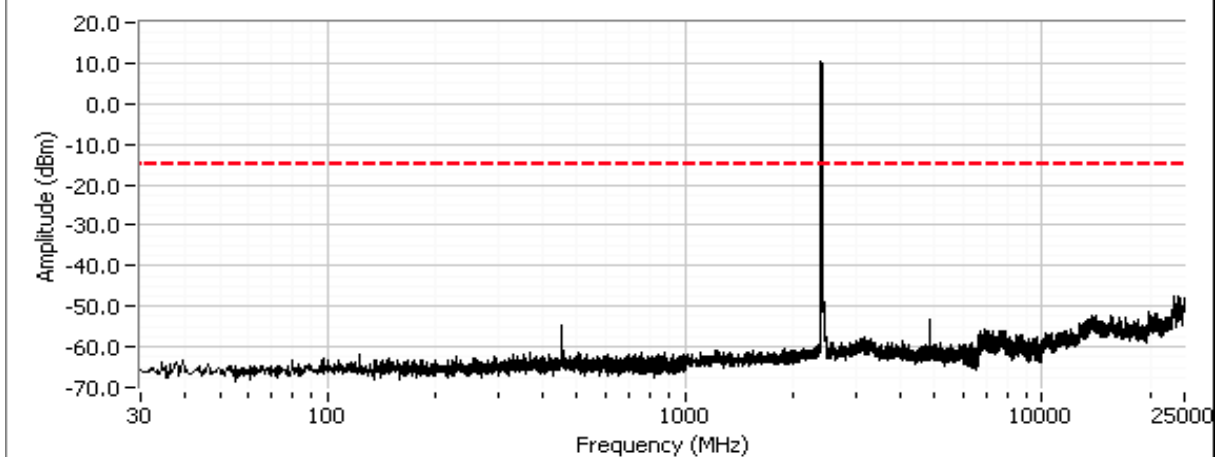
b mode 2412 MHz  
 chain 1

Cursor 1	2397.9624	-19.7	
Cursor 2	2411.4836	12.0	

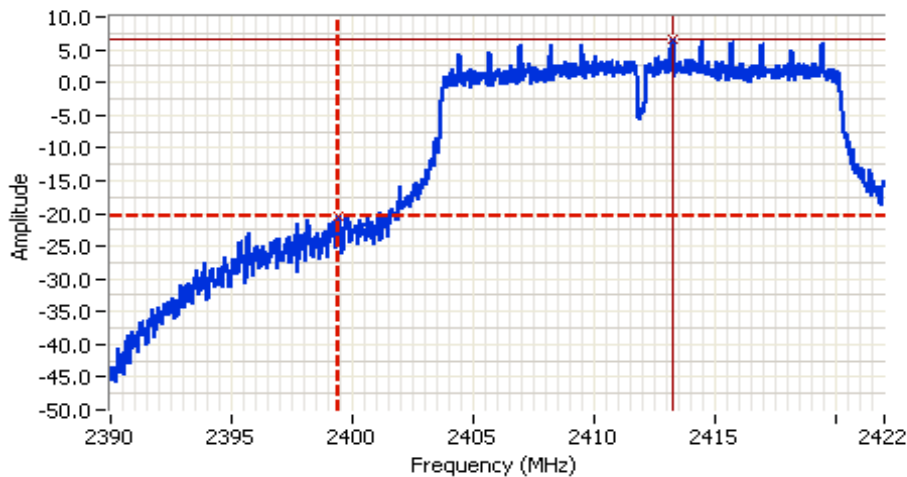
Delta Freq. 13.521

Delta Amplitude 31.8

### b mode 2412 MHz chain 1



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A



## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2406.000 MHz  
 SPAN: 32.000 MHz  
 RB: 100 kHz  
 VB: 300 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 3.2ms  
 Ref Lvl: 18.8 DBM

## Comments

g mode 2412 MHz  
 chain 1

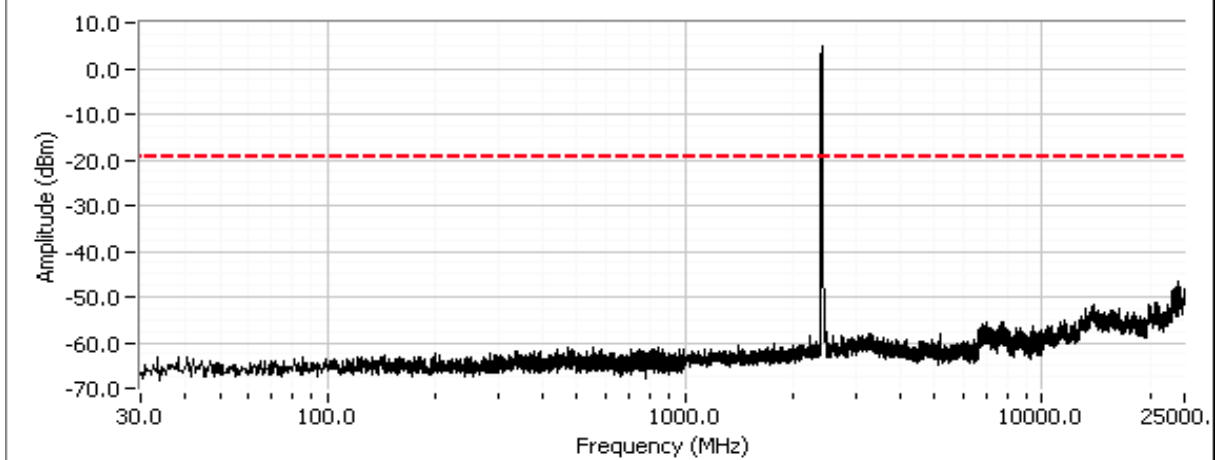
Cursor 1	2399.4539	-20.4	
Cursor 2	2413.2717	6.7	

Delta Freq. 13.818

Delta Amplitude 27.1

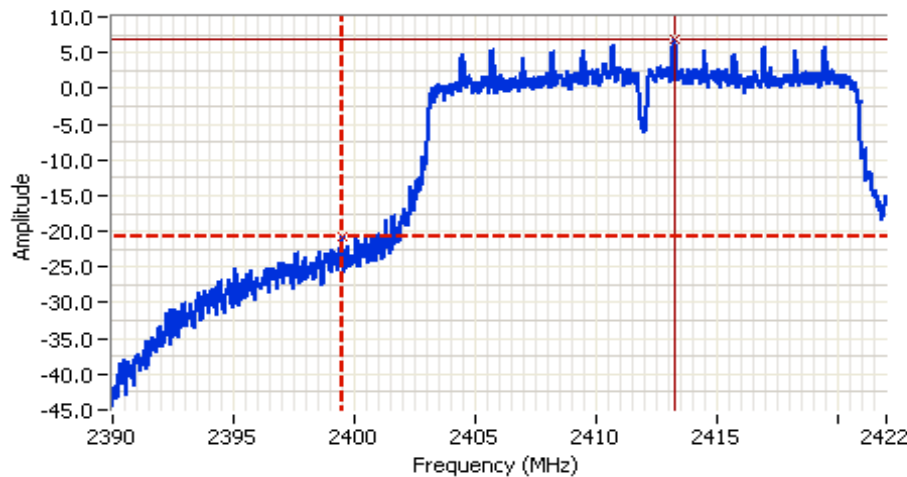


## g mode 2412 MHz chain 1





Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A



## Analyzer Settings

Agilent Technologies, E4446A  
 CF: 2406.000 MHz  
 SPAN: 32.000 MHz  
 RB: 100 kHz  
 VB: 300 kHz  
 Detector: POS  
 Attn: 20 DB  
 RL Offset: 10.8 DB  
 Sweep Time: 3.2ms  
 Ref Lvl: 18.8 DBM

## Comments

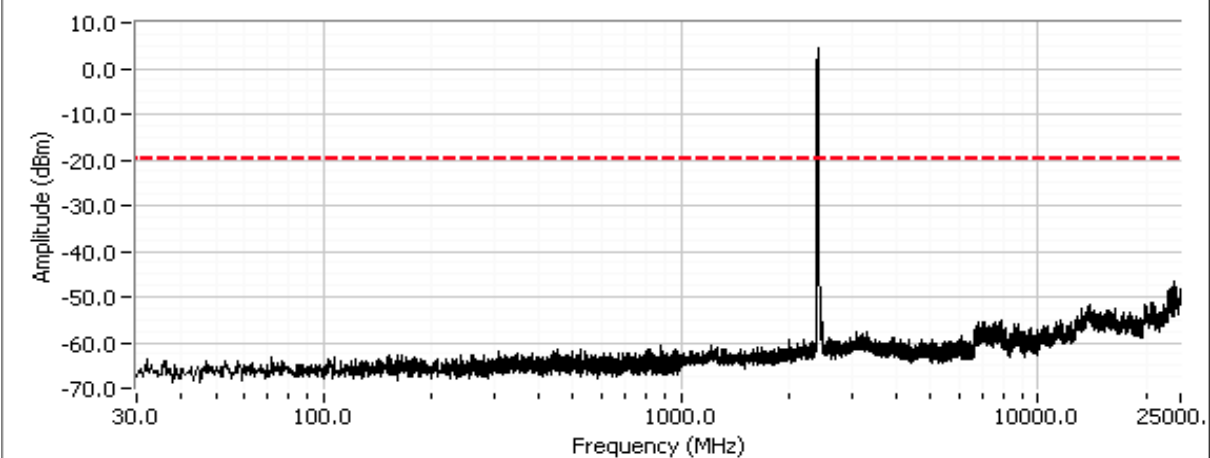
n20 mode 2412 MHz  
 chain 1

Cursor 1	2399.4858	-20.7	
Cursor 2	2413.2290	6.7	

Delta Freq. 13.743

Delta Amplitude 27.5

n20 mode 2412 MHz chain 1

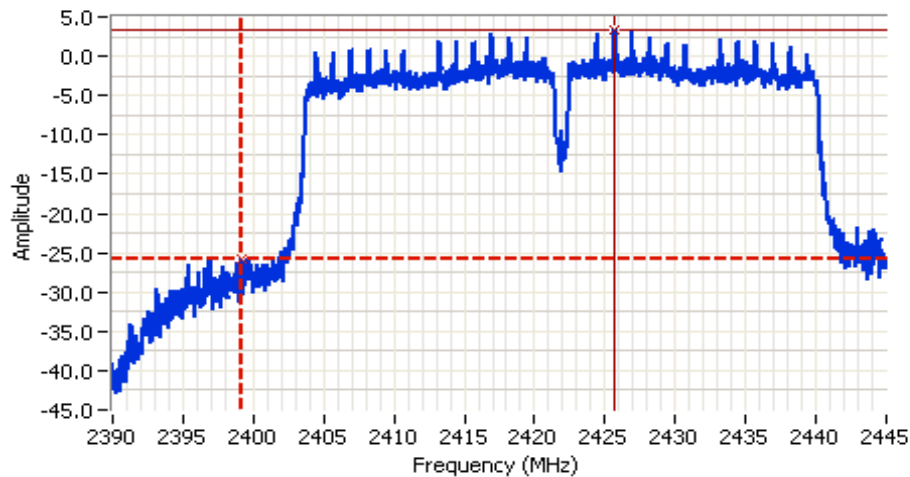


**NTS**

WE ENGINEER SUCCESS

## EMC Test Data

Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A



### Analyzer Settings

Agilent Technologies, E4446A  
CF: 2417.500 MHz  
SPAN: 55.000 MHz  
RB: 100 kHz  
VB: 300 kHz  
Detector: POS  
Attn: 20 DB  
RL Offset: 10.8 DB  
Sweep Time: 5.4ms  
Ref Lvl: 18.8 DBM

### Comments

n40 mode 2422 MHz  
chain 1

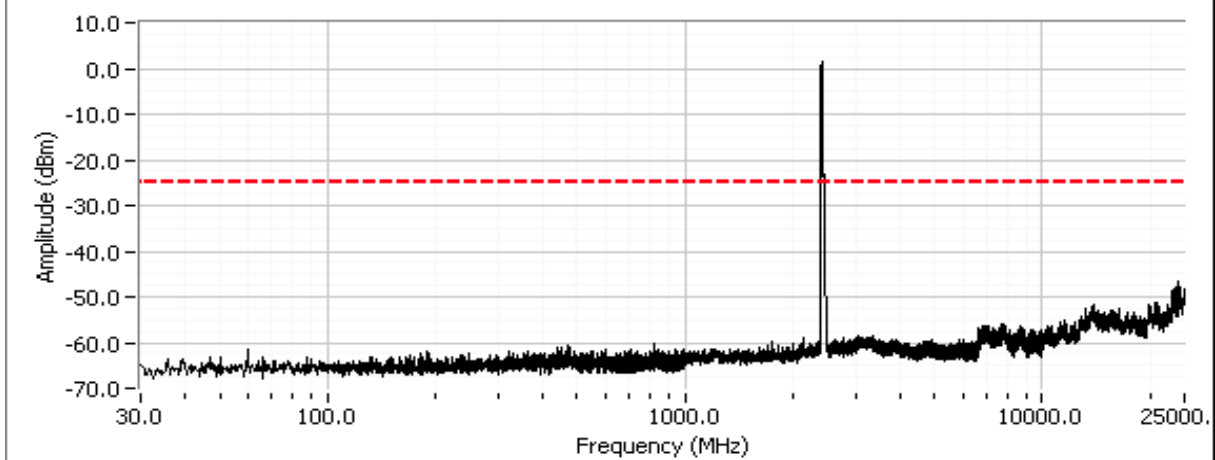
Cursor 1	2399.1147	-25.8	
Cursor 2	2425.7253	3.4	

Delta Freq. 26.611

Delta Amplitude 29.2

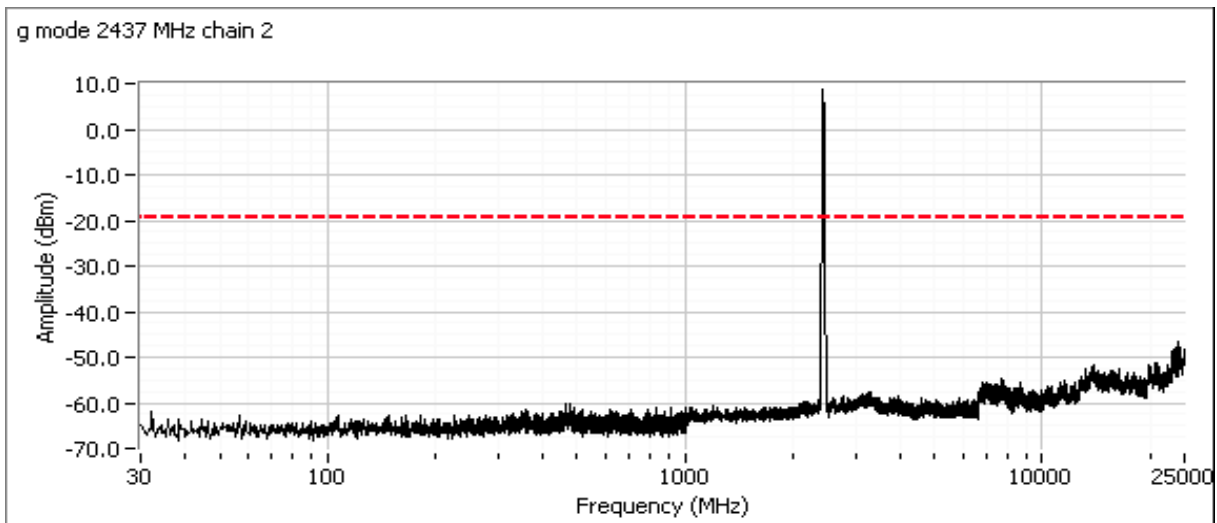
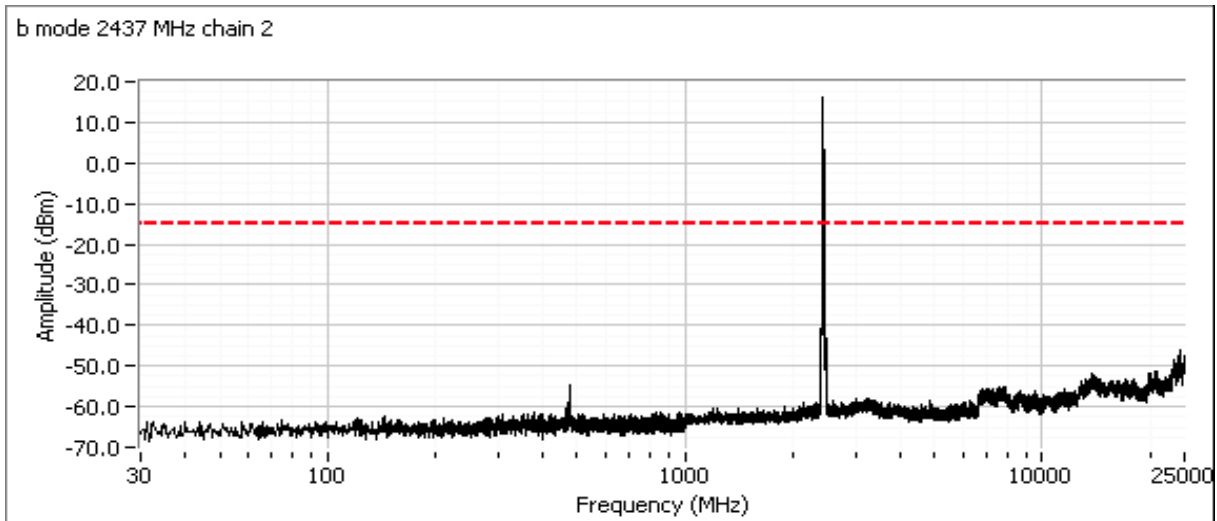


n40 mode 2422 MHz chain 1

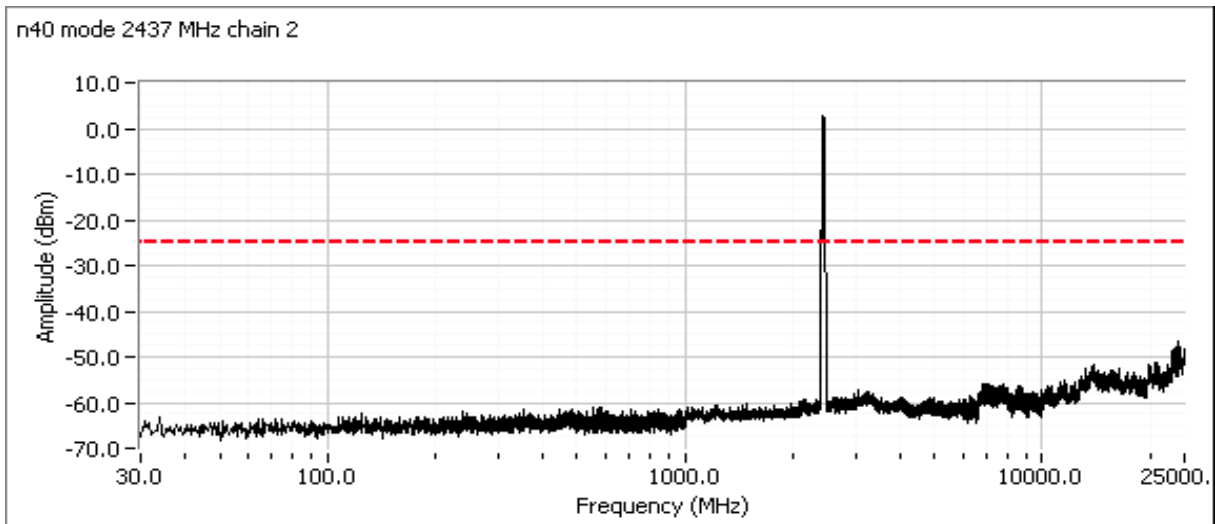
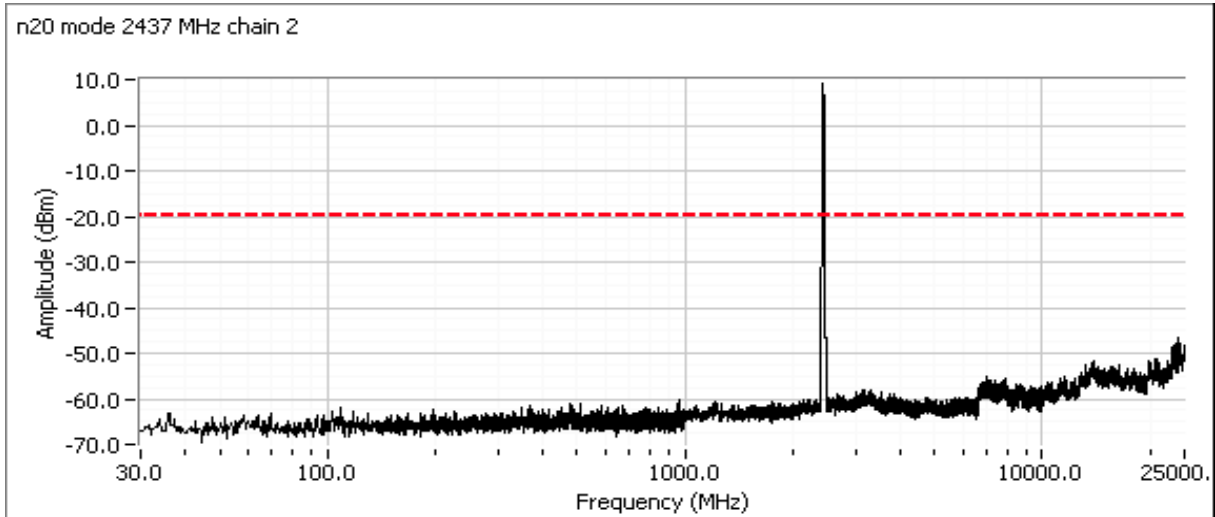


Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

Plots for center channel

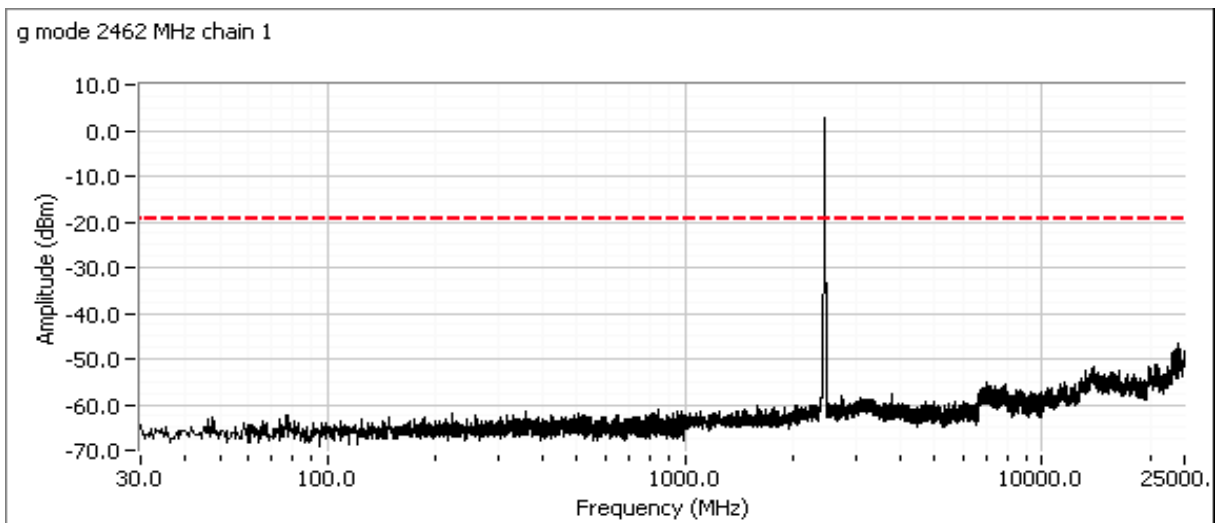
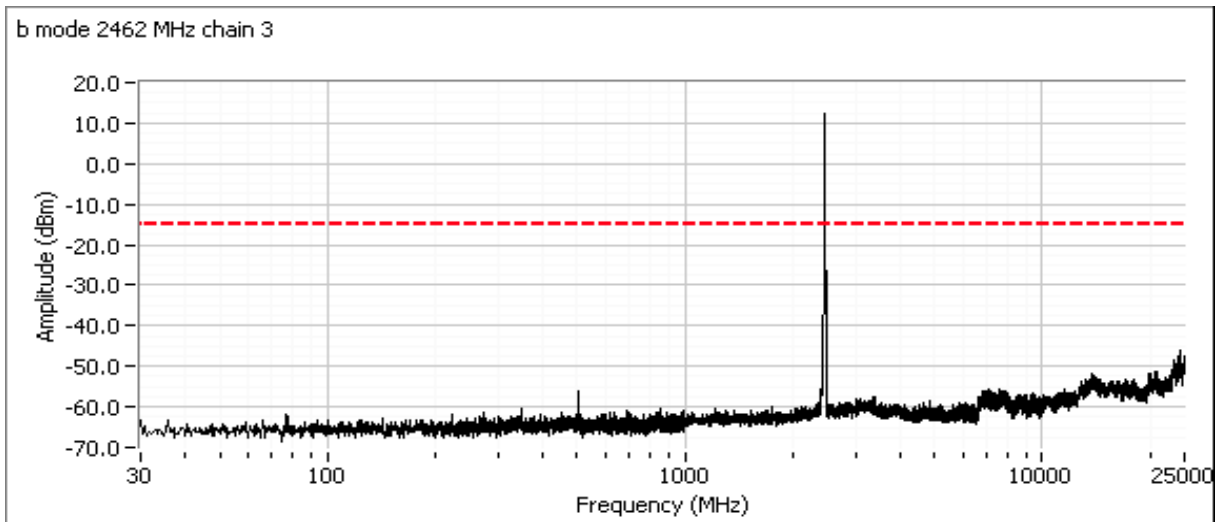


Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

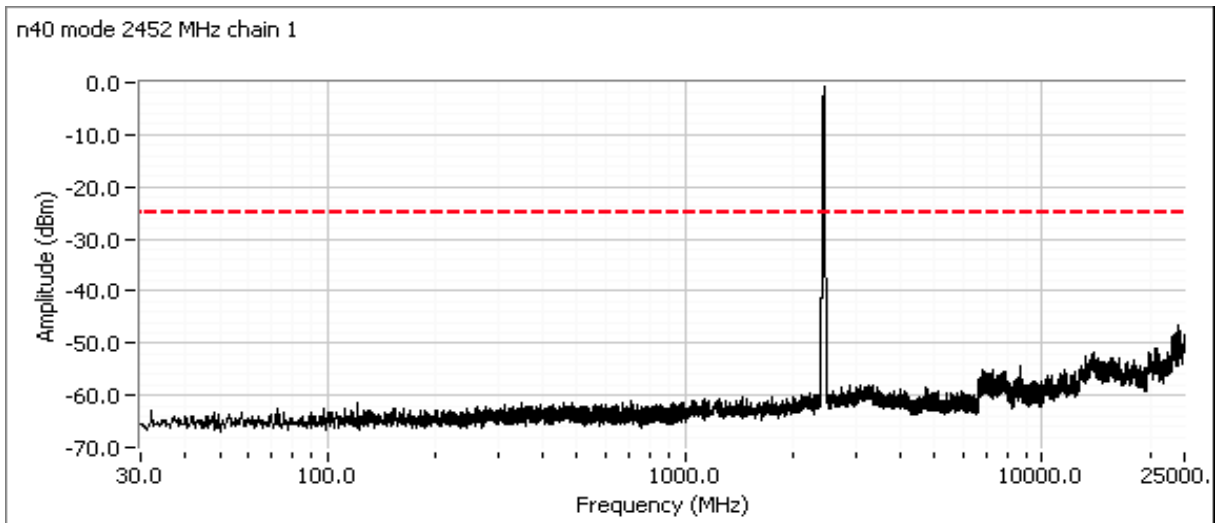
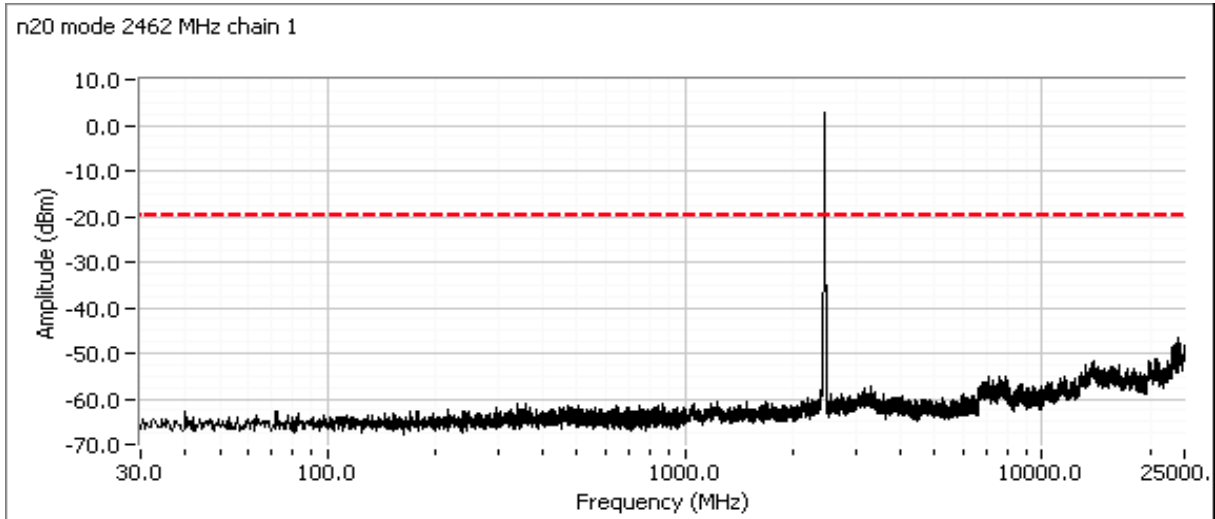


Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

## Plots for high channel



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## RSS-247 and FCC 15.247 (DTS) Radiated Spurious Emissions

### Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

### General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.  
For radiated emissions testing the measurement antenna was located 3 meters from the EUT, unless otherwise noted.

### Ambient Conditions:

Temperature: 22 °C  
Rel. Humidity: 33 %

### Summary of Results - Device Operating in the 2400-2483.5 MHz Band

Run #	Mode	Channel	Target Power	Passing Power Setting	Test Performed	Limit	Result / Margin
1	b	1 - 2412MHz	-	q92	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(d)	38.3 dBµV/m @ 2390.0 MHz (-15.7 dB)
		11 - 2462MHz		q88	Restricted Band Edge (2483.5 MHz)		51.7 dBµV/m @ 2483.6 MHz (-2.3 dB)
1 - 2412MHz	q79	Restricted Band Edge (2390 MHz)		52.5 dBµV/m @ 2390.0 MHz (-1.5 dB)			
2 - 2417MHz	q84			52.4 dBµV/m @ 2389.8 MHz (-1.6 dB)			
2	g	11 - 2462MHz		q63	Restricted Band Edge (2483.5 MHz)		52.6 dBµV/m @ 2483.5 MHz (-1.4 dB)
		10 - 2457MHz		q77			52.6 dBµV/m @ 2483.5 MHz (-1.4 dB)
		9 - 2452MHz		q78			52.4 dBµV/m @ 2483.6 MHz (-1.6 dB)
		8 - 2447MHz		q83			53.0 dBµV/m @ 2483.6 MHz (-1.0 dB)

Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Run #	Mode	Channel	Target Power	Passing Power Setting	Test Performed	Limit	Result / Margin
3	n20	1 - 2412MHz	-	q72	Restricted Band Edge (2390 MHz)	FCC Part 15.209 / 15.247(d)	52.5 dBµV/m @ 2390.0 MHz (-1.5 dB)
		2 - 2417MHz		q82			52.5 dBµV/m @ 2390.0 MHz (-1.5 dB)
		11 - 2462MHz		q61	Restricted Band Edge (2483.5 MHz)		52.7 dBµV/m @ 2484.6 MHz (-1.3 dB)
		10 - 2457MHz		q70			53.0 dBµV/m @ 2484.8 MHz (-1.0 dB)
		9 - 2452MHz		q76			52.8 dBµV/m @ 2485.1 MHz (-1.2 dB)
		8 - 2447MHz		q81			52.7 dBµV/m @ 2484.9 MHz (-1.3 dB)
		4		n40			3 - 2422MHz
n40	4 - 2427MHz			q67	52.6 dBµV/m @ 2390.0 MHz (-1.4 dB)		
n40	5 - 2432MHz			q72	52.5 dBµV/m @ 2389.9 MHz (-1.5 dB)		
n40	6 - 2437MHz			q66	45.7 dBµV/m @ 2390.0 MHz (-8.3 dB)		
n40	6 - 2437MHz			q66	Restricted Band Edge (2483.5 MHz)		52.5 dBµV/m @ 2484.7 MHz (-1.5 dB)
n40	9 - 2452MHz			q54			52.8 dBµV/m @ 2485.0 MHz (-1.2 dB)
n40	8 - 2447MHz			q56			72.4 dBµV/m @ 2484.0 MHz (-1.6 dB)
n40	7 - 2442MHz			q60			72.9 dBµV/m @ 2486.0 MHz (-1.1 dB)



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Modifications Made During Testing

No modifications were made to the EUT during testing

## Deviations From The Standard

No deviations were made from the requirements of the standard.

## Sample Notes

Sample S/N: prototype

Driver: -

Antenna: Internal

## Procedure Comments:

Measurements performed in accordance with FCC KDB 558074

Peak measurements performed with: RBW=1MHz, VBW=3MHz, peak detector, max hold, auto sweep time

Unless otherwise stated/noted, emission has a duty cycle  $\geq 98\%$  and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold.

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11b	5.5	99.4%	Yes	2.32	0	0	10
11g	6	99.0%	Yes	2.06	0	0	10
n20	MCS0	99.0%	Yes	1.92	0	0	10
n40	MCS0	98.0%	Yes	0.94	0	0	10

## Measurement Specific Notes:

Note 8:	Plots of the average and peak bandedge do not account for any duty cycle correction. Refer to the tabular results for final measurements.
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Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Run #1: Radiated Bandedge Measurements

Date of Test: 11/19/2015 0:00

Test Engineer: Rafael Varelas

Test Location: FT Chamber #7

Config. Used: 1

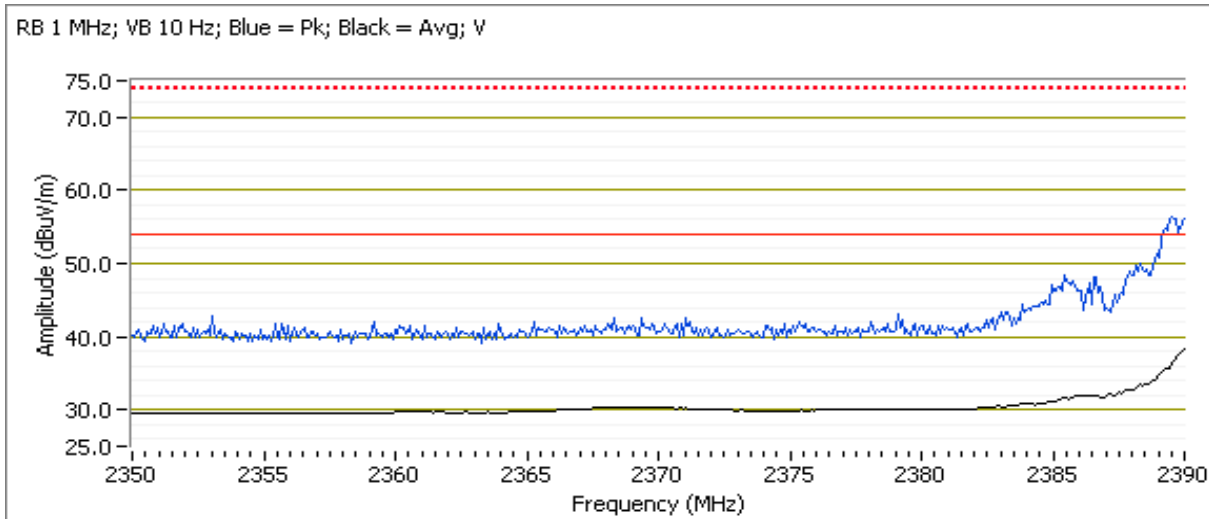
Config Change: None

EUT Voltage: 120V/60Hz

Channel: 1 Mode: b  
 Tx Chain: 3Tx Data Rate: 5.5

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	38.3	V	54.0	-15.7	AVG	317	1.0	POS; RB 1 MHz; VB: 10 Hz
2390.000	56.4	V	74.0	-17.6	PK	317	1.0	POS; RB 1 MHz; VB: 3 MHz
2390.000	37.8	H	54.0	-16.2	AVG	161	1.0	POS; RB 1 MHz; VB: 10 Hz
2388.400	48.0	H	74.0	-26.0	PK	161	1.0	POS; RB 1 MHz; VB: 3 MHz

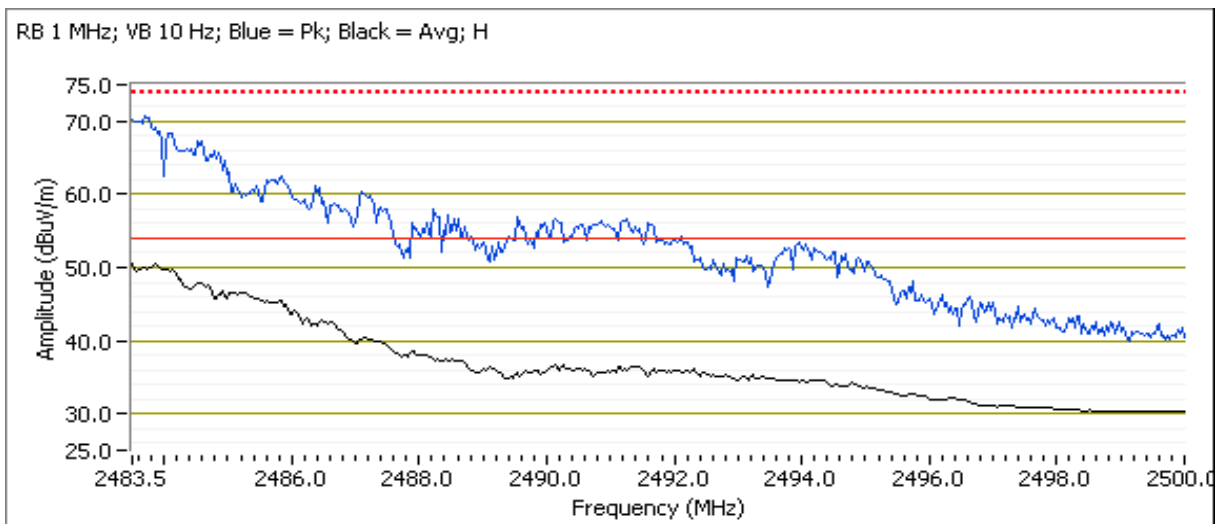


Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

Channel: 11                      Mode: b  
 Tx Chain: 3Tx                      Data Rate: 5.5

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.600	51.7	H	54.0	-2.3	AVG	219	1.8	POS; RB 1 MHz; VB: 10 Hz
2483.570	71.3	H	74.0	-2.7	PK	219	1.8	POS; RB 1 MHz; VB: 3 MHz
2483.530	51.4	V	54.0	-2.6	AVG	274	1.9	POS; RB 1 MHz; VB: 10 Hz
2487.770	70.1	V	74.0	-3.9	PK	274	1.9	POS; RB 1 MHz; VB: 3 MHz



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Run #2: Radiated Bandedge Measurements

Date of Test: 11/19/2015 0:00

Test Engineer: Rafael Varelas

Test Location: FT Chamber #7

Config. Used: 1

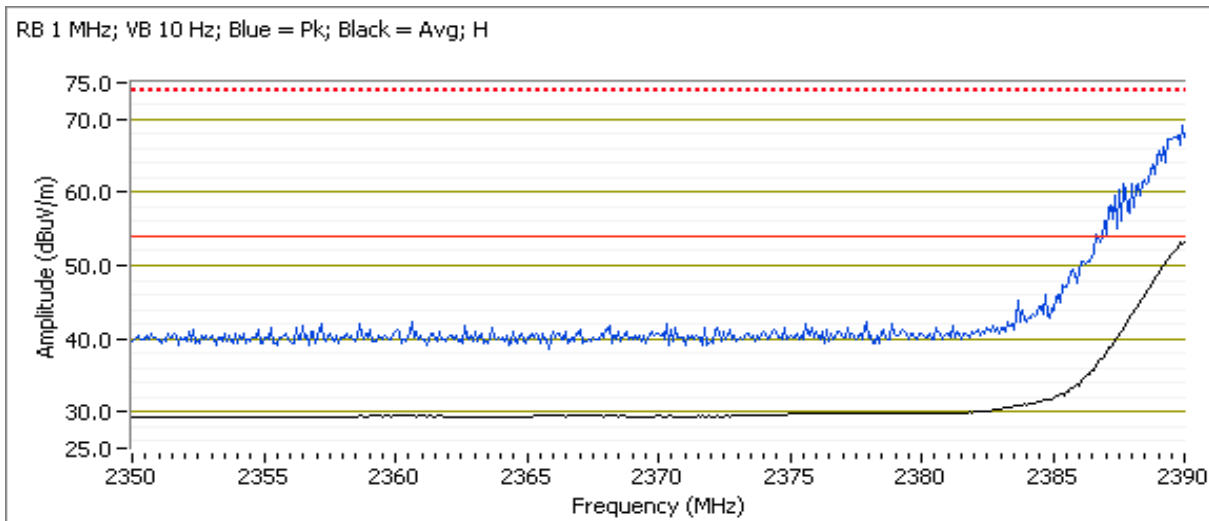
Config Change: None

EUT Voltage: 120/60Hz

Channel: 1 Mode: g  
 Tx Chain: 3Tx Data Rate: 6

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	52.5	H	54.0	-1.5	AVG	174	1.0	POS; RB 1 MHz; VB: 10 Hz
2390.000	67.6	H	74.0	-6.4	PK	174	1.0	POS; RB 1 MHz; VB: 3 MHz
2390.000	52.1	V	54.0	-1.9	AVG	55	1.0	POS; RB 1 MHz; VB: 10 Hz
2389.600	64.9	V	74.0	-9.1	PK	55	1.0	POS; RB 1 MHz; VB: 3 MHz

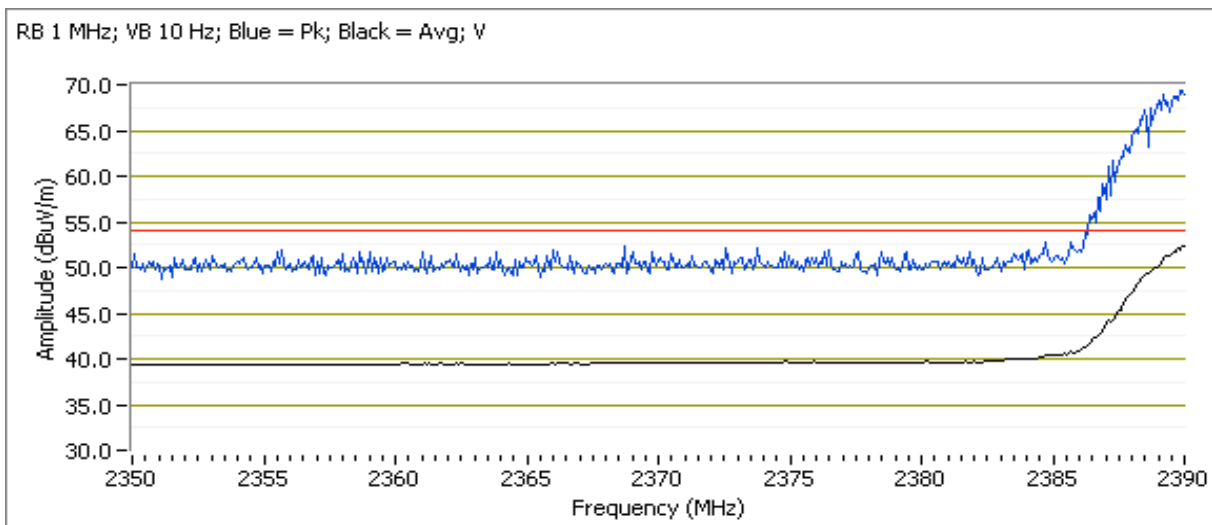


Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

Channel: 2                      Mode: g  
 Tx Chain: 3Tx                Data Rate: 6

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2389.760	52.4	V	54.0	-1.6	AVG	279	2.5	POS; RB 1 MHz; VB: 10 Hz
2389.440	68.8	V	74.0	-5.2	PK	279	2.5	POS; RB 1 MHz; VB: 3 MHz
2390.000	49.2	H	54.0	-4.8	AVG	125	1.0	POS; RB 1 MHz; VB: 10 Hz
2389.840	63.5	H	74.0	-10.5	PK	125	1.0	POS; RB 1 MHz; VB: 3 MHz

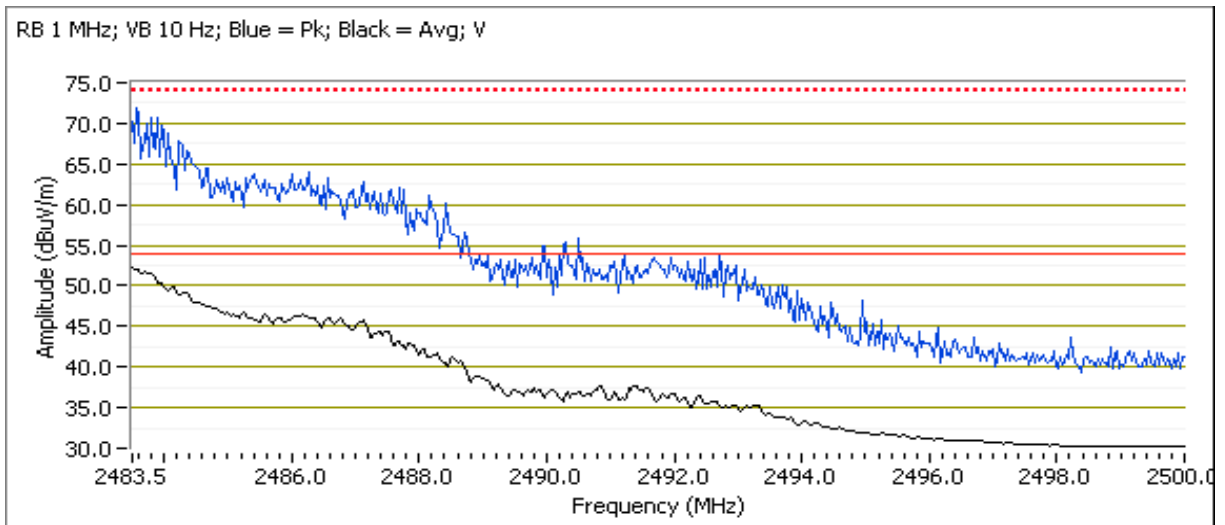


Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

Channel: 11                      Mode: g  
 Tx Chain: 3Tx                      Data Rate: 6

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	52.6	V	54.0	-1.4	AVG	288	2.0	POS; RB 1 MHz; VB: 10 Hz
2483.800	70.8	V	74.0	-3.2	PK	288	2.0	POS; RB 1 MHz; VB: 3 MHz
2483.830	51.7	H	54.0	-2.3	AVG	277	1.4	POS; RB 1 MHz; VB: 10 Hz
2483.570	68.2	H	74.0	-5.8	PK	277	1.4	POS; RB 1 MHz; VB: 3 MHz

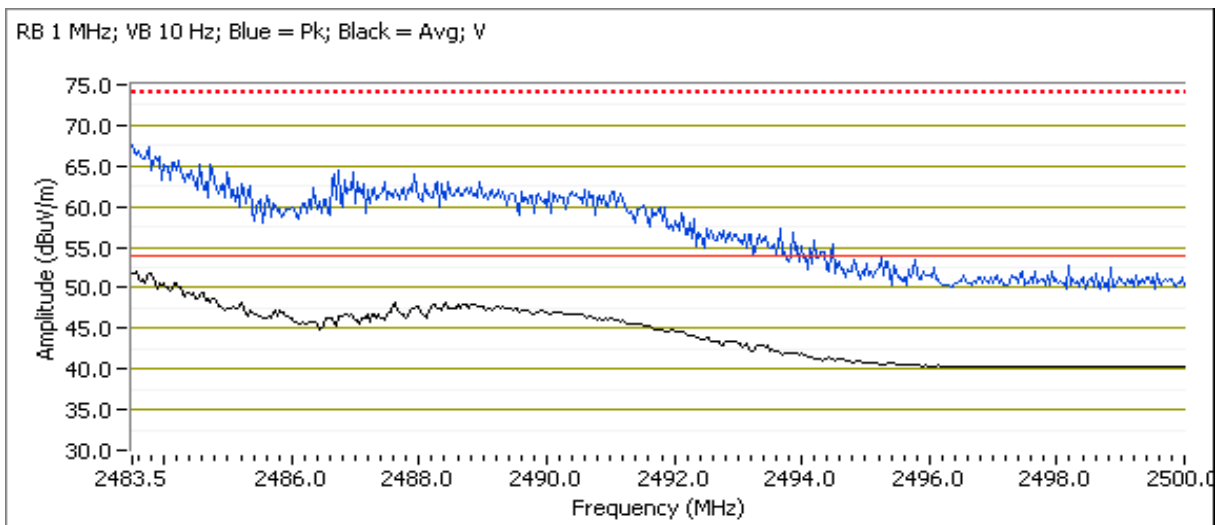


Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Channel: 10                      Mode: g  
 Tx Chain: 3Tx                      Data Rate: 6

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.500	52.6	V	54.0	-1.4	AVG	251	1.6	POS; RB 1 MHz; VB: 10 Hz
2483.730	69.3	V	74.0	-4.7	PK	251	1.6	POS; RB 1 MHz; VB: 3 MHz
2483.600	51.9	H	54.0	-2.1	AVG	210	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.670	65.8	H	74.0	-8.2	PK	210	1.0	POS; RB 1 MHz; VB: 3 MHz

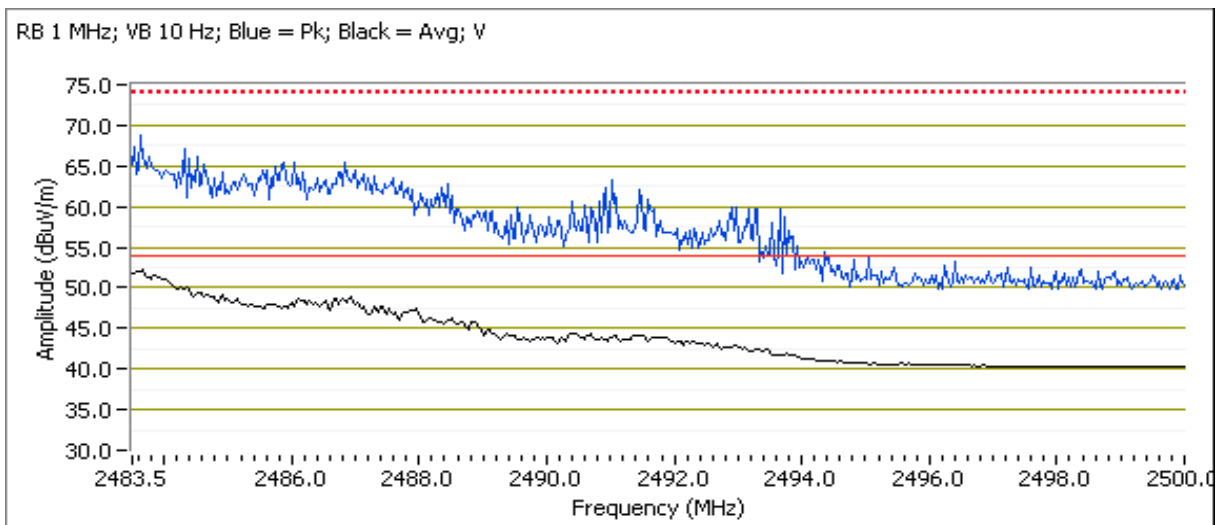


Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Channel: 9 Mode: g  
 Tx Chain: 3Tx Data Rate: 6

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.570	52.4	V	54.0	-1.6	AVG	288	2.0	POS; RB 1 MHz; VB: 10 Hz
2483.800	68.3	V	74.0	-5.7	PK	288	2.0	POS; RB 1 MHz; VB: 3 MHz
2484.290	52.1	H	54.0	-1.9	AVG	278	1.6	POS; RB 1 MHz; VB: 10 Hz
2483.500	66.7	H	74.0	-7.3	PK	278	1.6	POS; RB 1 MHz; VB: 3 MHz



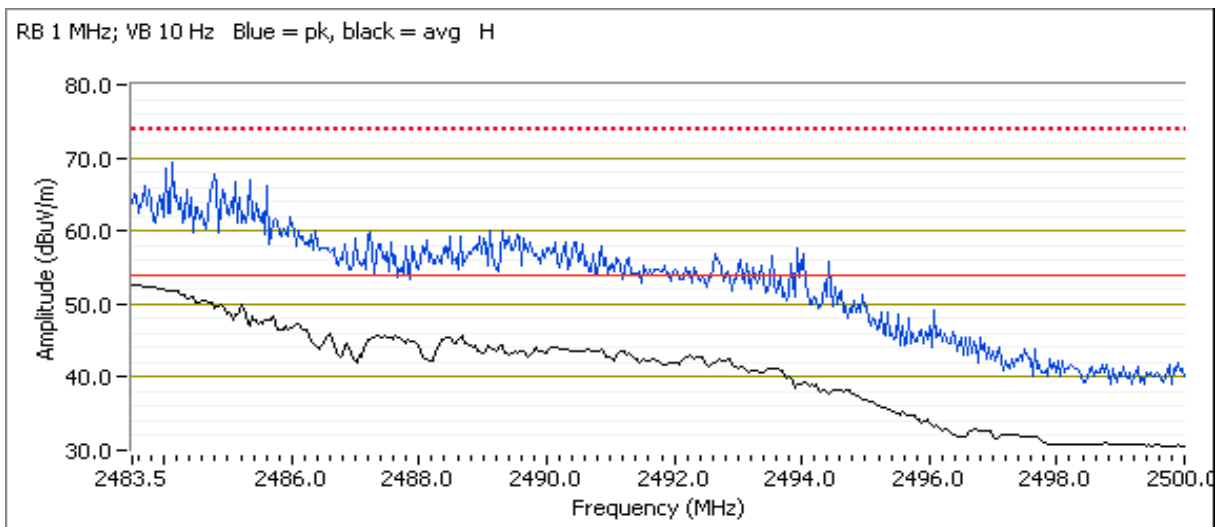


Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Channel: 8 Mode: g  
 Tx Chain: 3Tx Data Rate: 6

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2483.630	52.4	V	54.0	-1.6	AVG	274	1.51	POS; RB 1 MHz; VB: 10 Hz
2483.670	70.6	V	74.0	-3.4	PK	274	1.51	POS; RB 1 MHz; VB: 3 MHz
2483.570	53.0	H	54.0	-1.0	AVG	299	1.68	POS; RB 1 MHz; VB: 10 Hz
2483.670	68.5	H	74.0	-5.5	PK	299	1.68	POS; RB 1 MHz; VB: 3 MHz



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

## Run #3: Radiated Bandedge Measurements

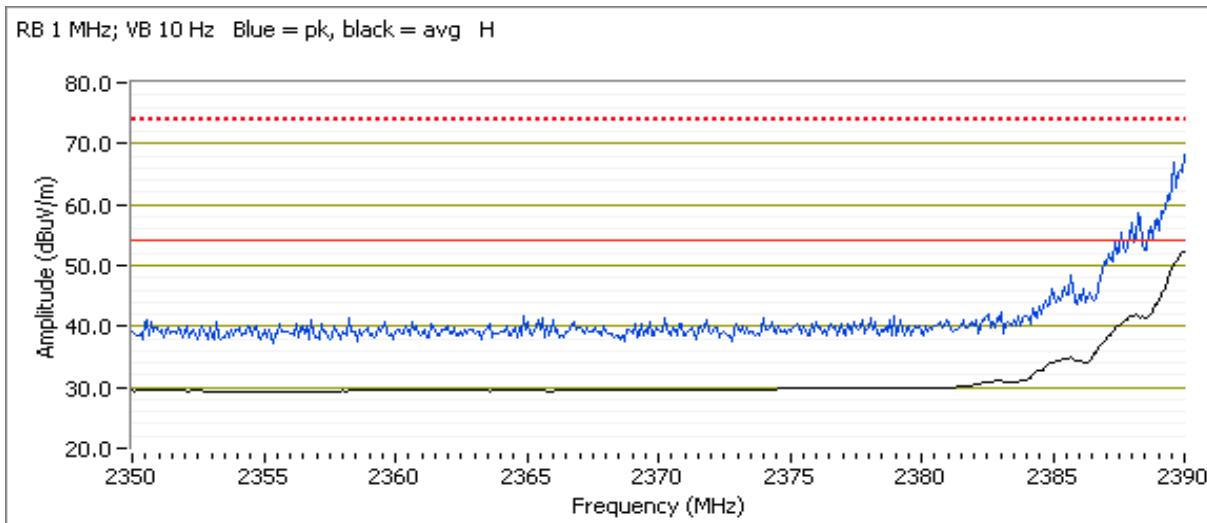
Date of Test: 11/23/2015 0:00  
 Test Engineer: John Caizzi  
 Test Location: Chamber 7

Config. Used: 1  
 Config Change: none  
 EUT Voltage: 120V / 60Hz

Channel: 1 Mode: n20  
 Tx Chain: 3Tx Data Rate: MCS0

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	52.6	V	54.0	-1.4	AVG	94	1.21	POS; RB 1 MHz; VB: 10 Hz
2390.000	66.1	V	74.0	-7.9	PK	94	1.21	POS; RB 1 MHz; VB: 3 MHz
2390.000	52.5	H	54.0	-1.5	AVG	318	1.75	POS; RB 1 MHz; VB: 10 Hz
2389.920	70.7	H	74.0	-3.3	PK	318	1.75	POS; RB 1 MHz; VB: 3 MHz

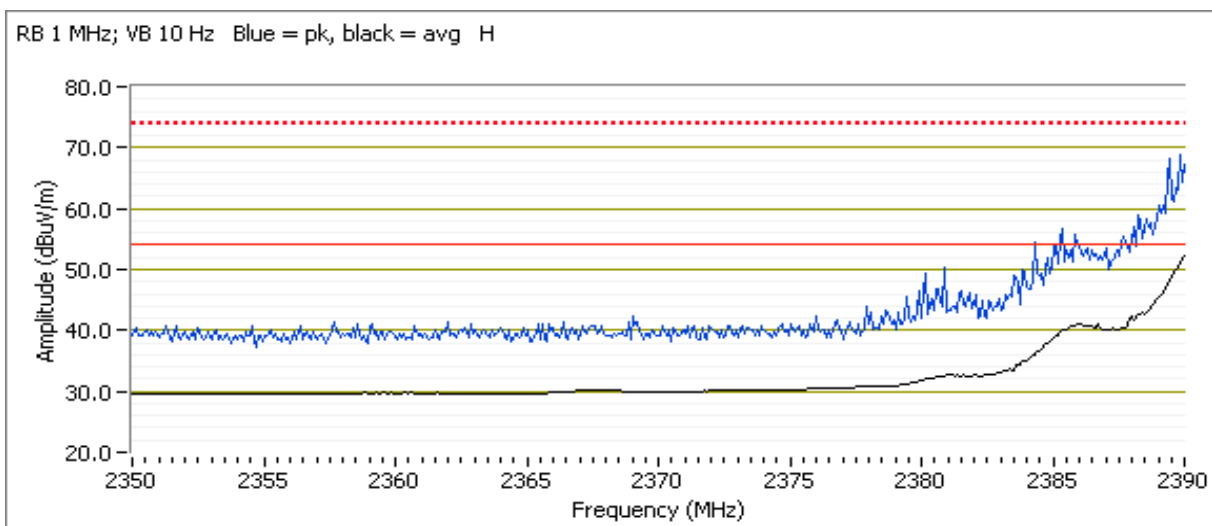


Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

Channel: 2                      Mode: n20  
 Tx Chain: 3Tx                Data Rate: MCS0

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	52.5	H	54.0	-1.5	AVG	103	1.54	POS; RB 1 MHz; VB: 10 Hz
2390.000	68.5	H	74.0	-5.5	PK	103	1.54	POS; RB 1 MHz; VB: 3 MHz
2390.000	46.8	V	54.0	-7.2	AVG	267	1.57	POS; RB 1 MHz; VB: 10 Hz
2389.920	62.8	V	74.0	-11.2	PK	267	1.57	POS; RB 1 MHz; VB: 3 MHz



**NTS**

WE ENGINEER SUCCESS

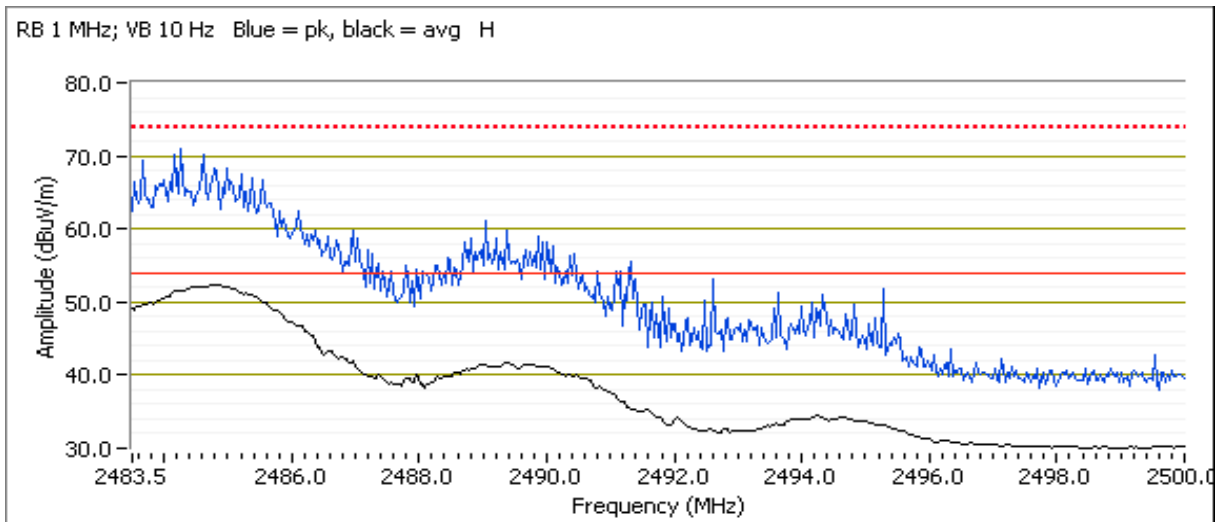
## EMC Test Data

Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Channel: 11                      Mode: n20  
Tx Chain: 3Tx                      Data Rate: MCS0

### Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2484.590	52.7	H	54.0	-1.3	AVG	101	1.25	POS; RB 1 MHz; VB: 10 Hz
2484.620	71.5	H	74.0	-2.5	PK	101	1.25	POS; RB 1 MHz; VB: 3 MHz
2484.990	50.7	V	54.0	-3.3	AVG	94	1.18	POS; RB 1 MHz; VB: 10 Hz
2484.860	67.9	V	74.0	-6.1	PK	94	1.18	POS; RB 1 MHz; VB: 3 MHz

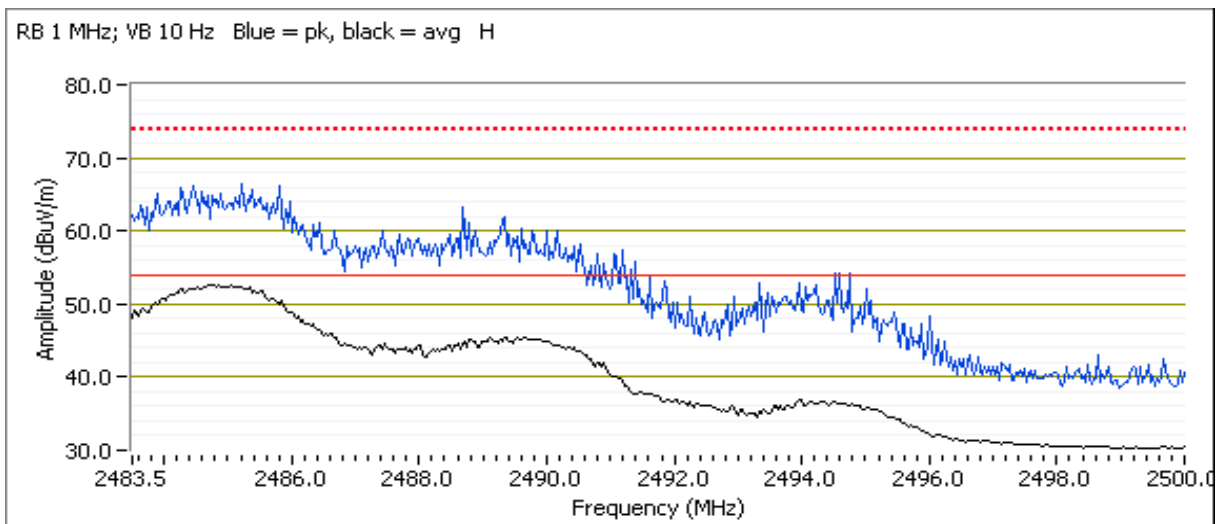


Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

Channel: 10                      Mode: n20  
 Tx Chain: 3Tx                      Data Rate: MCS0

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2484.790	53.0	H	54.0	-1.0	AVG	104	1.10	POS; RB 1 MHz; VB: 10 Hz
2484.560	67.3	H	74.0	-6.7	PK	104	1.10	POS; RB 1 MHz; VB: 3 MHz
2485.290	51.1	V	54.0	-2.9	AVG	93	1.16	POS; RB 1 MHz; VB: 10 Hz
2484.490	66.2	V	74.0	-7.8	PK	93	1.16	POS; RB 1 MHz; VB: 3 MHz

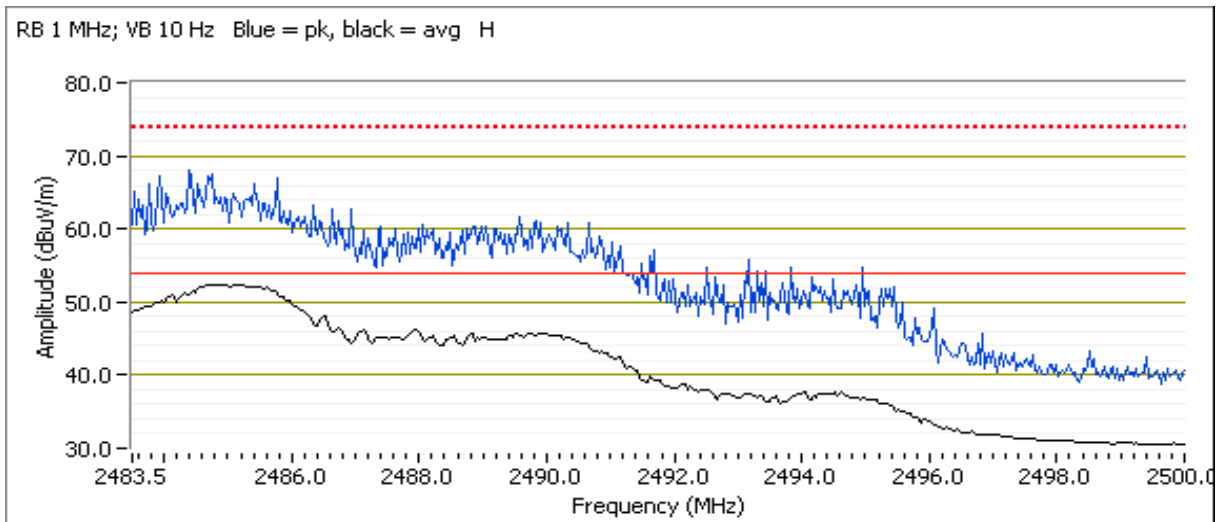


Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Channel: 9                      Mode: n20  
 Tx Chain: 3Tx                Data Rate: MCS0

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2485.050	52.8	H	54.0	-1.2	AVG	104	1.10	POS; RB 1 MHz; VB: 10 Hz
2485.150	70.0	H	74.0	-4.0	PK	104	1.10	POS; RB 1 MHz; VB: 3 MHz
2483.500	50.0	V	54.0	-4.0	AVG	271	1.58	POS; RB 1 MHz; VB: 10 Hz
2483.570	66.9	V	74.0	-7.1	PK	271	1.58	POS; RB 1 MHz; VB: 3 MHz

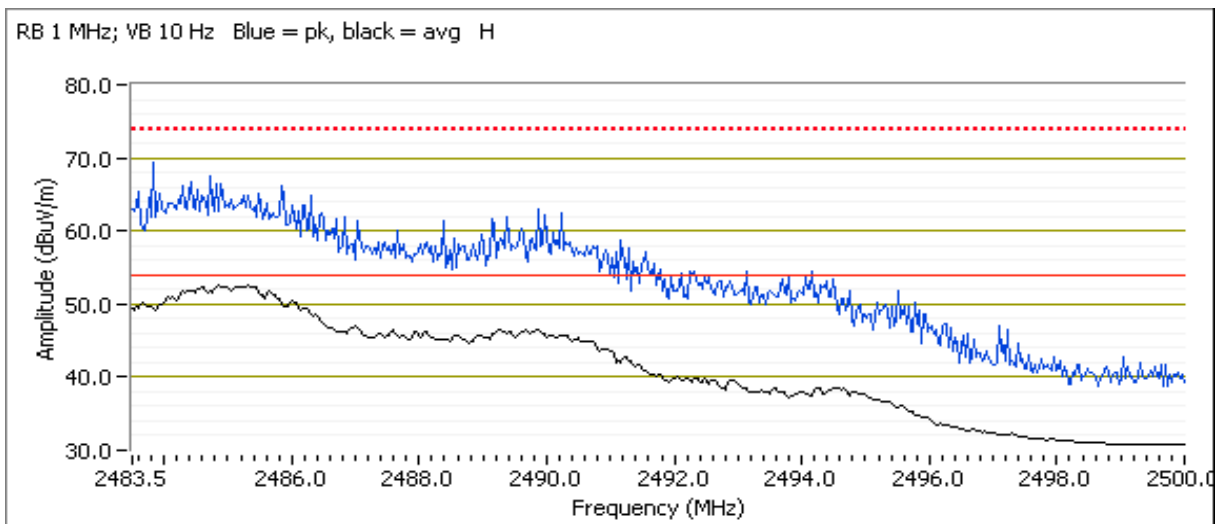


Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Channel: 8                      Mode: n20  
 Tx Chain: 3Tx                  Data Rate: MCS0

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2484.890	52.7	H	54.0	-1.3	AVG	104	1.08	POS; RB 1 MHz; VB: 10 Hz
2485.250	69.5	H	74.0	-4.5	PK	104	1.08	POS; RB 1 MHz; VB: 3 MHz
2483.630	50.8	V	54.0	-3.2	AVG	271	1.44	POS; RB 1 MHz; VB: 10 Hz
2484.330	70.8	V	74.0	-3.2	PK	271	1.44	POS; RB 1 MHz; VB: 3 MHz



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

## Run #4: Radiated Bandedge Measurements

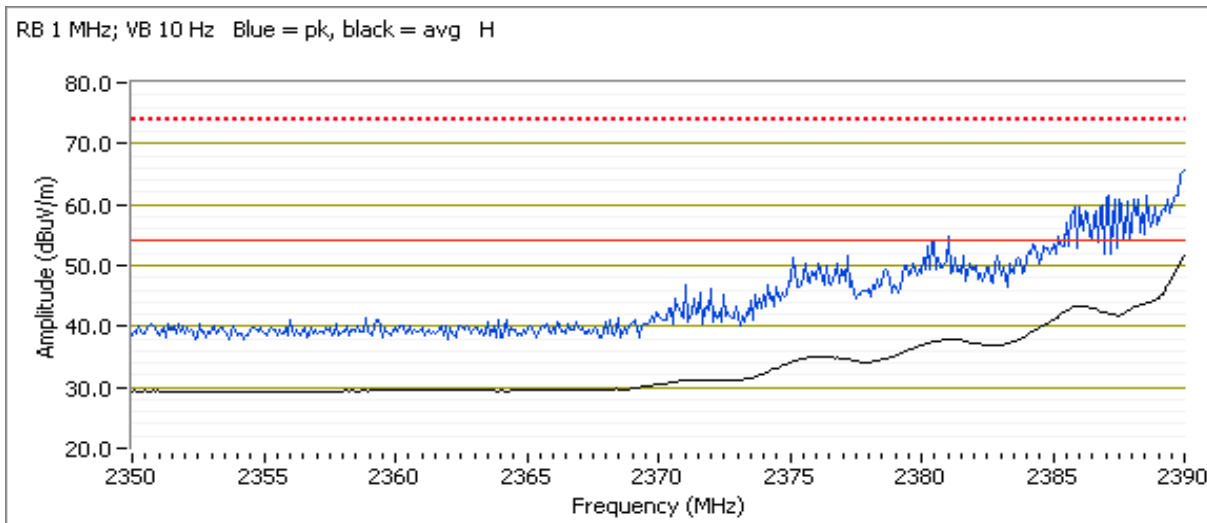
Date of Test: 11/23/2015 0:00  
 Test Engineer: John Caizzi  
 Test Location: Chamber 7

Config. Used: 1  
 Config Change: none  
 EUT Voltage: 120V / 60Hz

Channel: 3 Mode: n40  
 Tx Chain: 3Tx Data Rate: MCS0

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	52.9	H	54.0	-1.1	AVG	108	1.71	POS; RB 1 MHz; VB: 10 Hz
2390.000	67.4	H	74.0	-6.6	PK	108	1.71	POS; RB 1 MHz; VB: 3 MHz
2390.000	49.0	V	54.0	-5.0	AVG	160	1.12	POS; RB 1 MHz; VB: 10 Hz
2389.280	66.1	V	74.0	-7.9	PK	160	1.12	POS; RB 1 MHz; VB: 3 MHz



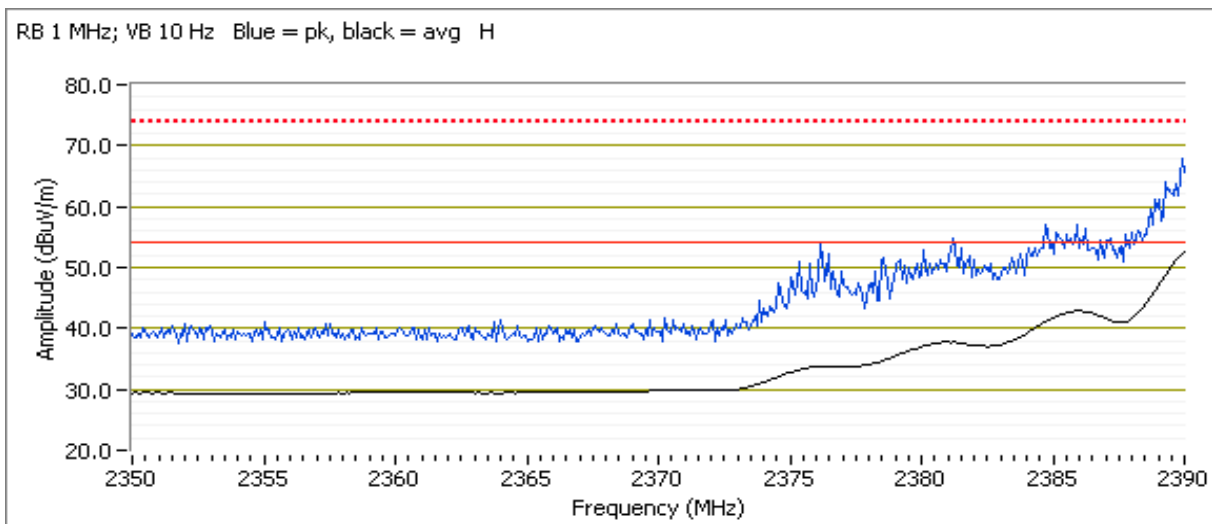


Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

Channel: 4                      Mode: n40  
 Tx Chain: 3Tx                Data Rate: MCS0

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	52.6	H	54.0	-1.4	AVG	100	1.13	POS; RB 1 MHz; VB: 10 Hz
2389.680	67.5	H	74.0	-6.5	PK	100	1.13	POS; RB 1 MHz; VB: 3 MHz
2390.000	47.9	V	54.0	-6.1	AVG	96	1.21	POS; RB 1 MHz; VB: 10 Hz
2390.000	64.3	V	74.0	-9.7	PK	96	1.21	POS; RB 1 MHz; VB: 3 MHz

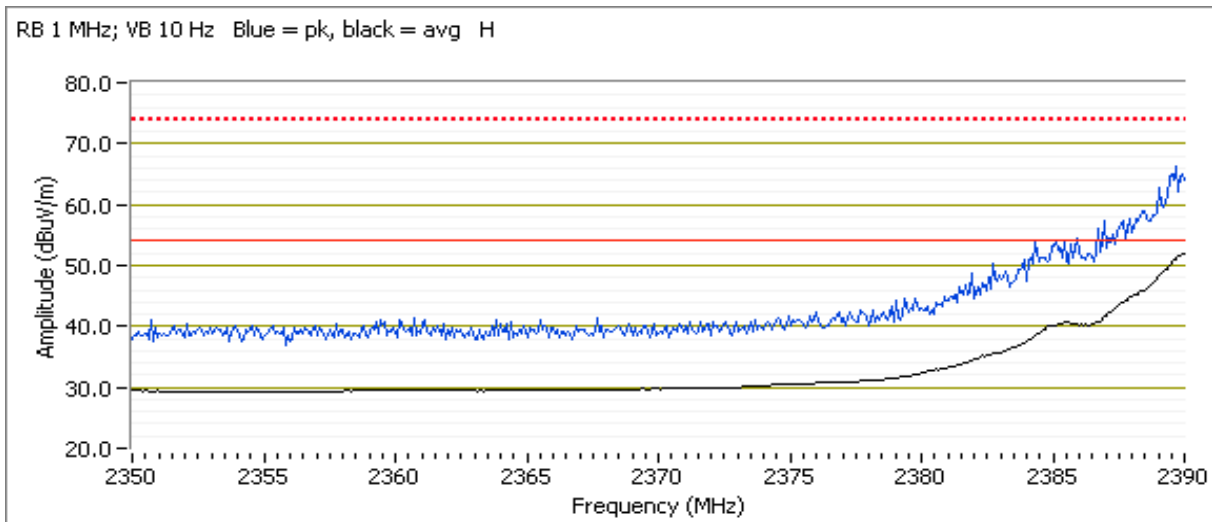


Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

Channel: 5                      Mode: n40  
 Tx Chain: 3Tx                Data Rate: MCS0

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2389.920	52.5	H	54.0	-1.5	AVG	83	1.91	POS; RB 1 MHz; VB: 10 Hz
2389.680	66.9	H	74.0	-7.1	PK	83	1.91	POS; RB 1 MHz; VB: 3 MHz



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

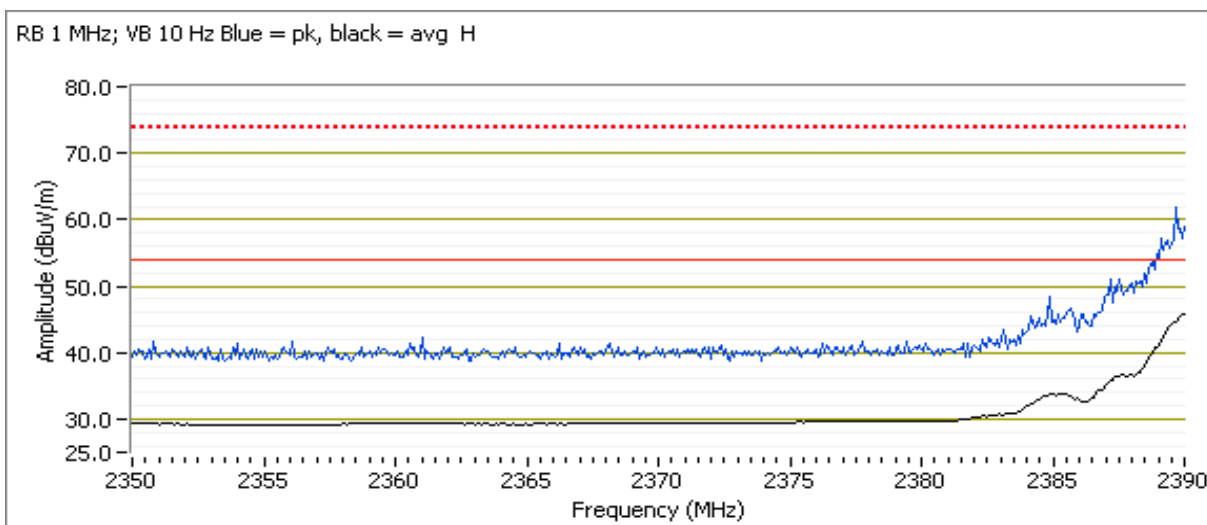
Date of Test: 11/23/2015 0:00  
 Test Engineer: Rafael Varelas  
 Test Location: Chamber 7

Config. Used: 1  
 Config Change: none  
 EUT Voltage: 120V / 60Hz

Channel: 6 Mode: n40  
 Tx Chain: 3Tx Data Rate: MCS0

## 2390 MHz - Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2390.000	45.7	H	54.0	-8.3	AVG	139	1.0	POS; RB 1 MHz; VB: 10 Hz
2389.600	60.3	H	74.0	-13.7	PK	139	1.0	POS; RB 1 MHz; VB: 3 MHz
2390.000	43.1	V	54.0	-10.9	AVG	93	1.2	POS; RB 1 MHz; VB: 10 Hz
2390.000	55.8	V	74.0	-18.2	PK	93	1.2	POS; RB 1 MHz; VB: 3 MHz

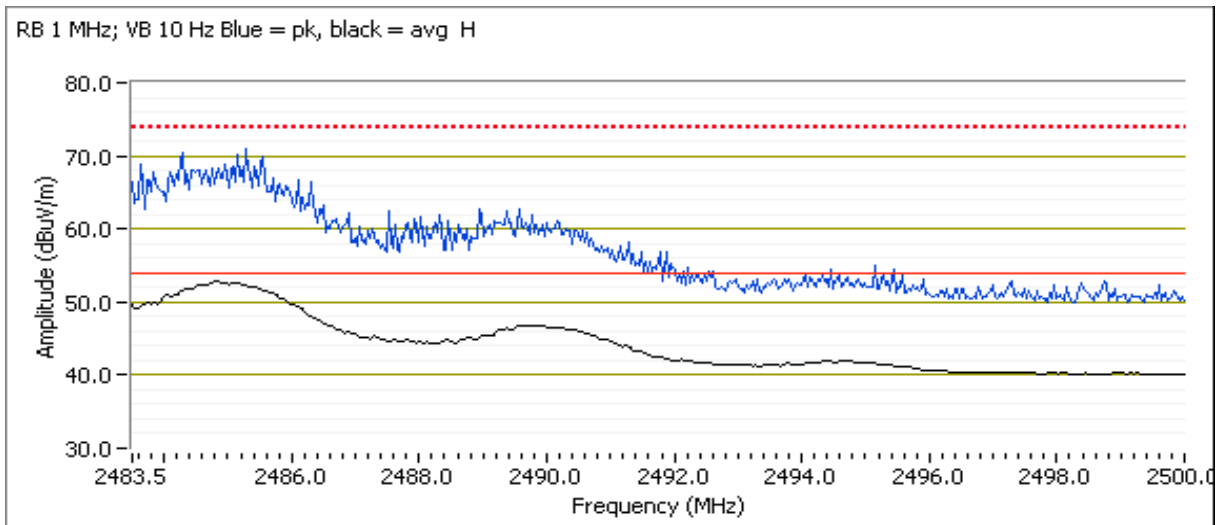


Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Channel: 6                      Mode: n40  
 Tx Chain: 3Tx                  Data Rate: MCS0

## 2483.5 MHz - Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2484.660	52.5	H	54.0	-1.5	AVG	104	1.1	POS; RB 1 MHz; VB: 10 Hz
2484.190	71.6	H	74.0	-2.4	PK	104	1.1	POS; RB 1 MHz; VB: 3 MHz
2483.600	50.9	V	54.0	-3.1	AVG	282	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.530	69.2	V	74.0	-4.8	PK	282	1.0	POS; RB 1 MHz; VB: 3 MHz

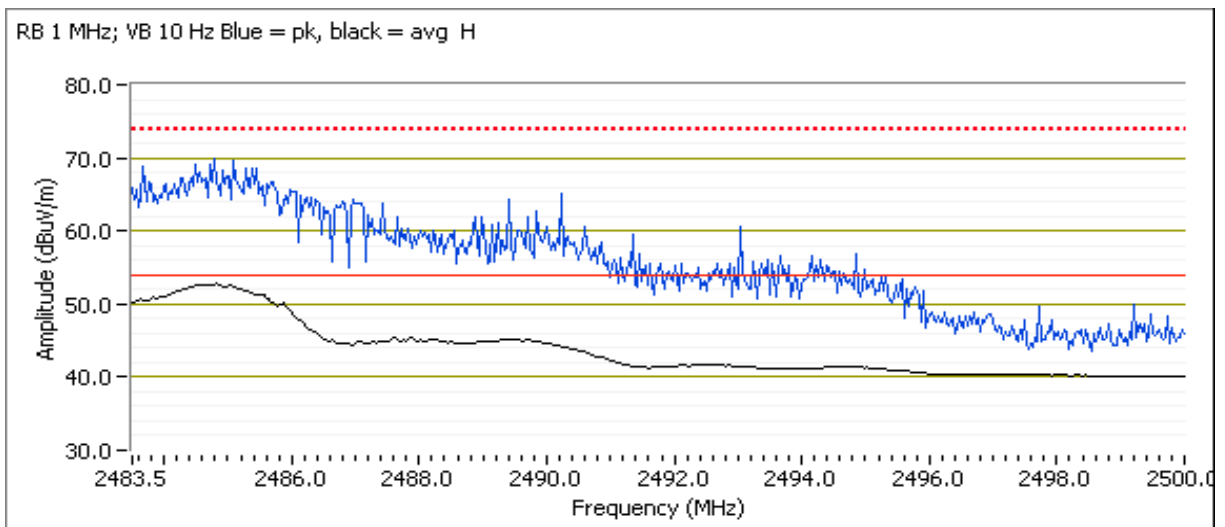


Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Channel: 9 Mode: n40  
 Tx Chain: 3Tx Data Rate: MCS0

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2484.990	52.8	H	54.0	-1.2	AVG	111	1.1	POS; RB 1 MHz; VB: 10 Hz
2485.850	70.2	H	74.0	-3.8	PK	111	1.1	POS; RB 1 MHz; VB: 3 MHz
2483.500	49.8	V	54.0	-4.2	AVG	280	1.6	POS; RB 1 MHz; VB: 10 Hz
2483.960	67.2	V	74.0	-6.8	PK	280	1.6	POS; RB 1 MHz; VB: 3 MHz

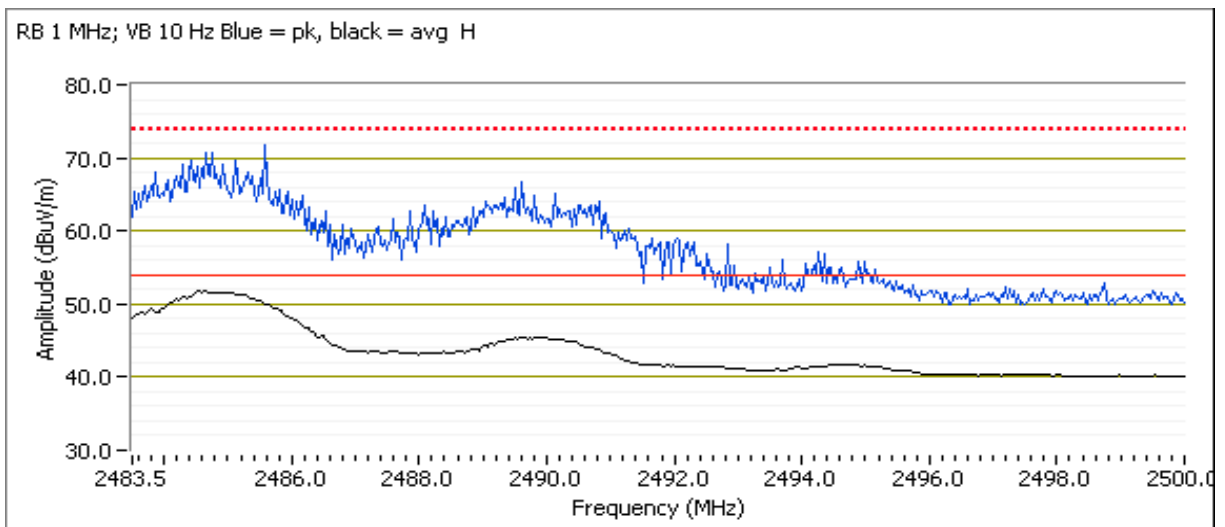


Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Channel: 8                      Mode: n40  
 Tx Chain: 3Tx                  Data Rate: MCS0

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2484.000	72.4	H	74.0	-1.6	PK	106	1.3	POS; RB 1 MHz; VB: 3 MHz
2484.860	51.2	H	54.0	-2.8	AVG	106	1.3	POS; RB 1 MHz; VB: 10 Hz
2483.500	49.6	V	54.0	-4.4	AVG	282	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.600	69.7	V	74.0	-4.3	PK	282	1.0	POS; RB 1 MHz; VB: 3 MHz

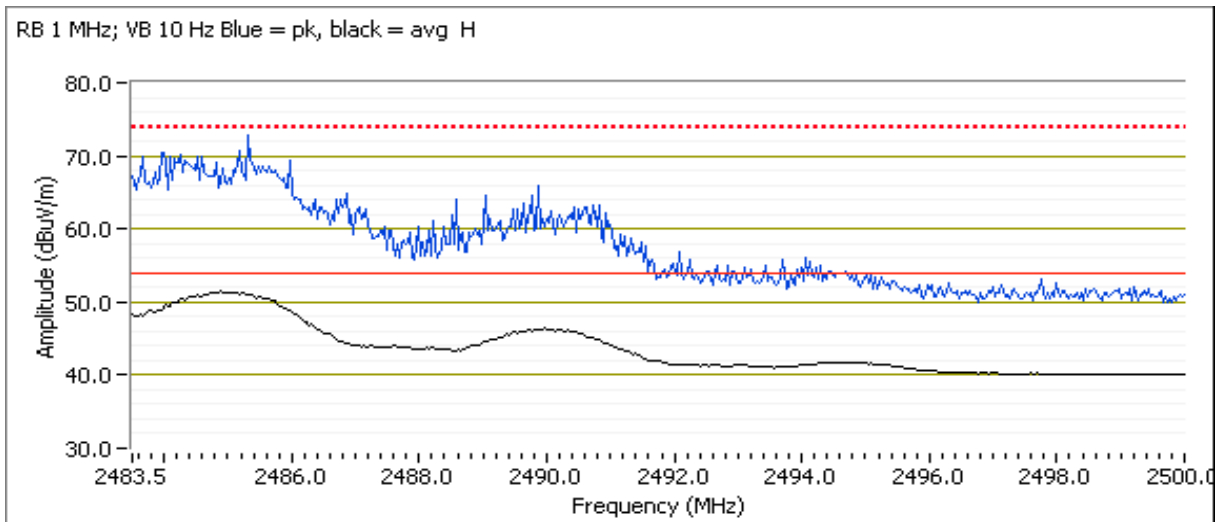


Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

Channel: 7                      Mode: n40  
 Tx Chain: 3Tx                Data Rate: MCS0

## Band Edge Signal Field Strength - Direct measurement of field strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2485.950	72.9	H	74.0	-1.1	PK	106	1.3	POS; RB 1 MHz; VB: 3 MHz
2485.320	51.2	H	54.0	-2.8	AVG	106	1.3	POS; RB 1 MHz; VB: 10 Hz
2483.670	49.5	V	54.0	-4.5	AVG	282	1.0	POS; RB 1 MHz; VB: 10 Hz
2483.500	71.1	V	74.0	-2.9	PK	282	1.0	POS; RB 1 MHz; VB: 3 MHz



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## RSS-247 and FCC 15.247 (DTS) Radiated Spurious Emissions

### Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

### General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT, unless otherwise noted.

### Ambient Conditions:

Temperature: 21.8 °C  
 Rel. Humidity: 35 %

### Summary of Results - Device Operating in the 2400-2483.5 MHz Band

Run #	Mode	Channel	Target Power	Passing Power Setting	Test Performed	Limit	Result / Margin
1	b	1 - 2412MHz	-	q92	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(d)	42.9 dBµV/m @ 4818.9 MHz (-11.1 dB)
	b	6 - 2437MHz	-	q92	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(d)	38.6 dBµV/m @ 4868.6 MHz (-15.4 dB)
	b	11 - 2462MHz	-	q92	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(d)	42.6 dBµV/m @ 7378.4 MHz (-11.4 dB)
Scans on center channel in all three OFDM modes to determine the worst case mode.							
2	g	6 - 2437MHz	-	q92	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(d)	35.3 dBµV/m @ 4868.2 MHz (-18.7 dB)
	n20	6 - 2437MHz	-	q92	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(d)	35.3 dBµV/m @ 4875.3 MHz (-18.7 dB)
	n40	6 - 2437MHz	-	q92	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(d)	34.5 dBµV/m @ 4875.4 MHz (-19.5 dB)
Measurements on low and high channels in worst-case OFDM mode.							
3	g	1 - 2412MHz	-	q92	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(d)	40.5 dBµV/m @ 4820.2 MHz (-13.5 dB)
	g	11 - 2462MHz	-	q92	Radiated Emissions, 1 - 25 GHz	FCC Part 15.209 / 15.247(d)	40.1 dBµV/m @ 7385.8 MHz (-13.9 dB)



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Modifications Made During Testing

No modifications were made to the EUT during testing

## Deviations From The Standard

No deviations were made from the requirements of the standard.

## Sample Notes

Sample S/N: prototype

Driver: -

Antenna: Internal

Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Procedure Comments:

Measurements performed in accordance with FCC KDB 558074

Peak measurements performed with: RBW=1MHz, VBW=3MHz, peak detector, max hold, auto sweep time

Unless otherwise stated/noted, emission has duty cycle  $\geq 98\%$  and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold.

2.4GHz band reject filter used

Tabular measurements represent the worse case measurement for both measurement antenna polarities

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11b	5.5	99.4%	Yes	2.32	0	0	10
11g	6	99.0%	Yes	2.06	0	0	10
n20	MCS0	99.0%	Yes	1.92	0	0	10
n40	MCS0	98.0%	Yes	0.94	0	0	10

## Measurement Specific Notes:

Note 1:	Emission in non-restricted band, but limit of 15.209 used.
Note 2:	Emission in non-restricted band, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 3:	Emission has a duty cycle $\geq 98\%$ , average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces
Note 4:	Emission has constant duty cycle $< 98\%$ , average measurement performed: RBW=1MHz, VBW $> 1/T$ but not less than 10Hz, peak detector, linear averaging, auto sweep, trace average 100 traces, measurement corrected by Linear voltage correction factor
Note 5:	Emission has constant duty cycle $< 98\%$ , average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces, measurement corrected by Pwr correction factor
Note 6:	Emission has non constant duty cycle $< 98\%$ , average measurement performed: RBW=1MHz, VBW $> 1/T$ , peak detector, linear average mode, sweep time auto, max hold. Max hold for $50 \cdot (1/DC)$ traces
Note 7:	Emission has non constant duty cycle $< 98\%$ , average measurement performed: RBW=1MHz, VBW $> 1/T$ , RMS detector, sweep time auto, max hold. Max hold for $50 \cdot (1/DC)$ traces

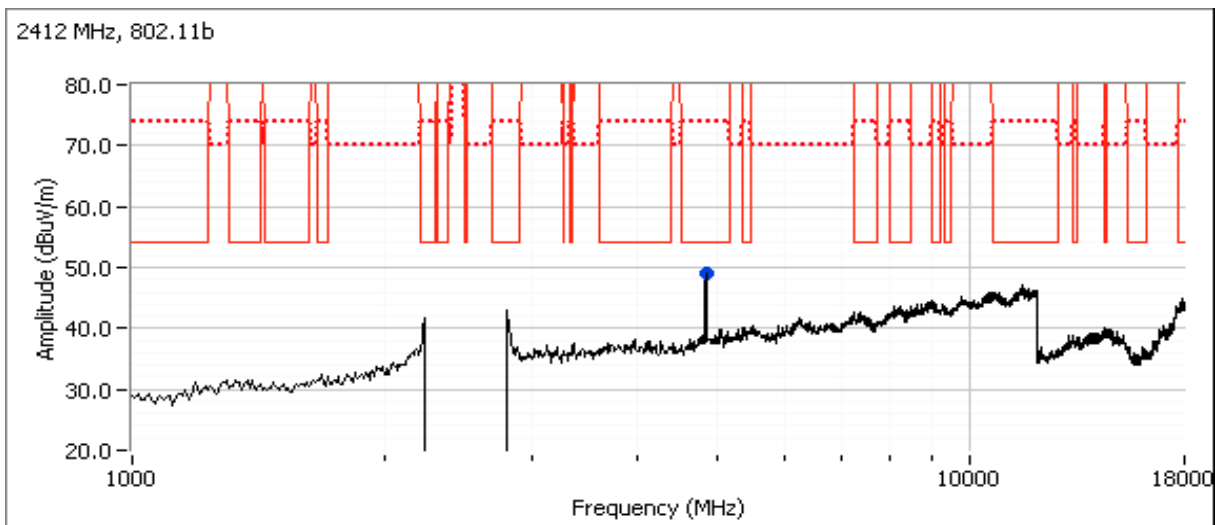
Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

Run #1: Radiated Spurious Emissions, 1,000 - 25000 MHz. Operating Mode: 802.11b  
 Date of Test: 11/25/2015 0:00 Config. Used: 1  
 Test Engineer: Rafael Varelas Config Change: None  
 Test Location: FT Chamber #7 EUT Voltage: 120V/60Hz

## Run #1a: Low Channel

Channel: 1 Mode: b  
 Tx Chain: 3Tx Data Rate: 5.5

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4818.850	42.9	V	54.0	-11.1	AVG	101	1.6	RB 1 MHz;VB 10 Hz;Peak
4823.870	50.3	V	74.0	-23.7	PK	101	1.6	RB 1 MHz;VB 3 MHz;Peak



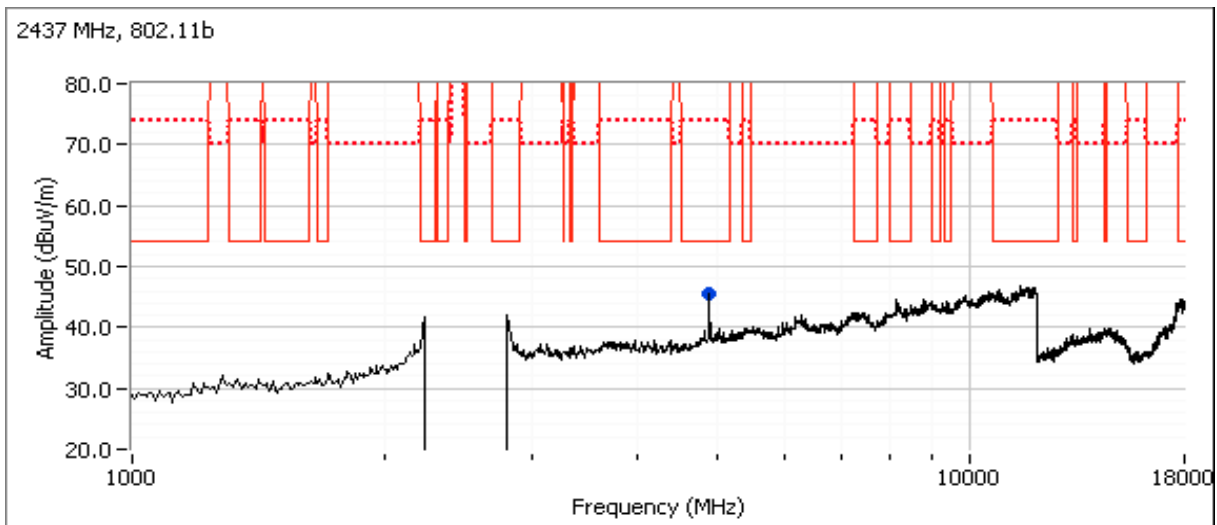
Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Run #1b: Center Channel

Channel: 6                      Mode: b  
 Tx Chain: 3Tx                Data Rate: 5.5

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4868.600	38.6	V	54.0	-15.4	AVG	106	1.7	RB 1 MHz;VB 10 Hz;Peak
4874.110	49.1	V	74.0	-24.9	PK	106	1.7	RB 1 MHz;VB 3 MHz;Peak

Note: Scans made between 18 - 25 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range

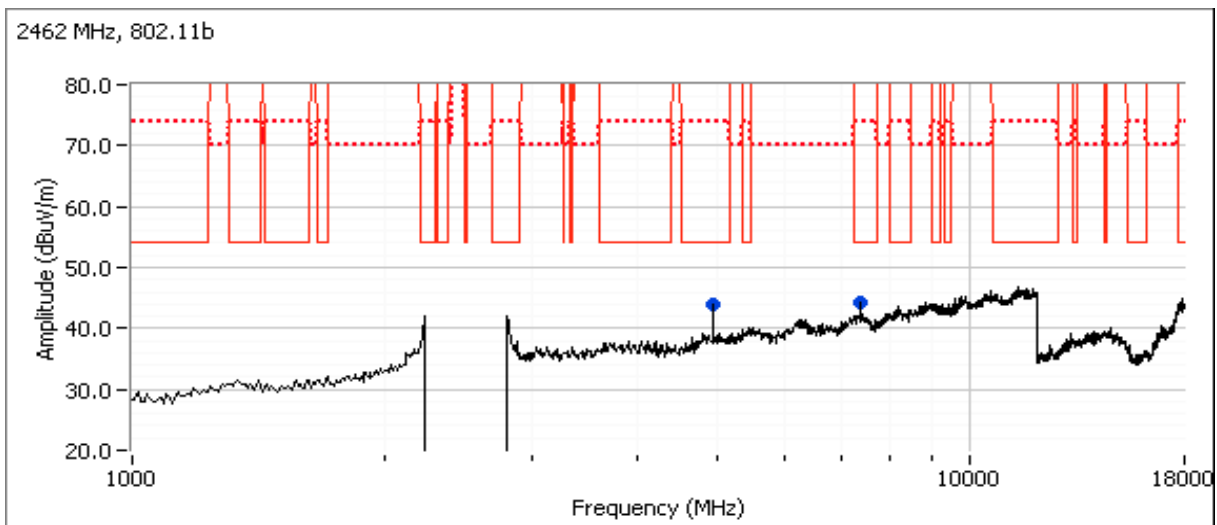


Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

## Run #1c: High Channel

Channel: 11                      Mode: b  
 Tx Chain: 3Tx                  Data Rate: 5.5

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7378.390	42.6	V	54.0	-11.4	AVG	105	1.0	RB 1 MHz;VB 10 Hz;Peak
7377.690	52.3	V	74.0	-21.7	PK	105	1.0	RB 1 MHz;VB 3 MHz;Peak
4929.340	37.6	H	54.0	-16.4	AVG	129	1.0	RB 1 MHz;VB 10 Hz;Peak
4923.840	46.8	H	74.0	-27.2	PK	129	1.0	RB 1 MHz;VB 3 MHz;Peak



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

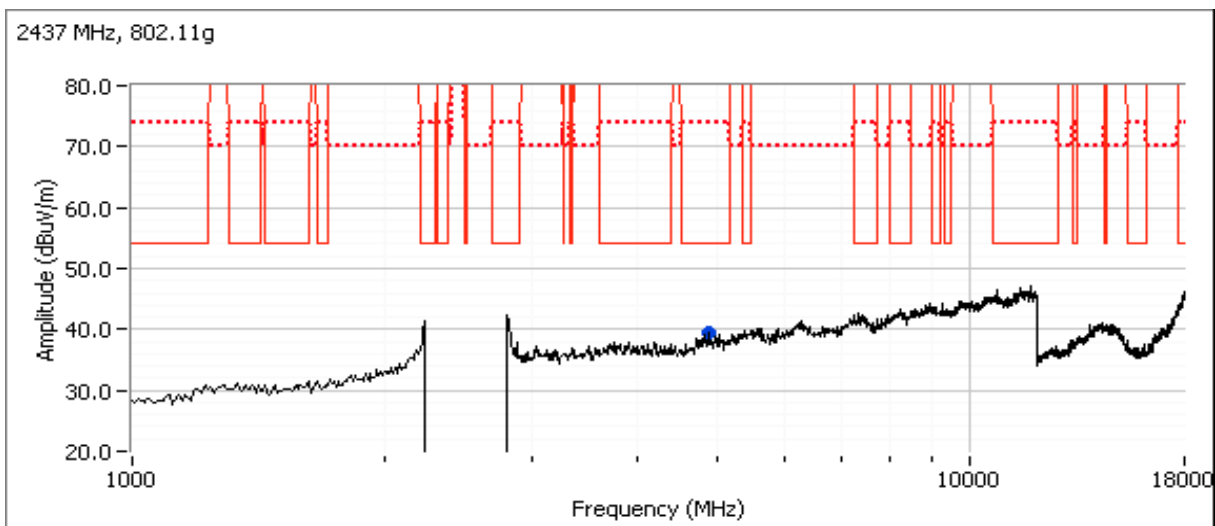
Run #2: Radiated Spurious Emissions, 1,000 - 25000 MHz. Operating Mode: OFDM  
 Date of Test: 11/25/2015 0:00 Config. Used: 1  
 Test Engineer: Rafael Varelas Config Change: None  
 Test Location: FT Chamber #7 EUT Voltage: 120V/60Hz

## Run #2a: Center Channel

Channel: 6 Mode: g  
 Tx Chain: 3Tx Data Rate: 6

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4868.190	35.3	H	54.0	-18.7	AVG	50	1.8	RB 1 MHz;VB 10 Hz;Peak
4868.760	46.0	H	74.0	-28.0	PK	50	1.8	RB 1 MHz;VB 3 MHz;Peak

Note: Scans made between 18 - 25 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



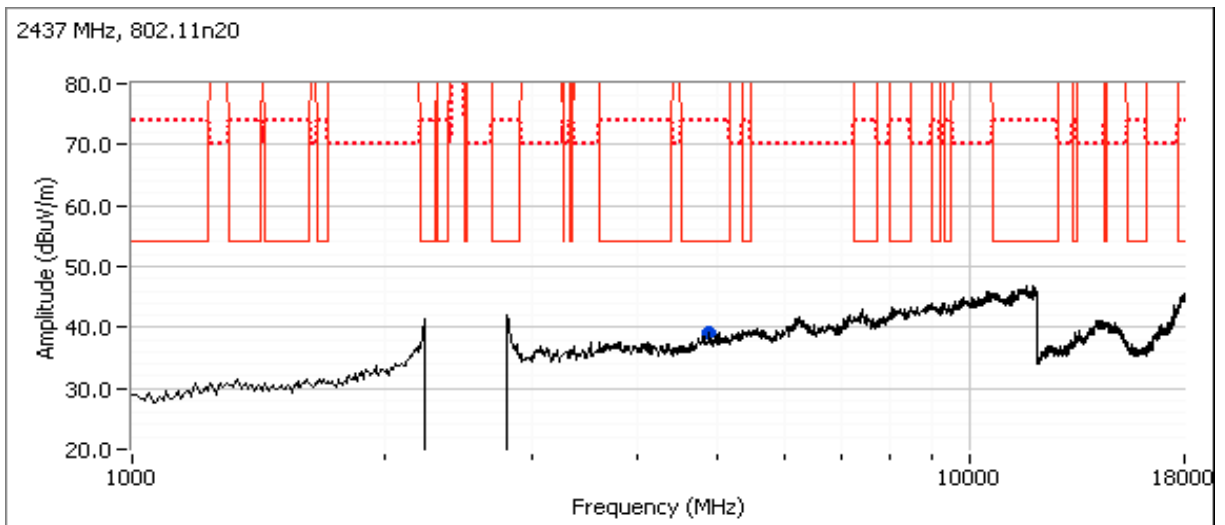
Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Run #2b: Center Channel

Channel: 6                      Mode: n20  
 Tx Chain: 3Tx                Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4875.260	35.3	V	54.0	-18.7	AVG	64	1.5	RB 1 MHz;VB 10 Hz;Peak
4875.100	47.1	V	74.0	-26.9	PK	64	1.5	RB 1 MHz;VB 3 MHz;Peak

Note: Scans made between 18 - 25 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range



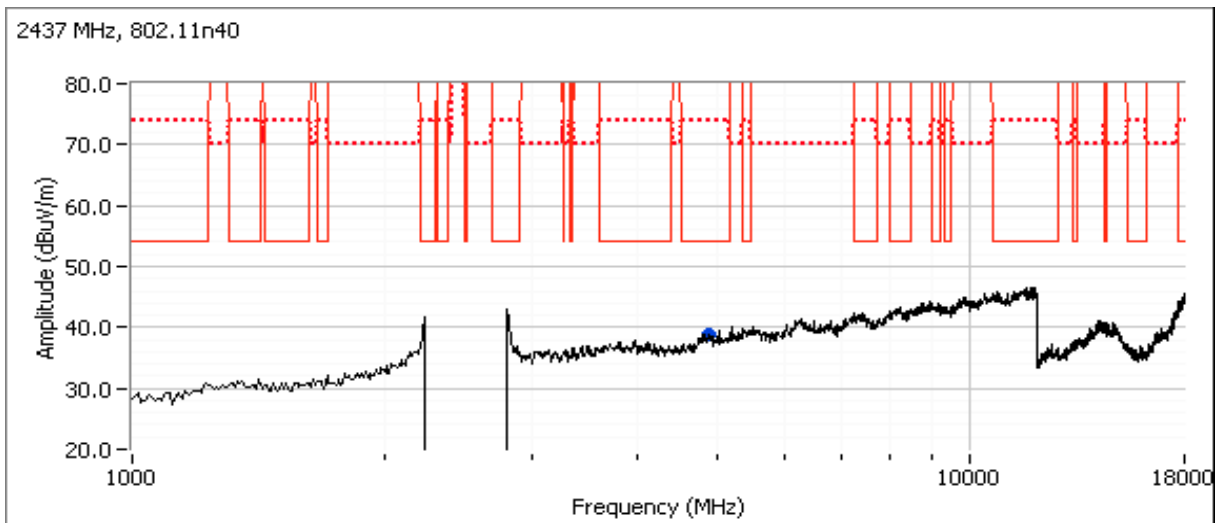
Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Run #2c: Center Channel

Channel: 6 Mode: n40  
 Tx Chain: 3Tx Data Rate: MCS0

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4875.370	34.5	V	54.0	-19.5	AVG	54	1.6	RB 1 MHz;VB 10 Hz;Peak
4879.100	46.2	V	74.0	-27.8	PK	54	1.6	RB 1 MHz;VB 3 MHz;Peak

Note: Scans made between 18 - 25 GHz with the measurement antenna moved around the card and its antennas 20-50cm from the device indicated there were no significant emissions in this frequency range





Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

Run #3: Radiated Spurious Emissions, 1,000 - 25000 MHz. Operating Mode: Worse case from Run #2

Date of Test: 12/3/2015 0:00

Config. Used: 1

Test Engineer: Rafael Varelas

Config Change: None

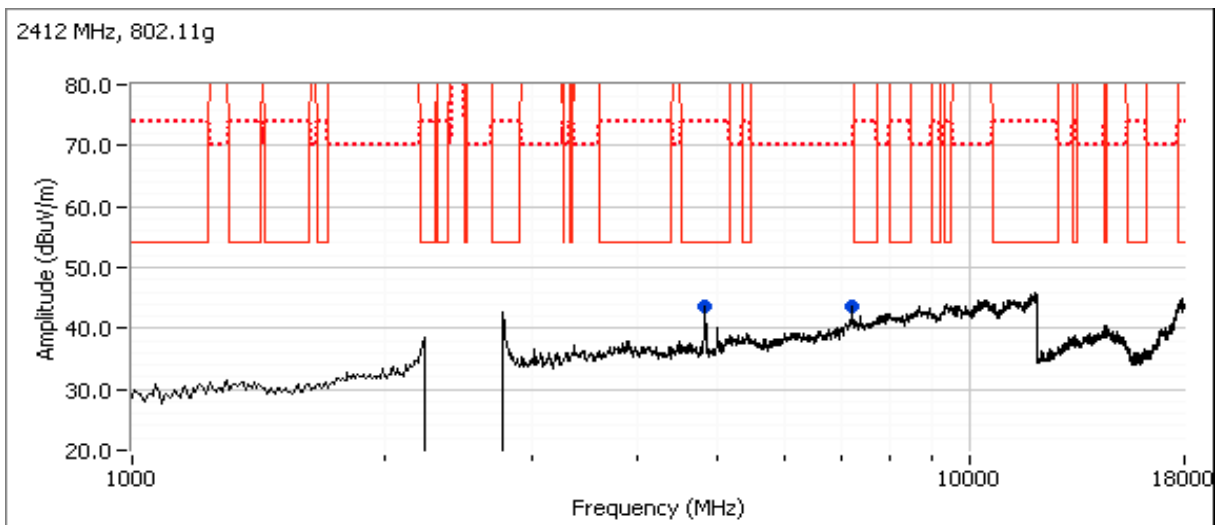
Test Location: FT Chamber #7

EUT Voltage: 120V/60Hz

Run #3a: Low Channel

Channel: 1 Mode: g  
 Tx Chain: 3Tx Data Rate: 6

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
4820.210	40.5	H	54.0	-13.5	AVG	73	1.1	RB 1 MHz;VB 10 Hz;Peak
4820.390	51.8	H	74.0	-22.2	PK	73	1.1	RB 1 MHz;VB 3 MHz;Peak
7242.750	40.3	V	54.0	-13.7	AVG	291	1.0	RB 1 MHz;VB 10 Hz;Peak
7243.410	51.5	V	74.0	-22.5	PK	291	1.0	RB 1 MHz;VB 3 MHz;Peak

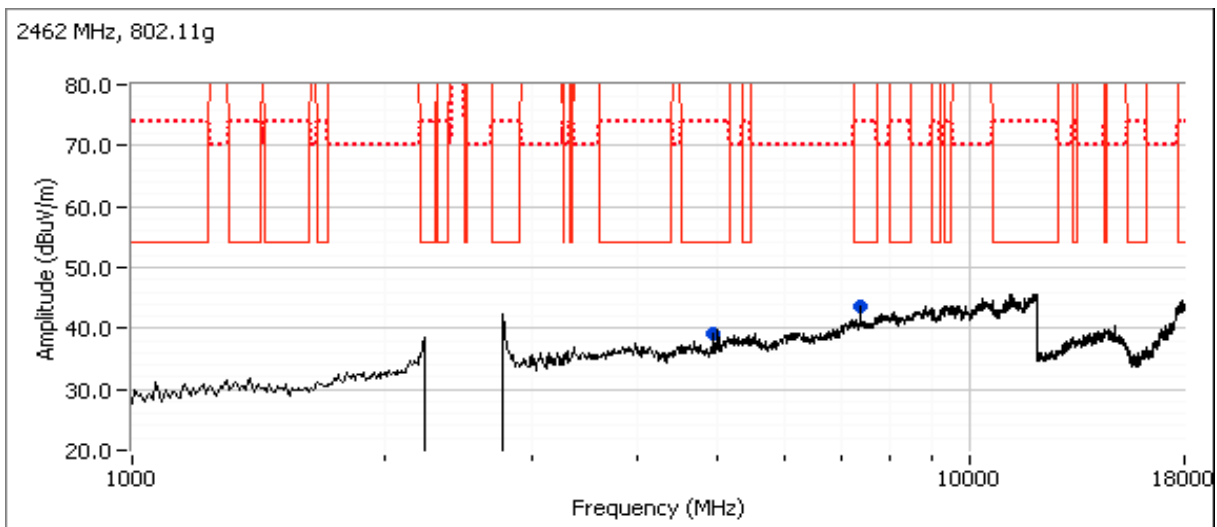


Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

## Run #3b: High Channel

Channel: 11                      Mode: g  
 Tx Chain: 3Tx                  Data Rate: 6

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
7385.800	40.1	V	54.0	-13.9	AVG	122	1.1	RB 1 MHz;VB 10 Hz;Peak
7383.550	51.2	V	74.0	-22.8	PK	122	1.1	RB 1 MHz;VB 3 MHz;Peak
4922.990	35.4	V	54.0	-18.6	AVG	54	1.9	RB 1 MHz;VB 10 Hz;Peak
4922.990	46.8	V	74.0	-27.2	PK	54	1.9	RB 1 MHz;VB 3 MHz;Peak



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## RSS-247 and FCC 15.247 (DTS) Radiated Spurious Emissions

### Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

### General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT, unless otherwise noted.

### Ambient Conditions:

Temperature: 22.4 °C  
Rel. Humidity: 37 %

### Summary of Results - Device Operating in the 2400-2483.5 MHz Band

Run #	Mode	Channel	Target Power	Passing Power Setting	Test Performed	Limit	Result / Margin
1	b	6 - 2437MHz	23	q92	Radiated Emissions, 30 - 1000 MHz	FCC Part 15.209 / 15.247( c)	31.0 dBµV/m @ 46.56 MHz (-9.0 dB)
2	a	157 - 5785MHz	23	q92	Radiated Emissions, 30 - 1000 MHz	FCC Part 15.209 / 15.247( c)	29.9 dBµV/m @ 40.05 MHz (-10.1 dB)

### Modifications Made During Testing

No modifications were made to the EUT during testing

### Deviations From The Standard

No deviations were made from the requirements of the standard.

### Sample Notes

Sample S/N: prototype

Driver: -

Antenna: Internal

Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A

## Procedure Comments:

Measurements performed in accordance with FCC KDB 558074

Peak measurements performed with: RBW=1MHz, VBW=3MHz, peak detector, max hold, auto sweep time

Unless otherwise stated/noted, emission has duty cycle  $\geq 98\%$  and was measured using RBW=1MHz, VBW=10Hz, peak detector, linear average mode, auto sweep time, max hold.

2.4GHz band reject filter used

Mode	Data Rate	Duty Cycle (x)	Constant DC?	T (ms)	Pwr Cor Factor*	Lin Volt Cor Factor**	Min VBW for FS (Hz)
11b	5.5	99.4%	Yes	2.32	0	0	10
11a	6	99.0%	Yes	2.06	0	0	10

## Measurement Specific Notes:

Note 1:	Emission in non-restricted band, but limit of 15.209 used.
Note 2:	Emission in non-restricted band, the limit was set 30dB below the level of the fundamental and measured in 100kHz.
Note 3:	Emission has a duty cycle $\geq 98\%$ , average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces
Note 4:	Emission has constant duty cycle $< 98\%$ , average measurement performed: RBW=1MHz, VBW $> 1/T$ but not less than 10Hz, peak detector, linear averaging, auto sweep, trace average 100 traces, measurement corrected by Linear voltage correction factor
Note 5:	Emission has constant duty cycle $< 98\%$ , average measurement performed: RBW=1MHz, VBW=3MHz, RMS, Power averaging, auto sweep, trace average 100 traces, measurement corrected by Pwr correction factor
Note 6:	Emission has non constant duty cycle $< 98\%$ , average measurement performed: RBW=1MHz, VBW $> 1/T$ , peak detector, linear average mode, sweep time auto, max hold. Max hold for $50 \cdot (1/DC)$ traces
Note 7:	Emission has non constant duty cycle $< 98\%$ , average measurement performed: RBW=1MHz, VBW $> 1/T$ , RMS detector, sweep time auto, max hold. Max hold for $50 \cdot (1/DC)$ traces

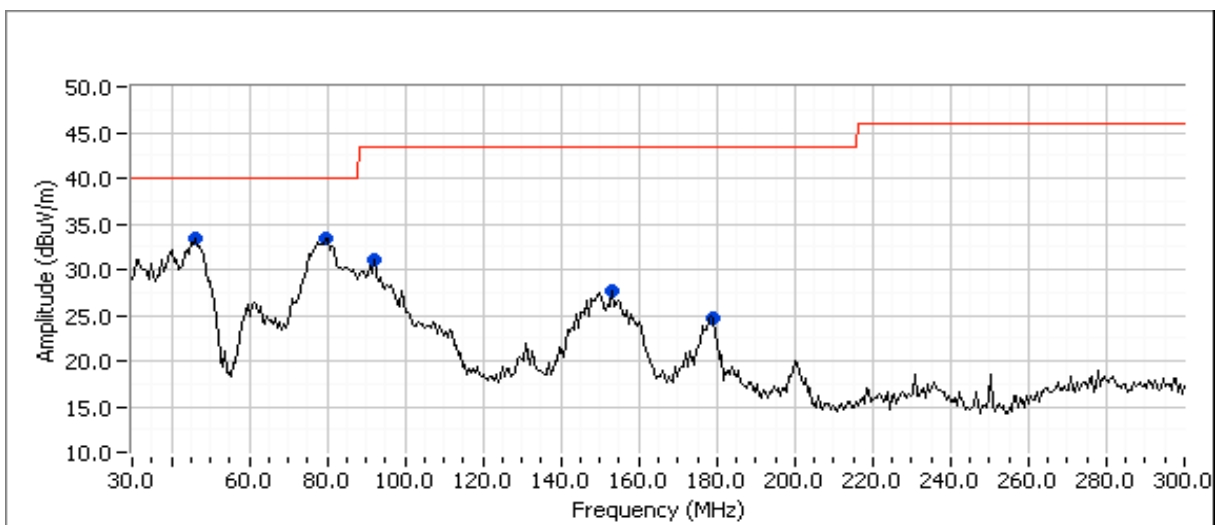
Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

**Run #1: Radiated Spurious Emissions, 30 - 1000 MHz. Operating Mode: 802.11b**  
 Date of Test: 12/09/15 Test Location: FT Chamber #5  
 Test Engineer: Rafael Varelas EUT Voltage: 120V/60Hz

**Run #1b: Center Channel**

Channel: 6 Mode: b  
 Tx Chain: 3Tx Data Rate: 5.5

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dB $\mu$ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
46.560	31.0	V	40.0	-9.0	QP	0	1.0	QP (1.00s)
78.303	30.2	V	40.0	-9.8	QP	189	1.1	QP (1.00s)
91.123	29.1	V	43.5	-14.4	QP	308	1.0	QP (1.00s)
437.500	29.5	V	46.0	-16.5	QP	360	1.0	QP (1.00s)
153.201	24.3	V	43.5	-19.2	QP	179	1.0	QP (1.00s)
178.827	21.0	V	43.5	-22.5	QP	224	1.0	QP (1.00s)

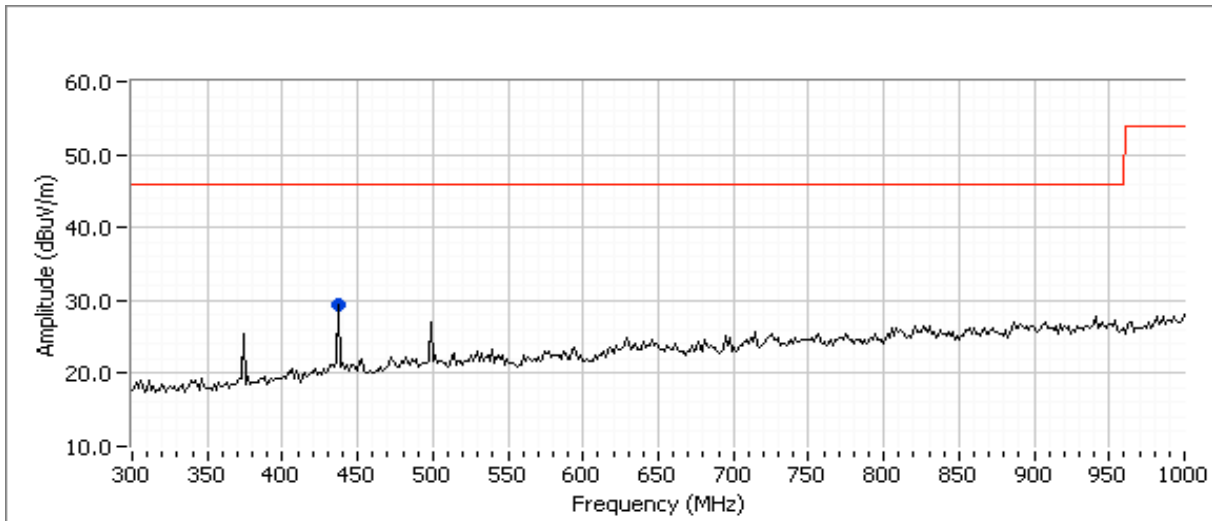


**NTS**

WE ENGINEER SUCCESS

## EMC Test Data

Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	N/A



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A

Run #2: Radiated Spurious Emissions, 30-1000MHz. Operating Mode: 802.11a

Date of Test: 12/09/15

Test Location: FT Chamber #5

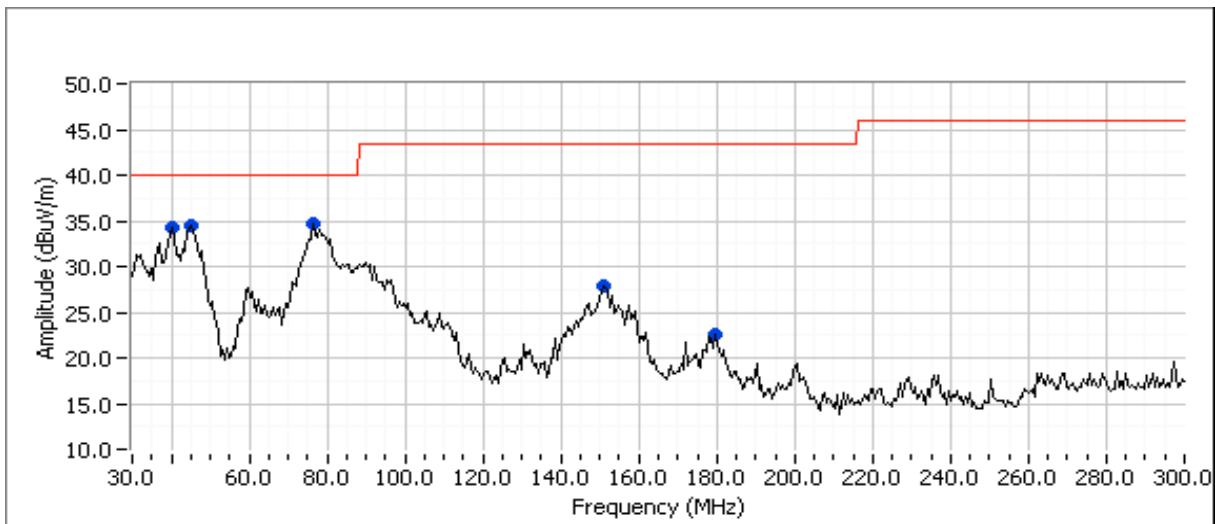
Test Engineer: Rafael Varelas

EUT Voltage: 120V/60Hz

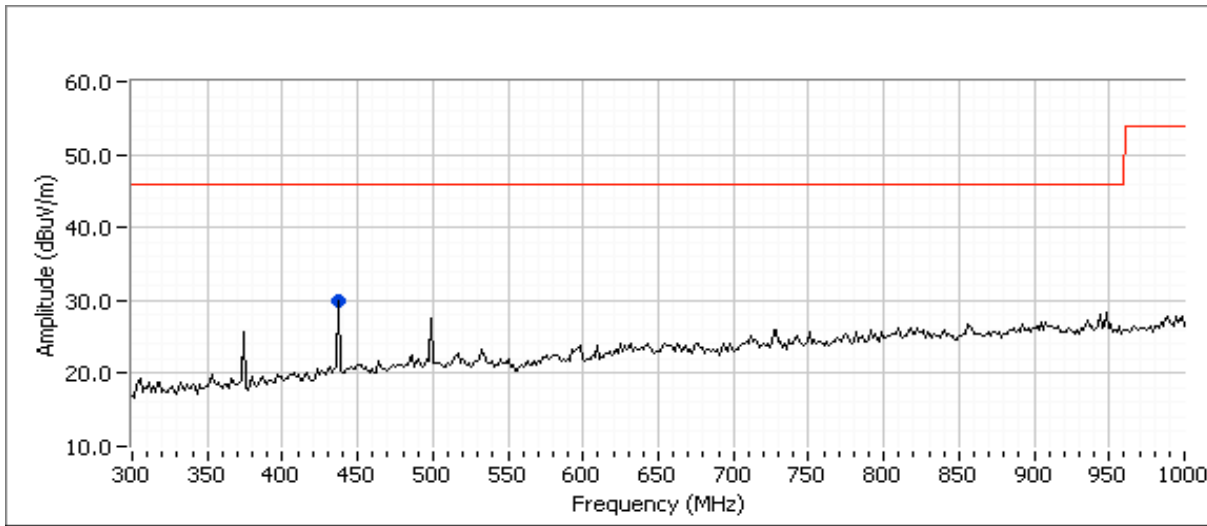
Run #2a: Center Channel

Channel: 157                      Mode: a  
 Tx Chain: 3Tx                      Data Rate: 6

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
40.050	29.9	V	40.0	-10.1	QP	353	1.0	QP (1.00s)
44.413	29.3	V	40.0	-10.7	QP	15	1.0	QP (1.00s)
75.764	28.9	V	40.0	-11.1	QP	267	1.0	QP (1.00s)
437.500	29.2	V	46.0	-16.8	QP	326	1.0	QP (1.00s)
150.757	24.3	V	43.5	-19.2	QP	145	1.0	QP (1.00s)
179.232	21.3	V	43.5	-22.2	QP	202	1.0	QP (1.00s)



Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: N/A





Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: -

## Conducted Emissions

(NTS Silicon Valley, Fremont Facility, Semi-Anechoic Chamber)

### Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 12/9/2015  
 Test Engineer: Rafael Varelas  
 Test Location: FT Chamber #5

Config. Used: 1  
 Config Change: None  
 EUT Voltage: 120V/60Hz

### General Test Configuration

For tabletop equipment, the EUT was located on a wooden table inside the semi-anechoic chamber, 40 cm from a vertical coupling plane and 80cm from the LISN. Remote support equipment was located outside of the semi-anechoic chamber. Any cables running to remote support equipment were routed through metal conduit and when possible passed through a ferrite clamp upon exiting the chamber.

Ambient Conditions:                      Temperature:            22.4 °C  
    Rel. Humidity:            37 %

### Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 120V/60Hz	FCC 15.207	Pass	35.6 dBμV @ 0.207 MHz (-17.7 dB)

### Modifications Made During Testing

No modifications were made to the EUT during testing

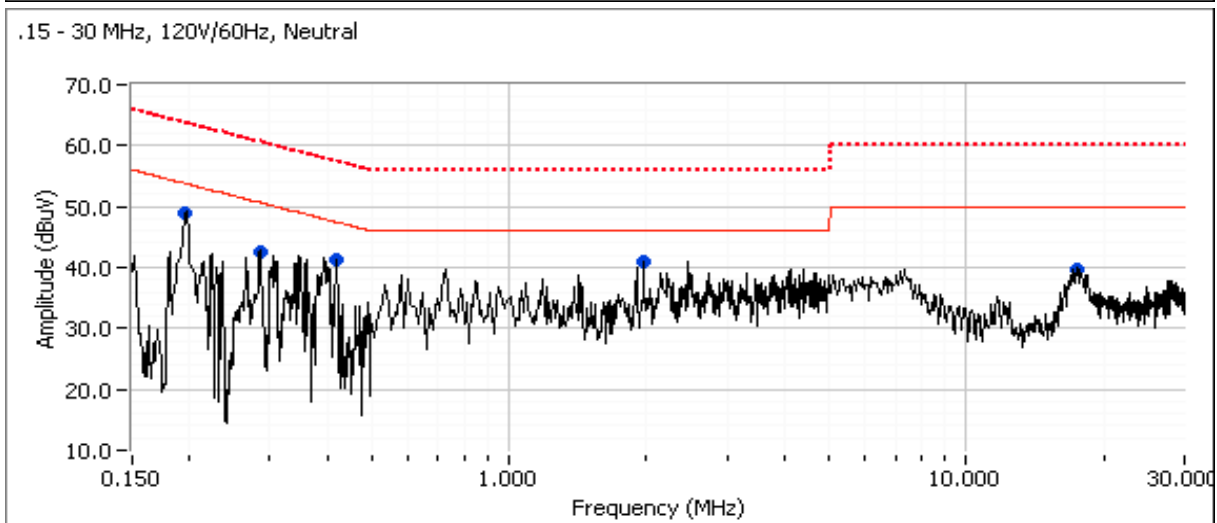
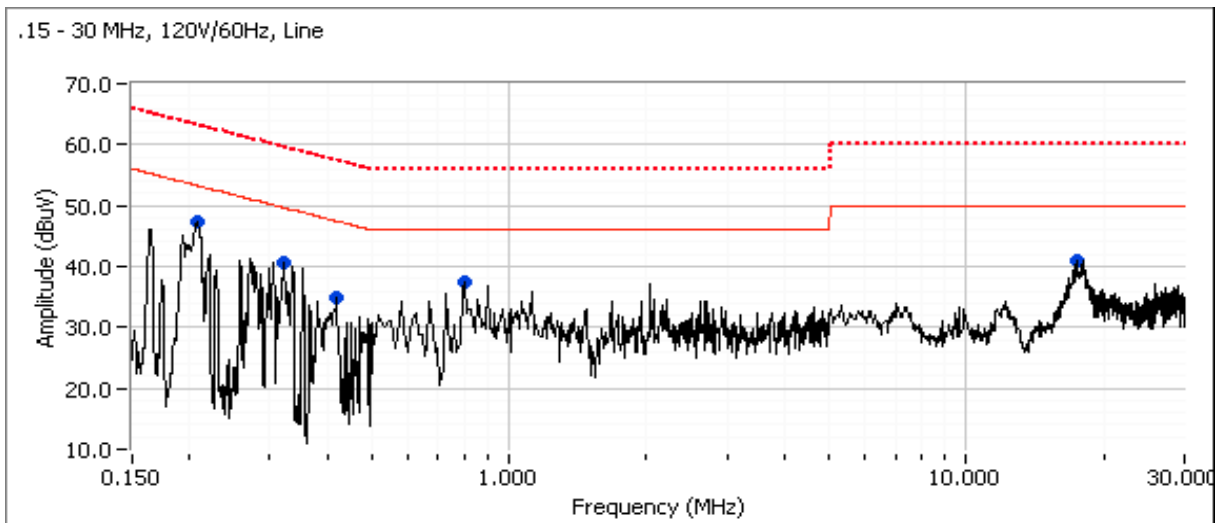
### Deviations From The Standard

No deviations were made from the requirements of the standard.

EUT Operating Condition: EUT configured to continuous transmission on channel 6, mode/modulation: b, data rate: 5.5Mb

Client: Ericsson Canada	Job Number: JD99841
Model: APINM210	T-Log Number: T99885
Contact: Nancy Langford	Project Manager: Christine Krebill
Standard: FCC 15.247/15.E, RSS-247	Project Coordinator: -
	Class: -

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz



Client:	Ericsson Canada	Job Number:	JD99841
Model:	APINM210	T-Log Number:	T99885
Contact:	Nancy Langford	Project Manager:	Christine Krebill
Standard:	FCC 15.247/15.E, RSS-247	Project Coordinator:	-
		Class:	-

## Preliminary peak readings captured during pre-scan (peak readings vs. average limit)

Frequency MHz	Level dB $\mu$ V	AC Line	FCC 15.207		Detector QP/Ave	Comments
			Limit	Margin		
0.207	47.3	Line 1	53.3	-6.0	Peak	
0.321	40.6	Line 1	49.7	-9.1	Peak	
0.420	35.0	Line 1	47.4	-12.4	Peak	
0.795	37.3	Line 1	46.0	-8.7	Peak	
17.453	40.9	Line 1	50.0	-9.1	Peak	
0.198	49.0	Neutral	53.8	-4.8	Peak	
0.287	42.7	Neutral	50.6	-7.9	Peak	
0.420	41.2	Neutral	47.4	-6.2	Peak	
1.961	41.1	Neutral	46.0	-4.9	Peak	
17.552	39.7	Neutral	50.0	-10.3	Peak	

## Final quasi-peak and average readings

Frequency MHz	Level dB $\mu$ V	AC Line	FCC 15.207		Detector QP/Ave	Comments
			Limit	Margin		
0.207	35.6	Line 1	53.3	-17.7	AVG	AVG (0.10s)
0.207	43.8	Line 1	63.3	-19.5	QP	QP (1.00s)
0.321	25.4	Line 1	49.7	-24.3	AVG	AVG (0.10s)
0.321	36.8	Line 1	59.7	-22.9	QP	QP (1.00s)
0.795	18.3	Line 1	46.0	-27.7	AVG	AVG (0.10s)
0.795	32.5	Line 1	56.0	-23.5	QP	QP (1.00s)
0.198	34.7	Neutral	53.7	-19.0	AVG	AVG (0.10s)
0.198	45.2	Neutral	63.7	-18.5	QP	QP (1.00s)
0.287	21.4	Neutral	50.6	-29.2	AVG	AVG (0.10s)
0.287	39.6	Neutral	60.6	-21.0	QP	QP (1.00s)
0.420	27.3	Neutral	47.4	-20.1	AVG	AVG (0.10s)
0.420	38.8	Neutral	57.4	-18.6	QP	QP (1.00s)
1.961	25.3	Neutral	46.0	-20.7	AVG	AVG (0.10s)
1.961	35.5	Neutral	56.0	-20.5	QP	QP (1.00s)

### ***End of Report***

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