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NORTEL 4G HW Infrastructure

## Nortel Response to FCC Request

**Correspondence Reference Number: 54800**  
**Form 731 Confirmation Number: TC884034**  
**Date of Original E-mail: 07/14/2008**

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Issue date: August 5, 2008  
Security status: Proprietary  
Document Prime: Yan Papernov

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# Table of Contents

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<b>1</b>	<b>FCC REQUEST ORIGINAL EMAIL.....</b>	<b>4</b>
<b>2</b>	<b>NORTEL RESPONSE.....</b>	<b>6</b>
2.1	ITEM 1. APPLICABLE 3GPP TECHNICAL REQUIREMENTS .....	6
2.1.1	FCC Request .....	6
2.1.2	Nortel Clarification .....	6
2.2	ITEM 2. APPLICABLE 3GPP TECHNICAL TESTING REQUIREMENTS.....	7
2.2.1	FCC Request .....	7
2.2.2	Nortel Clarification .....	7
2.3	ITEM 3. FCC FREQUENCY RANGE ALLOCATION .....	8
2.3.1	FCC Request .....	8
2.3.2	Nortel Clarification .....	9
2.4	ITEM 4. TEST MODE .....	9
2.4.1	FCC Request .....	9
2.4.2	Nortel Clarification .....	9
2.5	ITEM 5. SIGNAL BANDWIDTH .....	13
2.5.1	FCC Request .....	13
2.5.2	Nortel Clarification .....	13
2.6	ITEM 6. FREQUENCY STABILITY .....	13
2.6.1	FCC Request .....	13
2.6.2	Nortel Clarification .....	13
2.7	ITEM 7. FCC POWER LIMIT .....	14
2.7.1	FCC Request .....	14
2.7.2	Nortel Clarification .....	14
<b>3</b>	<b>REFERENCES.....</b>	<b>15</b>
<b>4</b>	<b>APPLICABLE DOCUMENTS .....</b>	<b>16</b>

## List of Tables

Table 1. LTE AWS MFRM3 Base Station. ....	6
Table 2. LTE AWS MFRM3 Base Station Conformance Testing.....	7
Table 3. Emissions vs. Different LTE Signal Modes .....	10
Table 4. CSE LTE Signal Modes:.....	11
Table 5. RSE LTE Signal Modes:.....	12
Table 6. Channels Tested .....	12

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# 1 FCC Request Original Email

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-----Original Message-----

From: William Graff [<mailto:whgraff@atcb.com>]  
Sent: Tuesday, July 15, 2008 4:28 AM  
To: Papernov, Yan (CAR:2M04)  
Cc: customerservice@atcb.com  
Subject: [www.AmericanTCB.com](http://www.AmericanTCB.com) ATCB006141 | AB6NT2G1LTEFRM3 | 332AF - 2G1LTEFRM3 | |  
AB6NT2G1LTEFRM3\_ATCB006141

Regarding [www.AmericanTCB.com](http://www.AmericanTCB.com) application:

ATCB ID: ATCB006141  
FCC ID: AB6NT2G1LTEFRM3  
IC: 332AF - 2G1LTEFRM3  
TCF:  
Account name: nortelottawa

Gentlemen,

We have received the following inquiry from FCC. Your comments on this will be appreciated.

Best Regards,  
Bill

---

**From:** dward [<mailto:dward@atcb.com>]  
**Sent:** Monday, July 14, 2008 10:51 AM  
**To:** 'William Graff'  
**Cc:** 'Marianne Bosley'  
**Subject:** FW: FCC Equipment Authorization System

Hi Bill

I believe this one is yours

Please have the applicant address the issues brought up by the FCC.

Thanks

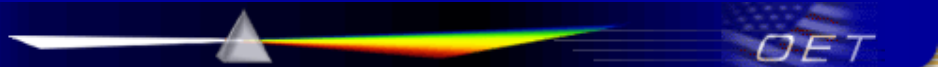
*Dennis Ward*

Director of Engineering  
American TCB  
Certification Resource for the Wireless Industry [www.atcb.com](http://www.atcb.com)  
703-847-4700 fax 703-847-6888  
direct - 703-880-4841

**From:** oetech@fccsun27w.fcc.gov [<mailto:oetech@fccsun27w.fcc.gov>]  
**Sent:** Monday, July 14, 2008 6:51 AM  
**To:** hotline@atcb.com  
**Subject:** FCC Equipment Authorization System



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Office of Engineering and Technology

**To:** William Graff,  
[hotline@atcb.com](mailto:hotline@atcb.com)

**From:** Tim Harrington  
[Tim.Harrington@fcc.gov](mailto:Tim.Harrington@fcc.gov)

**Re: FCC ID:** AB6NT2G1LTEFRM3

**Applicant:** Nortel Networks Inc.

**Correspondence Reference Number:** 54800

**Form 731 Confirmation Number:** TC884034

**Date of Original E-mail:** 07/14/2008

----- 3G and above devices are designed to operate in highly dynamic conditions with variable data rates, spreading factors, multiple code channels and various combinations of other configurations to optimize throughput and performance. Since many of these highly optimized dynamic configurations normally do not provide stable conditions for compliance testing, 3GPP, 3GPP2, WIMAX, etc. have specified test mode configurations for product conformance evaluation. Consequently, some of these defined test modes and device operating configurations may also be considered for FCC certification measurements. Based on the design and operating requirements of each wireless technology, tests for all combinations of data rate and code channel configurations may not be required. TCB please address: 1) As feasible please identify, justify, and describe, or give pointer to within filing if info already there: a) relevant RF conformance test documents and operational standards (3GPP standards & Rel. #, or etc) and subclauses applicable to the device b) specific RF profiles / operational configurations, certification profiles, test cases, test scripts that are appropriate for and were used to test this device, among those in the applicable conformance documents and standards c) how device FDD and/or TDD modes are allowed under FCC allocated frequency range, i.e., device channel bandwidths allowed relative to available blocks and block sizes, and how device operates within system using specific paired (uplink/downlink) or unpaired bands 2) If all operational modes are not tested the applicant and/or test lab must justify the modes tested. Though all FCC rules must be considered, there should be special focus on band edge, and Out-of-band spurious response for these technologies. Measurements of signal bandwidth should be done for all modes that provide a significant difference and that would correspond to a new emission designator on Form 731. With the flexible architecture of these devices the extent of frequency tune range of the device when combined with variable signal bandwidths can introduce considerable uncertainty for band edge compliance. Discussion of control of tuned frequency range along with designed signal BW include multi-channel modes should be provided. When device power is close to the FCC limit more focus on the effects of operational modes on all emissions should be made.  
(<http://www.tcbouncil.org/associations/3376/files/TCB%20guides%20procedures/FCC%203G%20Technologies%20Certification%20Policy%20May%209,%202006.pdf>) -----

The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information within 30 days of the original e-mail date may result in application dismissal pursuant to Section 2.917(c).

DO NOT Reply to this email by using the reply button. In order for your response to be processed expeditiously, you must upload your response via the Internet at [www.fcc.gov](http://www.fcc.gov), E-Filing, OET TCB/Accreditor Electronic Filing, TCB Login, Submit Correspondence. Also, please note that partial responses increase processing time and should not be submitted.

Any questions about the content of this correspondence should be directed to the email address listed below the name of the sender.

## 2 Nortel Response

### 2.1 Item 1. Applicable 3GPP Technical Requirements

#### 2.1.1 FCC Request

“ 1) As feasible please identify, justify, and describe, or give pointer to within filing if info already there:

a) relevant RF conformance test documents and operational standards (3GPP standards & Rel. #, or etc) and subclauses applicable to the device ”

#### 2.1.2 Nortel Clarification

The following 3GPP technical requirements specification is relevant to the LTE AWS MFRM3 Base Station:

##### 3GPP TS 36.104 V8.2.0 (2008-05)

*3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception (Release 8)*

(The specification can be found at URL: <http://www.3gpp.org/ftp/Specs/html-info/36-series.htm> - 3GPP Specification series.)

The applicable items from this specification are outlined in Table 1.

**Table 1. LTE AWS MFRM3 Base Station.  
Applicable Requirements from 3GPP TS 36.104 V8.2.0 (2008-05)**

Requirement	3GPP TS 36.104 V8.2.0 (2008-05)	Nortel LTE AWS MFRM3 Base Station
Channel <sub>bandwidth</sub> $BW_{\text{Channel}}$ [MHz]	Table 5.2-1	10 MHz
Transmission bandwidth configuration $N_{\text{RB}}$	Table 5.2-1	50
E-UTRA Band	Table 5.31	4
Downlink (DL) eNode B transmit UE receive	Table 5.31	2110 MHz – 2155 MHz
Duplex Mode	Table 5.31	FDD
Transmitter Test Port	Figure 6.1-1	Test Port B Antenna connector of the external filter that is part of Base station configuration
Output Power Minimum Requirement	6.2, 6.2.1	Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: 4.2.4 Tables 9-14 (p.23-24)

Requirement	3GPP TS 36.104 V8.2.0 (2008-05)	Nortel LTE AWS MFRM3 Base Station
Frequency Error Minimum Requirement	6.5.1, 6.5.1.1	Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: 4.5.3 Tables 30-32 (p.49-51)
Occupied Bandwidth Minimum Requirement occupied bandwidth shall be less than the channel bandwidth	6.6.1.1	Channel Bandwidth = 10 MHz Occupied Bandwidth = 9 MHz
Transmitter Spurious Emissions. Category A	6.6.4.1 , Table 6.6.4.1.1.1-1	Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: 4.4.4 Tables 24-29 (p.44-47)

## 2.2 Item 2. Applicable 3GPP Technical Testing Requirements

### 2.2.1 FCC Request

“ b) specific RF profiles / operational configurations, certification profiles, test cases, test scripts that are appropriate for and were used to test this device, among those in the applicable conformance documents and standards ”

### 2.2.2 Nortel Clarification

The following 3GPP technical conformance testing specification is relevant to the LTE AWS MFRM3 Base Station application:

#### 3GPP TS 36.141 V1.0.0 (2008-05)

*3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) ; Base Station (BS) conformance testing (Release 8)*

(The specification can be found at URL: <http://www.3gpp.org/ftp/Specs/html-info/36-series.htm> - 3GPP Specification series.)

The applicable items from this specification are outlined in Table 2.

**Table 2. LTE AWS MFRM3 Base Station Conformance Testing.  
Applicable Requirements from 3GPP TS 36.104 V8.2.0 (2008-05)**

Requirement	3GPP TS 36.141 V1.0.0 (2008-05)	Nortel LTE AWS MFRM3 Base Station Test Parameters/Results
Transmitter Test Port	Figure 4.5-1	Test Port B Antenna connector of the external filter that is part of Base station configuration
Duplexers	4.5.3: 1), 2)	Duplexer is part of LTE AWS MFRM3 Base Station
Power supply options	4.5.4	LTE AWS MFRM3 Base Station uses -48VDC power supply only.
Operating band and frequency range	4.6.1 , 5.3 , Table 5.3-1	E-UTRA Band 4

Requirement	3GPP TS 36.141 V1.0.0 (2008-05)	Nortel LTE AWS MFRM3 Base Station Test Parameters/Results
Downlink (DL) eNode B transmit UE receive	4.6.1 , 5.3 , Table 5.3-1	2110 MHz – 2155 MHz
Duplex Mode	4.6.1 , 5.3 , Table 5.3-1	FDD
Specified frequency range and supported channel bandwidth	4.7, 5.2	10MHz Channel Bandwidth LTE AWS MFRM3 Base Station supports 10MHz bandwidth only
		Single Carrier per channel LTE AWS MFRM3 Base Station supports single carrier only
Base station output power	4.6.3	40W Nominal (46dBm+/-0.5dB at Duplexer antenna port) <sup>1</sup>
Spurious emissions category	4.6.4	Category A
EARFCN	5.4.3	2000 – 2350 <sup>2</sup>
Base Station Output Power Minimum Requirement	6.2	Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: 4.2.4 (p.23)
Frequency Error Minimum Requirement	6.5.1	Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: 4.5.3 Tables 30-32 (p.49-51) <sup>3</sup>
Occupied Bandwidth Minimum Requirement occupied bandwidth shall be less than the channel bandwidth	6.6.1	Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: 4.3.4 Tables 15-20, Figures 4-15 (p.26-40)
Transmitter Spurious Emissions. Category A	6.6.4	Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: 4.4.4 Tables 24-29 (p.44-47)

## Note.

- 1) LTE AWS MFRM3 Base Station employs a function that shuts down the transmitter when output power exceeds 46.5 dBm.
- 2) Nortel Exhibit 2B (Conducted Spurious Emissions (CSE) Test Report) and Nortel Exhibit 2C (Radiated Spurious Emissions (RSE) Test Report) use CDMA channel numbers:
  - CDMA Channel: 100: Transmit Carrier 2115 MHz (2110 MHz – 2120 MHz): EARFCN = 2000;
  - CDMA Channel: 800: Transmit Carrier 2150 MHz (2145 MHz – 2155 MHz): EARFCN = 2350.
- 3) For frequency stability test method refer to Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: 4.5.2 / Figure 17 (p.49).

## 2.3 Item 3. FCC Frequency Range Allocation

### 2.3.1 FCC Request

“ c) how device FDD and/or TDD modes are allowed under FCC allocated frequency range, i.e.,



device channel bandwidths allowed relative to available blocks and block sizes, and how device operates within system using specific paired (uplink/downlink) or unpaired bands”.

### 2.3.2 Nortel Clarification

The LTE AWS MFRM3 Base Station application is intended for non-commercial trials with one of our customers within the licensed AWS band owned by the customer.

The LTE AWS MFRM3 Base Station operates as per following:

- 1710–1755 MHz (uplink) and 2110–2155 MHz (downlink) band;
- 10MHz Channel bandwidth (9MHz Occupied bandwidth);
- FDD;
- Paired band.

The following FCC Regulation covers the required band:

#### 47 CFR Ch. I (10–1–07 Edition)

##### § 27.5 Frequencies:

“ (h) 1710–1755 MHz and 2110–2155 MHz bands.

The following frequencies are available for licensing pursuant to this part in the 1710–1755 MHz and 2110–2155 MHz bands:

(1) Three paired channel blocks of 10 megahertz each are available for assignment as follows:

Block A: 1710–1720 MHz and 2110–2120 MHz;  
Block B: 1720–1730 MHz and 2120–2130 MHz;  
and  
Block F: 1745–1755 MHz and 2145–2155 MHz.

(2) Three paired channel blocks of 5 megahertz each are available for assignment as follows:

Block C: 1730–1735 MHz and 2130–2135 MHz;  
Block D: 1735–1740 MHz and 2135–2140 MHz;  
and  
Block E: 1740–1745 MHz and 2140–2145 MHz. ”

## 2.4 Item 4. Test Mode

### 2.4.1 FCC Request

“ 2) If all operational modes are not tested the applicant and/or test lab must justify the modes tested. ”

“ Though all FCC rules must be considered, there should be special focus on band edge, and Out-of-band spurious response for these technologies. ”

### 2.4.2 Nortel Clarification

#### 2.4.2.1 LTE Signal Mode

The LTE signal mode for the test was chosen based on the worst-case emission results obtained during pre-test measurements. Pre-test measurements were performed on all possible LTE signal modulations with modes that are applicable to the operation of the LTE AWS MFRM3 Base Station. Pre-test measurements results are presented in Table 3.

**Table 3. Emissions vs. Different LTE Signal Modes**

Modulation	Resource Blocks	Modulation Order	Coding Rate	Data Rate [ Mbit/s ]	Highest Emission 2156MHz - 2157MHz 49dBm <sup>1</sup> for 50RB [ dBm/MHz ]
QPSK	24	2	1/3	2.112	-24.60
	32	2	1/3	2.816	-23.60
	40	2	1/3	3.520	-22.30
	50	2	1/3	4.416	-17.60
	16	2	1/2	2.112	-25.30
	24	2	1/2	3.200	-25.02
	32	2	1/2	4.224	-24.87
	40	2	1/2	5.312	-21.81
	50	2	1/2	6.656	-15.76
	16	2	2/3	2.816	-25.40
	24	2	2/3	4.224	-25.16
	32	2	2/3	5.362	-24.00
	40	2	2/3	7.040	-21.06
	50	2	2/3	8.832	-15.64
	16	2	3/4	3.200	-26.46
	24	2	3/4	4.800	-25.41
32	2	3/4	6.400	-24.69	
40	2	3/4	7.936	-21.55	
	<b>50</b>	<b>2</b>	<b>3/4</b>	<b>9.987</b>	<b>-15.26</b>
16QAM	16	4	3/7	3.648	-25.99
	24	4	3/7	5.440	-25.86
	32	4	3/7	7.296	-24.76
	40	4	3/7	9.088	-21.36
	50	4	3/7	11.392	-15.90
	8	4	1/2	2.112	-25.90
	16	4	1/2	4.224	-25.46
	24	4	1/2	6.400	-25.76
	32	4	1/2	8.448	-24.06
	40	4	1/2	10.624	-18.36
	50	4	1/2	13.248	-15.89
	6	4	2/3	2.112	-19.71
	8	4	2/3	2.816	-22.15
	16	4	2/3	5.632	-21.36
	24	4	2/3	8.448	-23.18
	32	4	2/3	11.264	-21.80
	40	4	2/3	14.208	-20.31
	50	4	2/3	17.664	-15.60
	6	4	3/4	2.432	-24.80
	8	4	3/4	3.200	-24.80
	16	4	3/4	6.400	-23.50
	24	4	3/4	9.600	-24.00
	32	4	3/4	12.672	-24.00
	40	4	3/4	15.936	-19.80
	50	4	3/4	19.968	-15.30
	6	4	5/6	2.688	-24.70
	8	4	5/6	3.520	-26.32
	16	4	5/6	7.040	-25.70
	24	4	5/6	10.624	-24.70
	32	4	5/6	14.208	-24.00
40	4	5/6	17.664	-18.64	
	<b>50</b>	<b>4</b>	<b>5/6</b>	<b>22.016</b>	<b>-14.90</b>

Modulation	Resource Blocks	Modulation Order	Coding Rate	Data Rate [ Mbit/s ]	Highest Emission 2156MHz - 2157MHz 49dBm <sup>1</sup> for 50RB [ dBm/MHz ]
64QAM	6	6	1/2	2.432	-24.90
	8	6	1/2	3.200	-25.60
	16	6	1/2	6.400	-24.50
	24	6	1/2	9.600	-24.50
	32	6	1/2	12.672	-23.62
	40	6	1/2	15.936	-19.91
	50	6	1/2	19.968	-16.00
	6	6	2/3	3.200	-24.69
	8	6	2/3	4.224	-25.38
	16	6	2/3	8.448	-24.91
	24	6	2/3	12.672	-24.41
	32	6	2/3	16.896	-22.95
	40	6	2/3	21.248	-22.07
	50	6	2/3	26.560	-14.31
	6	6	3/4	3.584	-24.57
	8	6	3/4	4.880	-24.40
	16	6	3/4	9.600	-25.00
	24	6	3/4	14.400	-21.90
	32	6	3/4	19.200	-21.26
	40	6	3/4	23.808	-20.36
	50	6	3/4	29.760	-14.32
	6	6	5/6	3.968	-25.60
	8	6	5/6	5.312	-22.90
	16	6	5/6	10.624	-17.00
	24	6	5/6	15.936	-16.34
	32	6	5/6	21.248	-16.30
	40	6	5/6	26.560	-16.30
	<b>50</b>	<b>6</b>	<b>5/6</b>	<b>33.024</b>	<b>-14.30</b>

Note.

- 1) The maximum rated power for the LTE AWS MFRM3 Base Station for this application is 46 dBm (40W). To define the worst-case signal structure combination, the 46 dBm transmitter power shutdown function was disabled in order to reach 49 dBm.

The LTE signal mode that corresponds to the worst-case emission for each modulation (highlighted in bold in Table 3) was then used to perform measurements.

**Table 4. CSE LTE Signal Modes:**

**Output Power, Frequency Stability, Occupied Bandwidth, Transmitter Conducted Spurious Emissions**

Modulation	Resource Blocks	Modulation Order	Coding Rate	Data Rate [ Mbit/s ]
QPSK	50	2	3/4	9.987
16QAM	50	4	5/6	22.016
64QAM	50	6	5/6	33.024

For radiated spurious emissions measurements, the very worst-case was used:

**Table 5. RSE LTE Signal Modes:  
Transmitter Radiated Spurious Emissions**

Modulation	Resource Blocks	Modulation Order	Coding Rate	Data Rate [ Mbit/s ]
64QAM	50	6	5/6	33.024

#### 2.4.2.2 Channel Selection

As per FCC recommendation, LTE AWS MFRM3 Base Station was tested at the band edges of the AWS operating spectrum as per Table 6.

**Table 6. Channels Tested**

Carrier	Channel Frequency Range	EARFCN	Test Reports Reference
2115 MHz	2110 MHz – 2120 MHz	2000	Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: Tables 9-14 (p.23-24); Tables 15-20 (p.26-28), Tables 24-29 (p.44-47).
2150 MHz	2145 MHz – 2155 MHz	2350	1) Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: Tables 9-14 (p.23-24); Tables 15-20 (p.26-28). 2) Nortel Exhibit 2: Radiated Spurious Emissions (RSE) Test Report: Table 4-3 (p.14)

Out-of-band conducted spurious response was tested:

- 9 kHz – 2110 MHz: Transmit Carrier 2115 MHz (2110 MHz – 2120 MHz);
- 2155 – 22 GHz: Transmit Carrier 2150 MHz (2145 MHz – 2155 MHz).

Test Report reference: Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: Tables 24-29 (p.44-47).

Out-of-band radiated spurious response was tested:

- 30 MHz – 26.5 GHz: Transmit Carrier 2150 MHz (2145 MHz – 2155 MHz).

Test Report reference: Nortel Exhibit 2C: Radiated Spurious Emissions (CSE) Test Report: 6.1.5 (p.23).

Note.

- 1) The channel numbers in Test Reports correspond to CDMA numbering.
  - CDMA Channel: 100: Transmit Carrier 2115 MHz (2110 MHz – 2120 MHz): EARFCN = 2000;
  - CDMA Channel: 800: Transmit Carrier 2150 MHz (2145 MHz – 2155 MHz): EARFCN = 2350.

#### 2.4.2.3 Occupied Bandwidth Measurement

Occupied Bandwidth was measured using OBW feature of the spectrum analyzer: Rhode & Schwarz FSEB. (Serial number and calibration dates are presented in Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: 3.3 Tables 7 p.19.)

Spectrum Analyzer settings:

- Span: 15MHz;
- RBW: 100kHz (as per FCC recommendation of 1% for CDMA AWS MFRM3 FCC: AB6NT2G1LTEFRM3 application).

#### 2.4.2.4 Transmitter Spurious Emissions Measurement

Transmitter Spurious Emissions were measured as per FCC recommendations provided for CDMA MFRM3 FCC: AB6NT2G1LTEFRM3 application:

- 2109 to 2110 MHz (RBW=100 kHz);
- 2155 to 2156 MHz (RBW=100 kHz);
- 9 kHz to 2109 MHz (RBW=1 MHz);
- 2156 MHz to 5 GHz (RBW=1 MHz);
- 5 GHz to 22 GHz (RBW=1 MHz);

Test Report reference: Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: Tables 24-29 (p.44-47).

## 2.5 Item 5. Signal Bandwidth

### 2.5.1 FCC Request

“Measurements of signal bandwidth should be done for all modes that provide a significant difference and that would correspond to a new emission designator on Form 731.”

### 2.5.2 Nortel Clarification

The transmit signal/channel bandwidth in our application is fixed at 10 MHz and does not change with different data rates and modulation methods as per OFDMA.

The transmit signal/channel bandwidth measurement were performed on the band edges and is valid for both emission designators on our Form 731:

- 9M00F9W;
- 9M00D9W.

## 2.6 Item 6. Frequency Stability

### 2.6.1 FCC Request

“With the flexible architecture of these devices the extent of frequency tune range of the device when combined with variable signal bandwidths can introduce considerable uncertainty for band edge compliance. Discussion of control of tuned frequency range along with designed signal BW include multi-channel modes should be provided.”

### 2.6.2 Nortel Clarification

The AWS MFRM3 radio supports both CDMA and LTE applications.

The AWS MFRM3 local oscillators (LO) are locked to the global positioning system (GPS).

This circuitry is used in both CDMA and LTE configurations.

The frequency stability testing results for CDMA are detailed in Figure 17 of the Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report.

The result was 0.003ppm.

Test Report reference: Nortel Exhibit 2B: Conducted Spurious Emissions (CSE) Test Report: 4.5 (p.48-51).

CDMA AWS MFRM3 was granted FCC approval on 10/102007: FCC IDENTIFIER: AB6NT2100MFRM3.

## 2.7 Item 7. FCC Power Limit

### 2.7.1 FCC Request

“ When device power is close to the FCC limit more focus on the effects of operational modes on all emissions should be made ”

### 2.7.2 Nortel Clarification

**FCC 27.50** [47 CFR Ch. I (10–1–07 Edition)] limits Transmit Power in the AWS band to 1640 watts –

“ 27.50 (d) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands:

(1) The power of each fixed or base station transmitting in the 2110–2155 MHz band and located in any county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, is limited to a peak equivalent isotropically radiated power (EIRP) of 3280 watts.

The power of each fixed or base station transmitting in the 2110– 2155 MHz band from any other location is limited to a peak EIRP of 1640 watts.

A licensee operating a base or fixed station utilizing a power of more than 1640 watts EIRP must coordinate such operations in advance with all Government and non-Government satellite entities in the 2025–2110 MHz band.

Operations above 1640 watts EIRP must also be coordinated in advance with the following licensees within 120 kilometers (75 miles) of the base or fixed station: all Broadband Radio Service (BRS) licensees authorized under part 27 in the 2155–2160 MHz band and all AWS licensees in the 2110–2155 MHz band. ”

The output power for the LTE AWS MFRM3 Base Station is 40 watts.

The Nortel LTE AWS MFRM3 Base Station product does not include antenna equipment.

Consequently, since EIRP is a function of antenna gain, the ultimate compliance to FCC EIRP limits as well as antenna properties (e.g., antenna gain) is the customer’s responsibility.

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## 3 References

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**[1] 3GPP TS 36.104 V8.2.0 (2008-05)**

*3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception (Release 8)*

(The specification can be found at URL: <http://www.3gpp.org/ftp/Specs/html-info/36-series.htm> - 3GPP Specification series.)

**[2] 3GPP TS 36.141 V1.0.0 (2008-05)**

*3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) ; Base Station (BS) conformance testing (Release 8)*

(The specification can be found at URL: <http://www.3gpp.org/ftp/Specs/html-info/36-series.htm> - 3GPP Specification series.)

**[3] 47 CFR Ch. I (10–1–07 Edition)**

§ 27.5 *Frequencies.*

**[4] 47 CFR Ch. I (10–1–07 Edition)**

§ 27.50 *Power and antenna height limits.*

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## 4 Applicable Documents

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**[5] Nortel Exhibit 2B**

*Conducted Spurious Emissions (CSE) Test Report*

*Applicant : NORTEL*

*For original Equipment Application on :*

*FCC: AB6NT2G1LTEFRM3*

*IC: 332AF-2G1LTEFRM3*

*Issue date: April 3, 2008*

**[6] Nortel Exhibit 2C**

*Radiated Spurious Emissions (RSE) Test Report*

*Applicant : NORTEL*

*For original Equipment Application on :*

*FCC: AB6NT2G1LTEFRM3*

*IC: 332AF-2G1LTEFRM3*

*Issue date: April 3, 2008*

**[7] GRANT OF EQUIPMENT AUTHORIZATION**

*Certification Issued Under the Authority of the Federal Communications Commission*

*By: American TCB, Inc.*

*6731 Whittier Avenue Suite C110*

*McLean, VA 22101*

*Date of Grant: 10/11/2007*

*Application Dated: 10/10/2007*

*FCC IDENTIFIER: AB6NT2100MFRM3*

*Name of Grantee: Nortel Networks Inc.*

*FCC Rule Parts 27*

*Frequency Range (MHZ) 2110.0 - 2155.0*

*Frequency Tolerance 0.003 PM*

*Emission Designator 1M25F9W, 1M25D9W*