EXHIBIT 9: TEST REPORT

SYNOPSIS

The test report attached to this exhibit demonstrates that the Alcatel-Lucent Cellular Frequency UMTS Distributed Base Station Transceiver System (850), is in full compliance with all requirements of the Rules of the Commission as specified in the Code of Federal Regulations (CFR), Title 47 – Telecommunication; Part 22, Subpart H – Cellular Radiotelephone Service; Section 22.917 - Emission Limitations for Cellular Equipment; effective October 1, 2006. All testing was performed in accordance with CFR 47, Part 2, Subpart J – Equipment Authorization Procedures;effective October 1, 2006. It also demonstrates compliance with the spurious emissions limitations specified in ETSI TS 125 141 V7.4.0 (2006-06): Universal Mobile Telecommunications System (UMTS); Base Station Conformance Testing (FDD), (3GPP TS 25.141, Version 7.4.0, Release 7), which is the standard used as a guideline in the design of the Distributed Base Station transceiver system. The objective of this application is to obtain FCC initial authorization, under FCC ID: AS5ONEBTS-17, for operation in the Universal Mobile Telecommunications System (UMTS) with a single 5 MHz emission bandwidth carrier (4M10F9W) set to a maximum power level at the antenna terminal of 40 Watts (3-second), over 21 MHz of the Cellular Frequency Spectrum 869-890 MHz.

Alcatel-Lucent's wireless UMTS Distributed Base Station Transceiver System (850 MHz), is the subject of this application for authorization by the Federal Communications Commission under the new FCC ID: AS5ONEBTS-17. Alcatel-Lucent's Universal Mobile Telecommunications System (UMTS) Distributed Base Station System (850 MHz) is designed to operate in the North America Region (NAR) Cellular Frequency Spectrum 869-890 MHz, with bandwidth of 21 MHz over the A", A and B Bands. The Distributed Base Station (DBS) can be configured for both single carrier (1S1C) operation at 40 Watts (+46 dBm) and for two carrier (1S2C) operation at 20 Watts (+43 dBm) per carrier with a total composite power of 40 Watts. The RF power rating is based the 3-second average, employing the Aggregate Overload Control (AOC) algorithm. Enhanced Digital Pre-Distortion (EDPD) and Closed Loop Gain Control (CLGC) are features that are enabled for each carrier. The carrier power level and frequency are remotely controlled by software. The single UMTS carrier has a 5 MHz bandwidth, with an emission designator at 4M10F9W, based on measurement of the Necessary Bandwidth. UMTS modulation capability demonstrated includes 1) up to 68 active channels, consisting of 64 voice + 4 control, 2) up to 44 active channels, which include 8 High Speed Downlink Packet Access (HSDPA) channels, and 3) a single active channel *Synchronization Channel* (SCH).

The Distributed Base Station (DBS) system, subject of this certification, is comprised of two separate modules interconnected by fiber optic cable: 1) the digital Base Band Unit (BBU), and 2) the Remote Radio Head (RRH). They have the flexibility of being installed either in close proximity to or remotely located from each other. The BBU has the capability of controlling up to 3 remotely located RRH units, via fiber optic cable, and incorporates the digital channel cards, reference oscillator module, T1/E1 and alarm interface, and the RF-to-Optical and Optical-to-RF conversion circuitry. The 850 MHz RRH incorporates the Future Technology Radio (FTR850), power amplifier (PA) and passive filter with single transmit (Tx) and diversity receive functionality (Rx0, Rx1). This system complies both with the Federal Communication Commission (FCC) Rules and Regulations (47 CFR Part 22), and with the European Telecommunications Standards Institute (ETSI) 3rd Generation Partnership Project (3GPP) Technical Specifications TS 25.104 and TS 25.141.

As a Transceiver System, all conducted RF characteristics and emissions measurements were performed at the transmit antenna terminal, using a production equipment frame. All testing was performed in the Alcatel-Lucent, Whippany, NJ, compliance laboratory by F. E. Chetwynd and M. P. Farina during the period October 5 – 22, 2007; in adherence to a test plan generated by M. P. Farina, in accordance with Alcatel-Lucent's ISO/TL9000 Registration. All measurement instrumentation utilized were also calibrated in compliance with Lucent's ISO/TL9000 Registration. The Whippany 3 & 10 Meter Open Area Test Site (OATS) is authorized by the Federal Communications Commission (FCC) under Registration Number: 90770, in compliance with the requirements of Section 2.948 of the Rules of the Commission.

Frequency stability measurements were performed by N.Hussain, Alcatel-Lucent , Swindon, United Kingdom, under the direction of M. P. Farina, and in adherence to the previously cited ISO/TL9000 test plan. A full report is attached to this exhibit.

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Subject: **Application for Certification under FCC ID: AS5ONEBTS-17, Covering the UMTS/W-CDMA Distributed Base Station Wireless Transceiver System, Operating in theCellular Radiotelephone Service, 869-890 MHz**.

October 25, 2007

TEST REPORT

INTRODUCTION:

The exhibits presented in this test report demonstrate that the Alcatel-Lucent Cellular Frequency UMTS Distributed Base Station Transceiver System (850 MHz), is in full compliance with all requirements of the Rules of the Commission as specified in the Code of Federal Regulations (CFR), Title 47 – Telecommunication; Part 22, Subpart H – Cellular Radiotelephone Service; Section 22.917 - Emission Limitations for Cellular Equipment; effective October 1, 2006. All testing was performed in accordance with CFR 47, Part 2, Subpart J – Equipment Authorization Procedures; effective October 1, 2006. It also demonstrates compliance with the spurious emissions limitations specified in ETSI TS 125 141 V7.4.0 (2006-06): Universal Mobile Telecommunications System (UMTS); Base Station Conformance Testing (FDD), (3GPP TS 25.141, Version 7.4.0, Release 7). This standard was the guideline used in the design of the Distributed Base Station transceiver system. The objective of this application is to obtain initial FCC authorization, under FCC ID: AS5ONEBTS-17, for operation in the Universal Mobile Telecommunications System (UMTS) with a single 5 MHz emission bandwidth carrier (4M10F9W) set to a maximum power level at the antenna terminal of 40 Watts.

Alcatel-Lucent's wireless UMTS Distributed Base Station Transceiver System (850 MHz), is the subject of this application for authorization by the Federal Communications Commission under the new FCC ID: AS5ONEBTS-17. Alcatel-Lucent's Universal Mobile Telecommunications System (UMTS) Distributed Base Station System (850 MHz) is designed to operate in the North America Region (NAR) Cellular Frequency Spectrum 869-890 MHz, with bandwidth of 21 MHz over the A", A and B Bands. The Distributed Base Station (DBS) can be configured for both single carrier (1S1C) operation at 40 Watts (+46 dBm) and for two carrier (1S2C) operation at 20 Watts (+43 dBm) per carrier with a total composite power of 40 Watts. The RF power rating is based the 3-second average, employing the Aggregate Overload Control (AOC) algorithm. Enhanced Digital Pre-Distortion (EDPD) and Closed Loop Gain Control (CLGC) are features that are enabled for each carrier. The carrier power level and frequency are remotely controlled by software. The single UMTS carrier has a 5 MHz bandwidth, with an emission designator at 4M10F9W, based on measurement of the Necessary Bandwidth. UMTS modulation capability demonstrated includes 1) up to 68 active channels, consisting of 64 voice + 4 control, 2) up to 44 active channels, which include 8 High Speed Downlink Packet Access (HSDPA) channels, and 3) a single active channel *Synchronization Channel* (SCH).

The Distributed Base Station (DBS) system, subject of this certification, is comprised of two separate modules interconnected by fiber optic cable: 1) the digital Base Band Unit (BBU), and 2) the RF Remote Radio Head (RRH). They have the flexibility of being installed either in close proximity to or remotely

located from each other. The BBU has the capability of controlling up to 3 remotely located RRH units, via fiber optic cable, and incorporates the digital channel cards, reference oscillator module, T1/E1 and alarm interface, and the RF-to-Optical and Optical-to-RF conversion circuitry. The 850 MHz RRH incorporates the Future Technology Radio (FTR850), power amplifier (PA) and passive filter with single transmit (Tx) and diversity receive functionality (Rx0, Rx1). This system complies both with the Federal Communication Commission (FCC) Rules and Regulations (47 CFR Part 22), and with the European Telecommunications Standards Institute (ETSI) 3rd Generation Partnership Project (3GPP) Technical Specifications TS 25.104 and TS 25.141.

As a Transceiver System, all conducted RF characteristics and emissions measurements were performed at the transmit antenna terminal, using a production equipment frame. All testing was performed in the Alcatel-Lucent, Whippany, NJ, compliance laboratory by F. E. Chetwynd and M. P. Farina during the period October 5 – 22, 2007; in adherence to a test plan generated by M. P. Farina, in accordance with Alcatel-Lucent's ISO/TL9000 Registration. All measurement instrumentation utilized were also calibrated in compliance with Alcatel-Lucent's ISO/TL9000 Registration. The Whippany 3 & 10 Meter Open Area Test Site (OATS) is authorized by the Federal Communications Commission (FCC) under Registration Number: 90770, in compliance with the requirements of Section 2.948 of the Rules of the Commission.

Frequency stability measurements were performed by N.Hussain, Alcatel-Lucent, Swindon, United Kingdom, under the direction of M. P. Farina, and in adherence to the previously cited ISO/TL9000 test plan. A full report is attached to this exhibit.

This report fully documents all required tests and the test results, sufficient to show full compliance with the Rules of the Commission.

APPLICABLE FCC RULES AND INDUSTRY STANDARDS:

The exhibits presented in this test report demonstrate that Alcatel-Lucent's Cellular Frequency UMTS Distributed Base Station Transceiver System (850 MHz), is in full compliance with all requirements of the Rules of the Commission, as specified in the Code of Federal Regulations (CFR), Title 47 – Telecommunication; Part 22, Subpart H – Cellular Radiotelephone Service; Section 22.917 - Emission Limitations for Cellular Equipment; effective October 1, 2006. All testing was performed in accordance with CFR 47, Part 2, Subpart J – Equipment Authorization Procedures; effective October 1, 2006. It also demonstrates compliance with the spurious emission limitations specified in ETSI TS 125 141 V7.4.0 (2006-06): Universal Mobile Telecommunications System (UMTS); Base Station Conformance Testing (FDD), (3GPP TS 25.141, Version 7.4.0, Release 7). The specific test procedures that are both required for and are applicable to the UMTS Distributed Base Station Transceiver System are:

Part 2.1046	RF Power Output	**Pages 4 – 5**
Part 2.1047	Modulation Characteristics	**Pages 6-11**
Part 2.1049	Occupied Bandwidth	**Pages 12-26**
Part 2.1051	Spurious Emissions at the Antenna Terminals.	**Pages 27-38**
Part 2.1053	Field Strength of Spurious Radiation	**Pages 39**
Part 2.1055	Frequency Stability	**Pages 40-64**
Part 2.1057	Frequency Spectrum to be Investigated	
Part 22	Public Mobile Services; Subpart H – Cellular Radiotelephone Service	
Part 22.917	Emission Limitations for Cellular Equipment	

ETSI	TS 125 141 V7.4.0 (2006-06): Universal Mobile Telecommunications System (UMTS); Base Station (BS) Conformance Testing (FDD), (3GPP TS 25.141, Version 7.4.0, Release 7).

ETSI TS 125 104 V7.4.0 (2006-06): Universal Mobile Telecommunications System (UMTS); Base Station (BS) Radio Transmission and Reception (FDD), (3GPP TS 25.104, Version 7.4.0, Release 7).

ANSI C63.4-2003 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic in the Range of 9 kHz to 40 GHz; January 30, 2004

PART 2.1046 MEASUREMENTS REQUIRED: RF POWER OUTPUT

The UMTS Distributed Base Station Transceiver System (850 MHz), subject of this application for certification, is designed to provide a maximum RF power level, per single 5 MHz carrier emission bandwidth, of 40 Watts (+46 dBm) at the Equipment Antenna Terminal (EAC). The RF power rating is based the 3-second average, employing the Aggregate Overload Control (AOC) algorithm. Enhanced Digital Pre-Distortion (EDPD) and Closed Loop Gain Control (CLGC) are features that are enabled for each carrier. This System is designed to operate in a 21 MHz bandwidth, over the cellular frequency spectrum: 869-890 MHz, which corresponds to the Cellular A"+A+B Bands.

All conducted emission measurements are performed at the EAC, with measurements being made at the lowest and the highest settable UMTS carrier frequencies both in the A"+A and the B Bands, i.e., at each UMTS end frequency. These 4 carrier channels were used throughout this test procedure, as tabulated below. Each time the carrier is set to each of the channels, and to each of 2 ETSI Test Modulation schemes, the power level is adjusted, by software control, to +46 dBm (40 Watts at 3-second average) before performing each emission measurement.

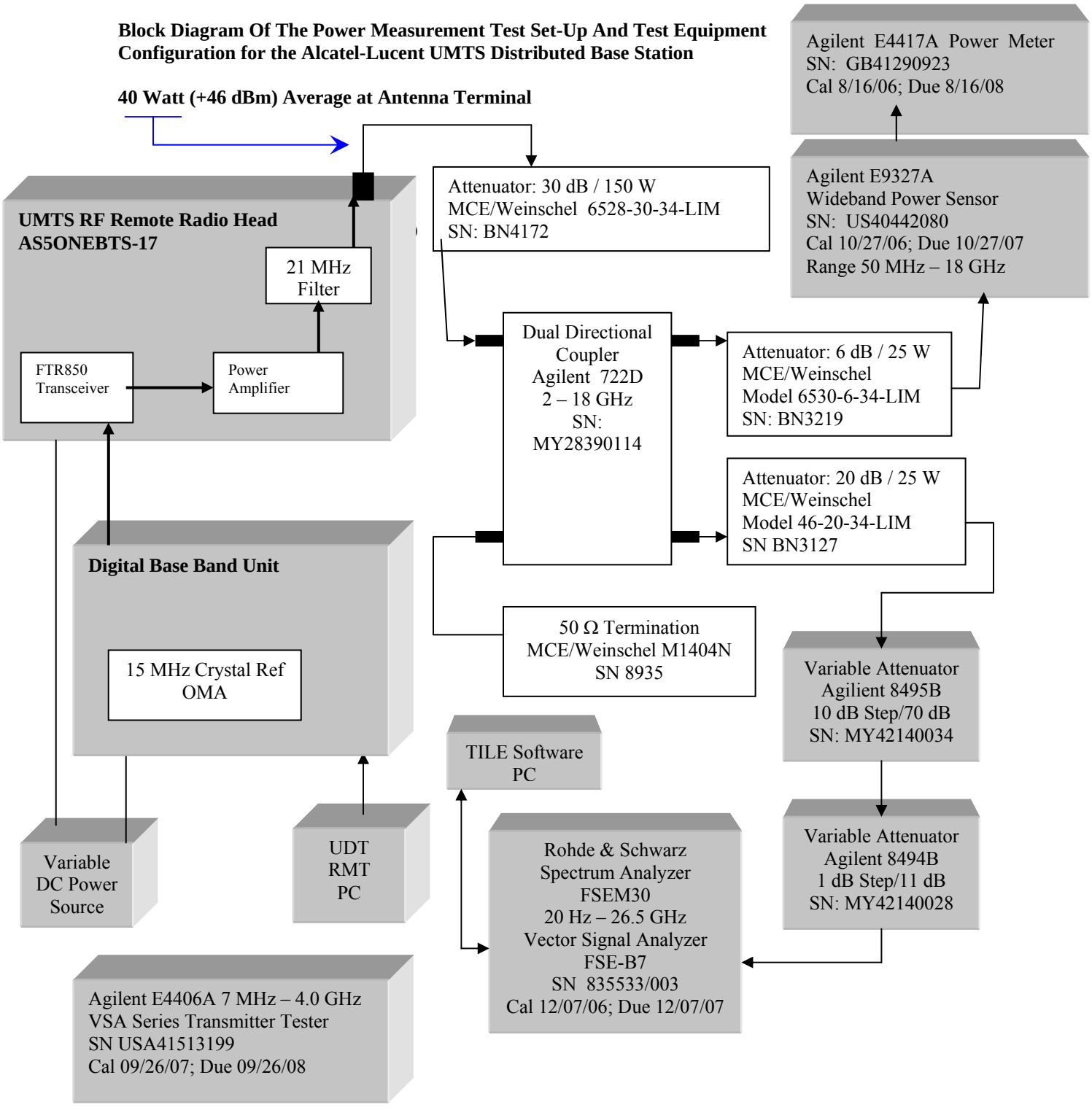
Cellular Frequency Band	UMTS850 Carrier	Single Carrier Bandwidth	UARFCN Channel Number	UMTS Carrier Center Frequency	Measured Power Level
A	Lowest Settable for A-Band and to 869 MHz Band Edge	5 MHz	1007	871.5 MHz	+46 dBm
A	Highest Settable for A-Band	5 MHz	1037	877.5 MHz	+46 dBm
B	Lowest Settable for B-Band	5 MHz	1062	882.5 MHz	+46 dBm
B	Highest Settable for B-Band and to 890 MHz Band Edge	5 MHz	1087	877.5 MHz	+46 dBm

Note: UARFCN = UTRA Absolute Radio Frequency Channel Number

Results: The 5 MHz UMTS Distributed Base Station Transceiver System, 850 MHz, is compliant with the manufacturer's rated power level at the transmit antenna terminal for the above listed carrier frequencies.

Block Diagram Of The Power Measurement Test Set-Up And Test Equipment Configuration for the Alcatel-Lucent UMTS Distributed Base Station

40 Watt (+46 dBm) Average at Antenna Terminal



PART 2.1047 MEASUREMENTS REQUIRED: MODULATION CHARACTERISTICS

The modulation accuracy was measured at the Equipment Antenna Terminal (EAC) for each of the four UMTS 850 carriers UARFCN 1007, 1037, 1062, and 1087. ETSI TS 25.141 requires that the Error Vector Magnitude (EVM) be measured using a single active channel (SCH) with Test Model 4 (TM4) modulation, and the power level set to Pmax – 18 dB (+46 dBm- 18 dB = +28 dBm).

TM4: with 1 Active Channel
ETSI TS 25.141 Rel 7, Table 6.6 : Test Model 4 Active Channels

Type	Number of Channels
P-CCPCH+SCH when Primary CPICH is disabled.	1

The requirement is that the Error Vector Magnitude (EVM) be less than 17.5% rms. The test equipment used was an Agilent E4406A VSA Series Transmitter Tester (SN US41513199).

RMS Error Vector Magnitude (EVM) Measurement Summary at the Antenna Terminal:

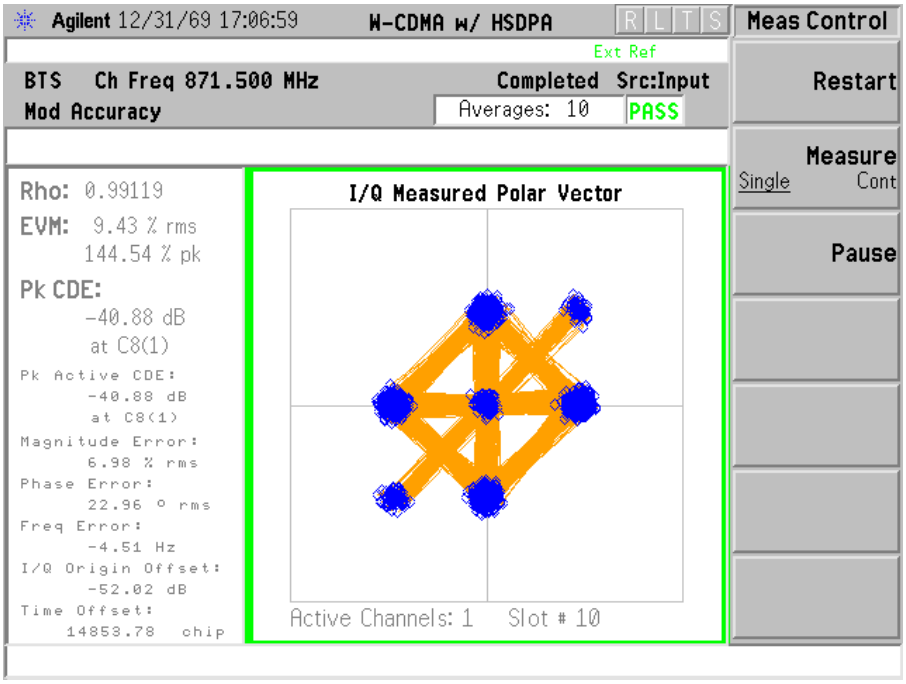
Cellular Frequency Band	UMTS850 Carrier	Single Carrier Bandwidth	UARFCN Channel Number	UMTS Carrier Center Frequency	Modulation Accuracy EVM
A	Lowest Settable for A-Band and to 869 MHz Band Edge	5 MHz	1007	871.5 MHz	**9.43 % rms**
A	Highest Settable for A-Band	5 MHz	1037	877.5 MHz	**8.93 % rms**
B	Lowest Settable for B-Band	5 MHz	1062	882.5 MHz	**8.96 % rms**
B	Highest Settable for B-Band and to 890 MHz Band Edge	5 MHz	1087	887.5 MHz	**9.20 % rms**

Minimum Standard Requirement: The minimum standard requirement is that the RMS Error Vector Magnitude (EVM) shall be less than 17.5%.

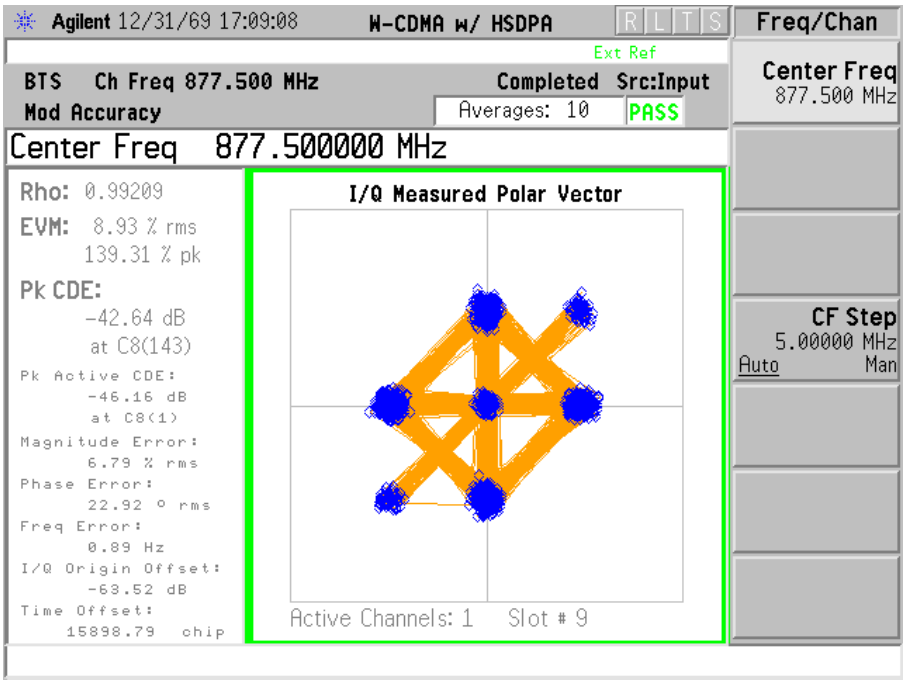
Test Set-up and Configuration: Same as previously used for Part 2.1046 RF Power Measurement, with exception that the FSEM30 Spectrum Analyzer is replaced by:
1) Agilent E4406A VSA Series Transmitter Tester, 7 MHz – 4.0 GHz, SN US41513199

RESULTS: The UMTS Distributed Base Station Transceiver System (850 MHz) demonstrated full compliance with the modulation accuracy requirements specified in ETSI TS 25.141. All 4 channels were less than the 17.5% rms limitation. The plots for each channel are included in this exhibit as shown below.

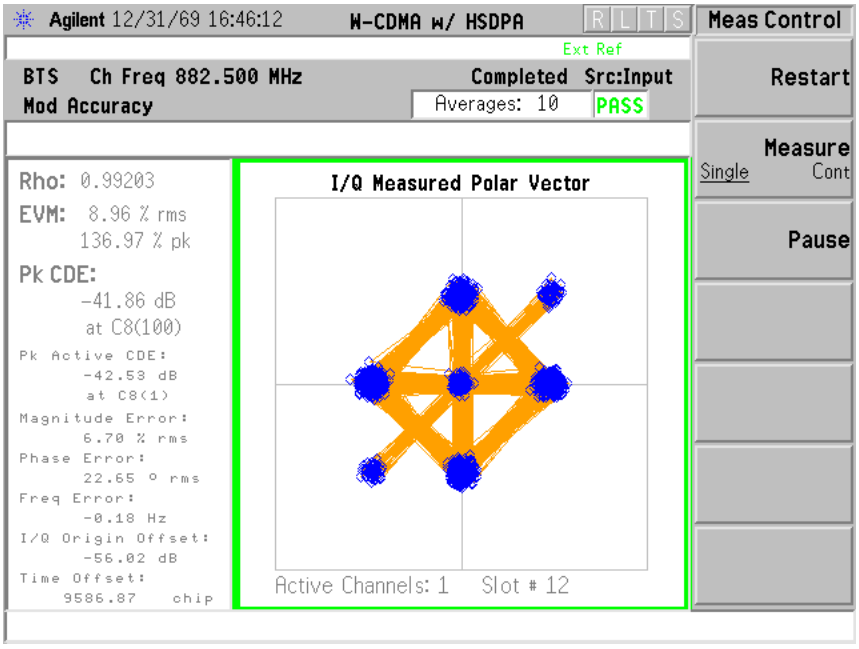
Modulation Characteristics: UARFCN Channel Number 1007 @ 871.50 MHz
Tx Antenna Terminal at +28 dBm per single 5 MHz carrier



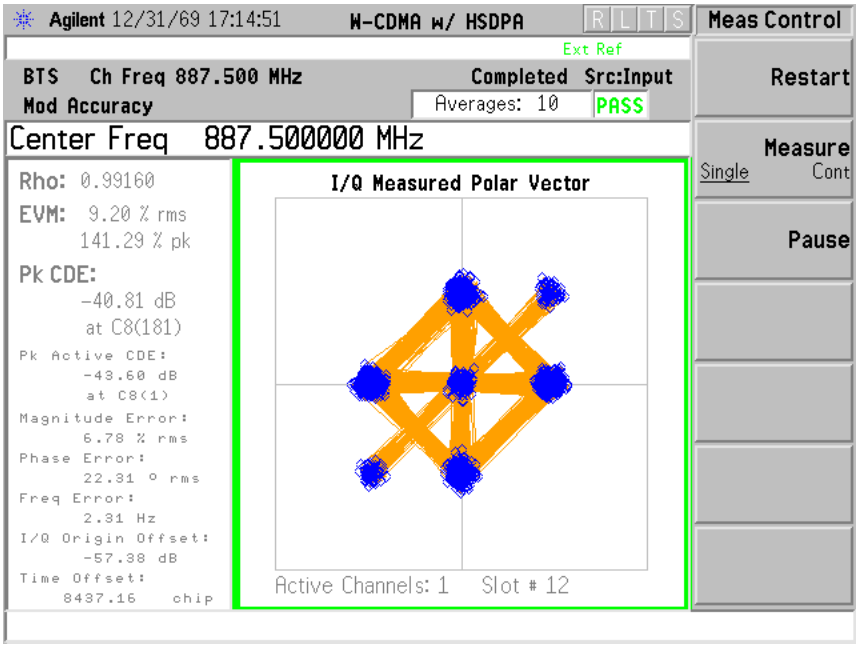
Modulation Characteristics: UARFCN Channel Number 1037 @ 877.50 MHz
Tx Antenna Terminal at +28 dBm per single 5 MHz carrier



Modulation Characteristics: UARFCN Channel Number 1062 @ 882.50 MHz
Tx Antenna Terminal at +28 dBm per single 5 MHz carrier



Modulation Characteristics: UARFCN Channel Number 1087 @ 887.50 MHz
Tx Antenna Terminal at +28 dBm per single 5 MHz carrier



PART 2.1049 MEASUREMENTS REQUIRED: OCCUPIED BANDWIDTH

The occupied bandwidth was measured at the Equipment Antenna Terminal (EAC) for each of the four, UMTS 850, 5 MHz carriers. The power level was set to 40 Watts (+46 dBm). Two ETSI Test Modulation schemes were utilized:

1) TM1-64 with up to 68 active channels, consisting of 64 Voice + 4 Control active channels, and
2) TM5-44 with up to 44 active channels, consisting of 30 Voice + 8 HSDPA + 6 Control active channels, where HSDPA = High Speed Downlink Packet Access.

The occupied bandwidth was measured by two methods:

1. The carrier 99% power bandwidth, which is also the necessary bandwidth, using an Agilent E4406A VSA Series Transmitter Tester (SN US41513199).
2. Emission mask limitation using a Rohde & Schwarz: Spectrum Analyzer FSEM30 (SN 835533/003), to demonstrate compliance with the ETSI TS 25.141 emission mask requirements and with Part 22.917.

Method 1: The carrier 99% power bandwidth was measured at the Equipment Antenna Terminal (EAC) with the 5 MHz carrier set to +46 dBm and modulated first with TM1-64 and then with TM5-44. The necessary bandwidth measurement results show that the carrier is within the manufacturer's rated 5 MHz bandwidth for all four carriers measured, and for both modulation schemes, as tabulated below. For brevity, the data plots that are attached show the TM1-64 measurements. The TM5-44 plots are nearly identical, and tabulating the measured values below is sufficient.

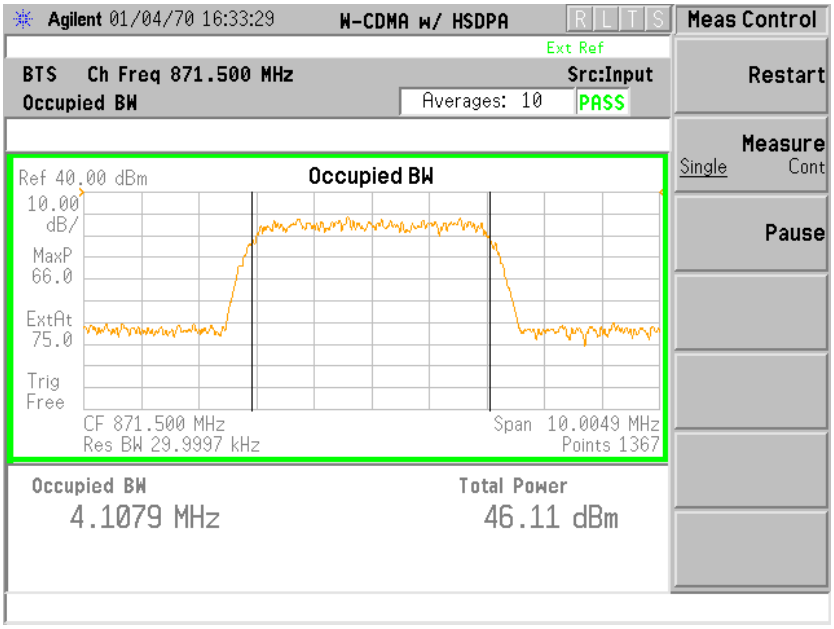
Cellular Frequency Band	UMTS850 Carrier	UARFCN Channel Number	UMTS Carrier Center Frequency	99% Bandwidth TM1-64	99% Bandwidth TM5-44
A	Lowest Settable for A-Band and to 869 MHz Band Edge	1007	871.5 MHz	**4.1079 MHz**	**4.1022 MHz**
A	Highest Settable for A-Band	1037	877.5 MHz	**4.1088 MHz**	**4.1080 MHz**
B	Lowest Settable for B-Band	1062	882.5 MHz	**4.1019MHz**	**4.1039 MHz**
B	Highest Settable for B-Band and to 890 MHz Band Edge	1087	877.5 MHz	**4.1054 MHz**	**4.1009 MHz**

Results: For each UMTS 850 MHz channel, and for each test modulation scheme, the carrier does not exceed 5.0 MHz. The necessary bandwidth and emission designator is **4M10F9W**.

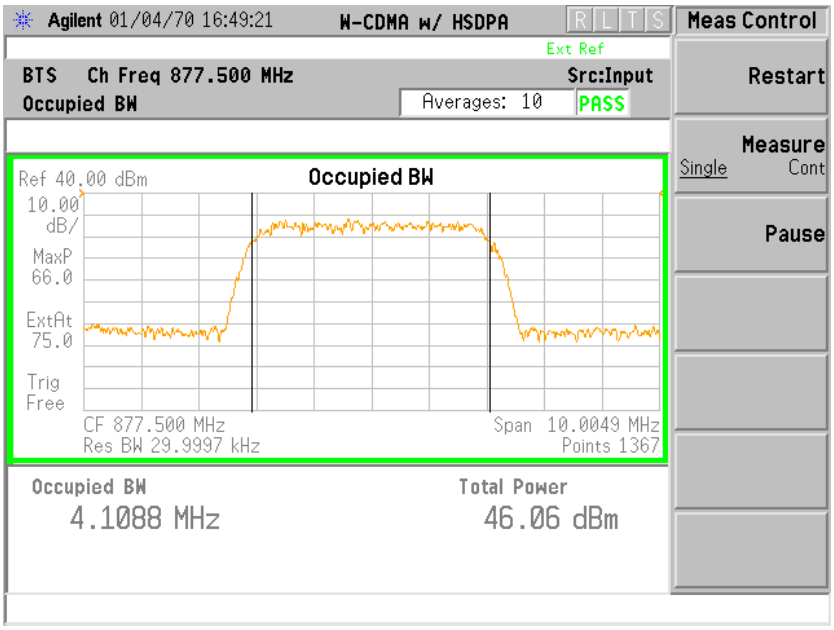
The average and range of the 99% power bandwidth/necessary bandwidth measurements are:

Average	4.1049
Max	4.1088
Min	4.1009

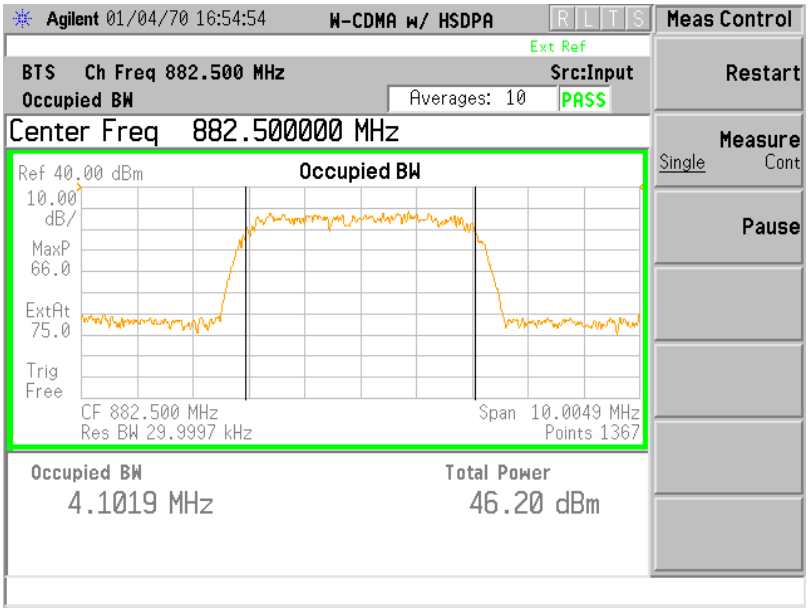
Carrier 99% Bandwidth Characteristics: UARFCN Channel Number 1007 @ 871.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Modulation



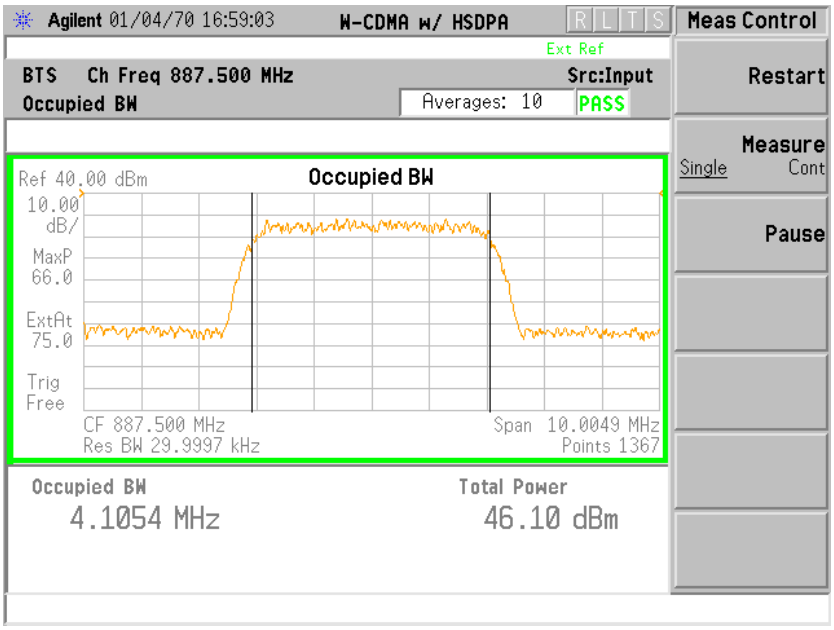
Carrier 99% Bandwidth Characteristics: UARFCN Channel Number 1037 @ 877.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Modulation



Carrier 99% Bandwidth Characteristics: UARFCN Channel Number 1062 @ 882.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Modulation



Carrier 99% Bandwidth Characteristics: UARFCN Channel Number 1087 @ 887.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Modulation



Method 2. Emission mask limitation using a Rohde & Schwarz: Spectrum Analyzer FSEM30 (SN 835533/003) with Total Integrated Laboratory Environment (TILE) test software.

Measurement of the occupied bandwidth emission characteristics was performed at the Equipment Antenna Terminal (EAC) with the 5 MHz carrier set to +46 dBm for each of the 4 carriers, and for both the TM1-64 and TM5-44 modulation schemes.. The same 4 UARFCN channels as used previously, were repeated. The emission mask used to demonstrate compliance was as specified in ETSI TS 25.141 for P ≥ +43 dBm. The mask attenuation values were based on a 30 kHz resolution bandwidth, which made the modulated 5 MHz carrier to be offset from +46 dBm by –22.2 dB, in accordance with the equation:

Carrier Offset = 10 log (30 kHz/5 MHz) = -22.2 dB

This series of measurements were performed using the EMC software:

Total Integrated Laboratory Environment (TILE)
By Quantum Change/EMC Systems, Inc.

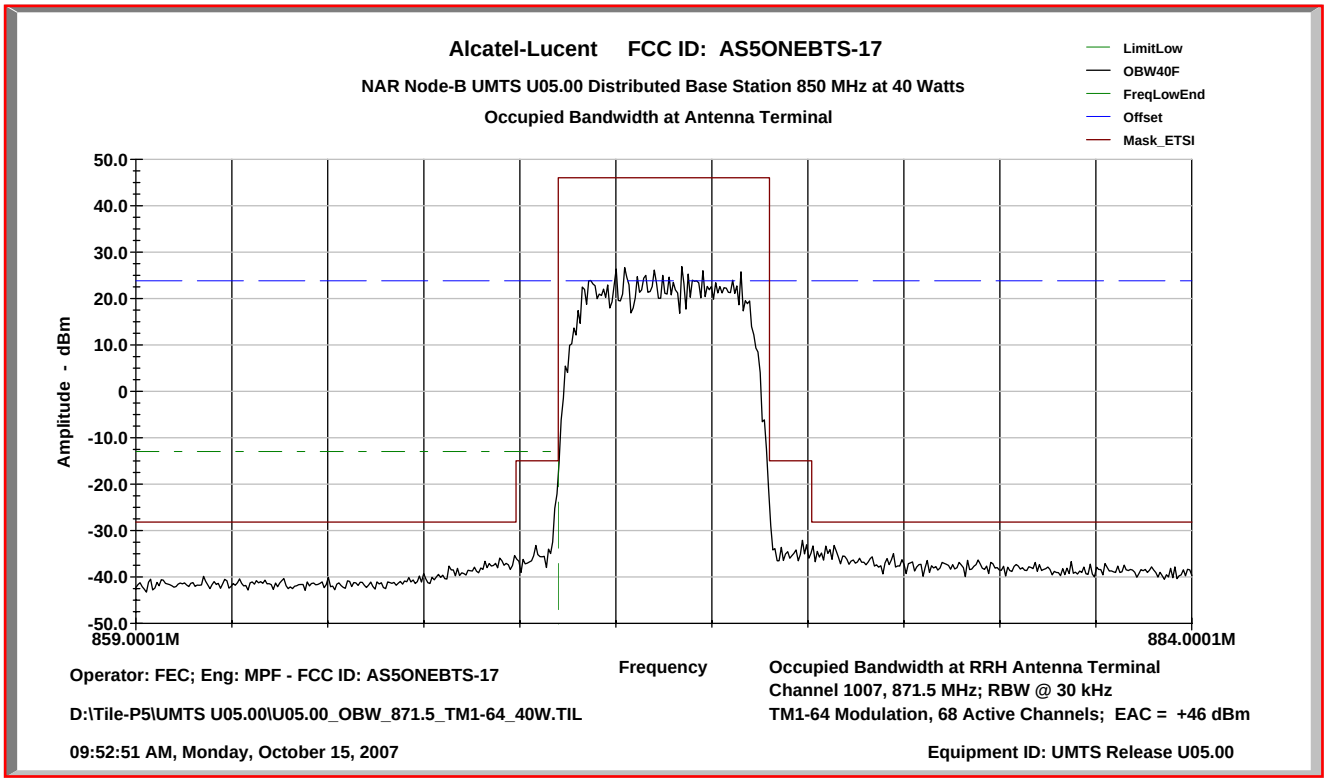
The data/measurement plots for the 4 channels with TM1-64 modulation are attached below. The same test results were demonstrated for the TM5-44 test modulation; and are not attached to avoid repetition.

Test Set-up and Configuration: Same as previously used for Part 2.1046 RF Power Measurement.

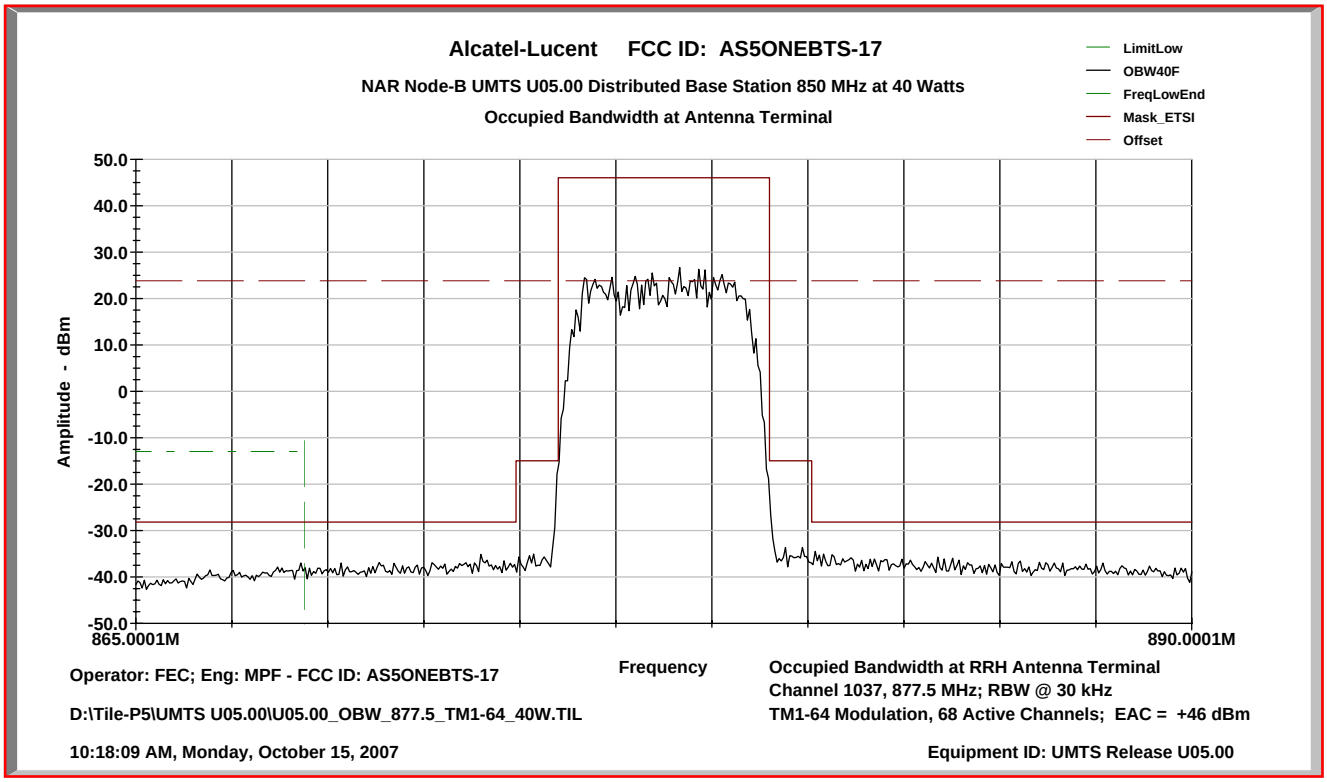
RESULTS: The UARFCN 1007, 1037, 1062, & 1087 channels all demonstrate compliance with the emission mask specified by ETSI TS 25.141 for both TM1-64 and TM5-44 test modulations. In each test, the carriers do not exceed the mask limitation.

The data plots are attached below for the TM1-64 test modulation scheme. Since TM5-44 showed nearly identical results, those data plots are not necessary to display.

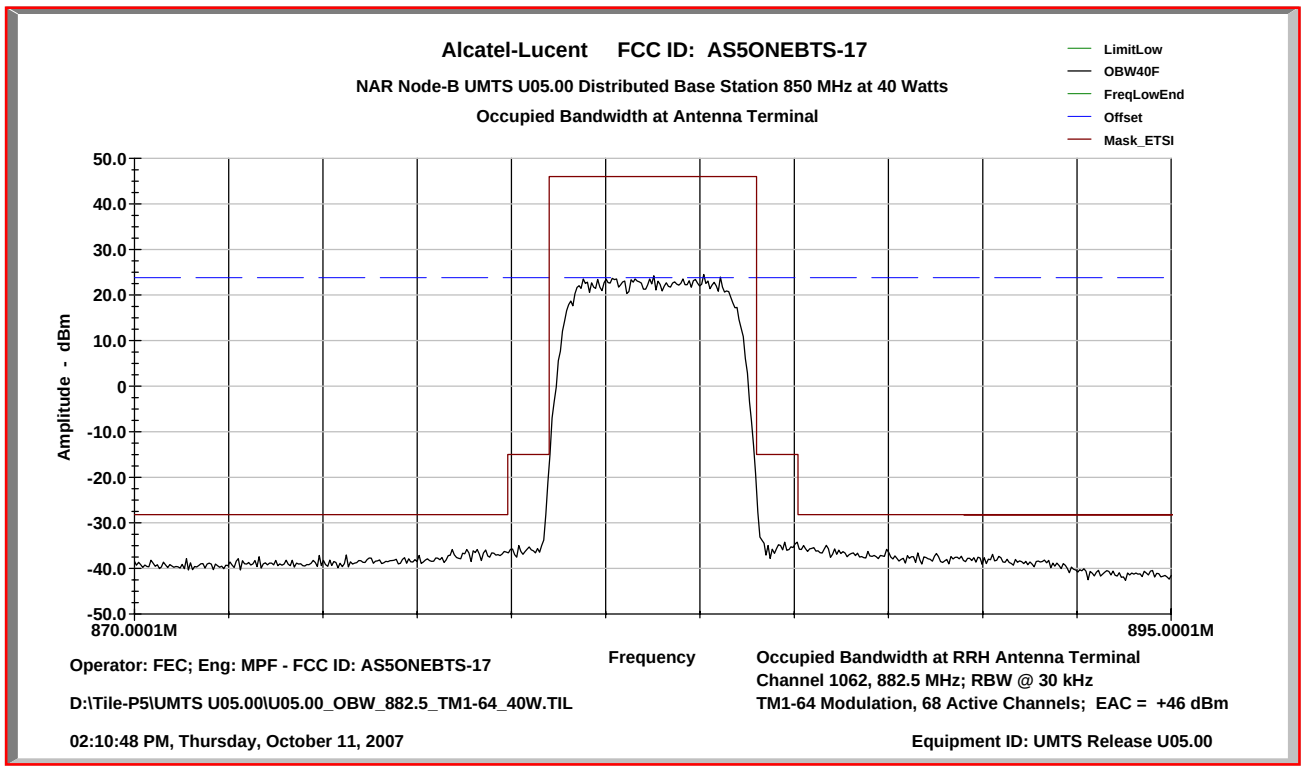
Occupied Bandwidth Characteristics: UARFCN Channel Number 1007 @ 871.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Test Modulation



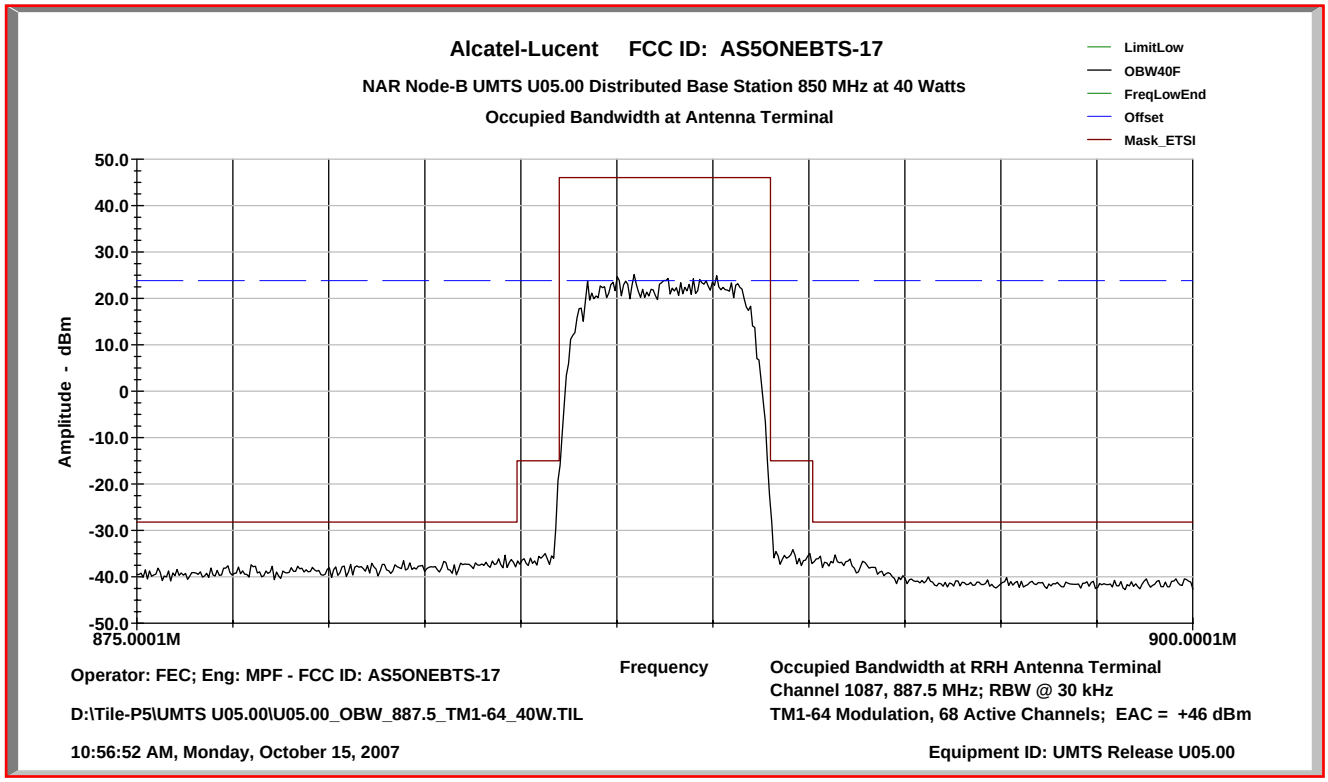
Occupied Bandwidth Characteristics: UARFCN Channel Number 1037 @ 877.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Test Modulation



Occupied Bandwidth Characteristics: UARFCN Channel Number 1062 @ 882.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Test Modulation



Occupied Bandwidth Characteristics: UARFCN Channel Number 1087 @ 887.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Test Modulation



SPECIAL TEST FOR INTERMODULATION PRODUCTS AT THE ANTENNA TERMINAL:

This is a special test submitted to the FCC when a multi-carrier amplifier is included in the FCC filing. ETSI TS 25.141 Rel 7, Section 6.6 *Transmit Intermodulation* also specifies this requirement for W-CDMA. This test is a measure of the linearity of the RF path components and of their ability to suppress the generation of unwanted intermodulation products, when 2 carrier signals are transmitted. Focus is on the third and fifth order intermodulation products that fall either within or immediately adjacent to the authorized passband.

All tests were performed with 2 adjacent carriers at 20 W each, consistent with the system design for a total bandwidth of 10 MHz capability, and modulated by TM1-64. The total composite power remains at 40W (+46 dBm). The measurement spectrum will be sufficient to include the 3rd and 5th order IMD products. The FCC limitation is -13 dBm when measured at 30 kHz RBW. Since A"+A-Band is 11 MHz wide and B-Band is 10 MHz wide, two channel pairs are sufficient to demonstrate compliance in each band:

Pair #1, A-Band: Ch 1007, 871.5 MHz + Ch 1032, 876.5 MHz
Pair #2, B-Band: Ch 1062, 882.5 MHz + Ch 1087, 887.5 MHz

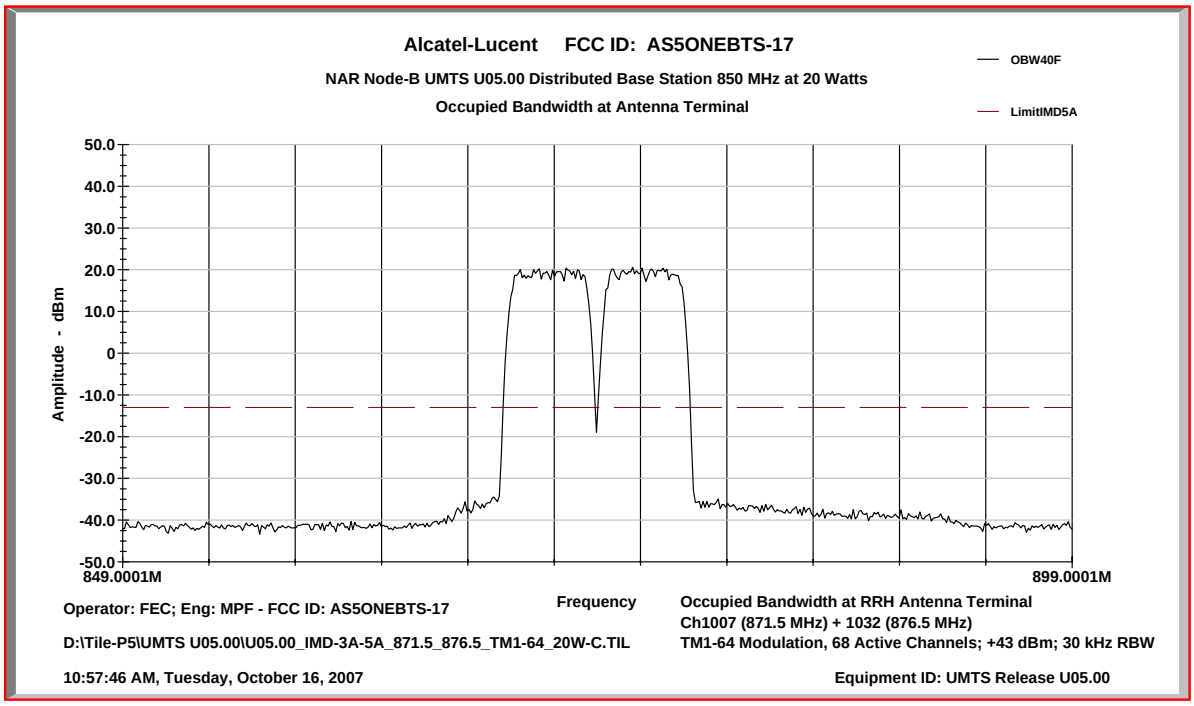
The following test parameters apply:

1. Focus is on the 3rd and 5th order intermodulation products that are generated within and adjacent to the FCC authorized passband spectrum.
2. The 3rd order IMD products of interest are: $2F_1 - F_2$ and $2F_2 - F_1$, where F_1 is the lower frequency and F_2 the higher frequency.
3. The 5th order IMD products of interest are: $3F_1 - 2F_2$ and $3F_2 - 2F_1$
4. The FCC limit = -13 dBm
5. The measurement instrumentation Resolution Bandwidth (RBW) = 30 kHz
6. The frequency span is sufficient to cover the 5th order IMD products.
7. The complete conducted emissions spectrum 10 MHz – 10 GHz is included
8. Measurements were performed using the Total Integrated Laboratory Environment (TILE) EMC automated test software, by Quantum Change/EMC Systems, Inc.

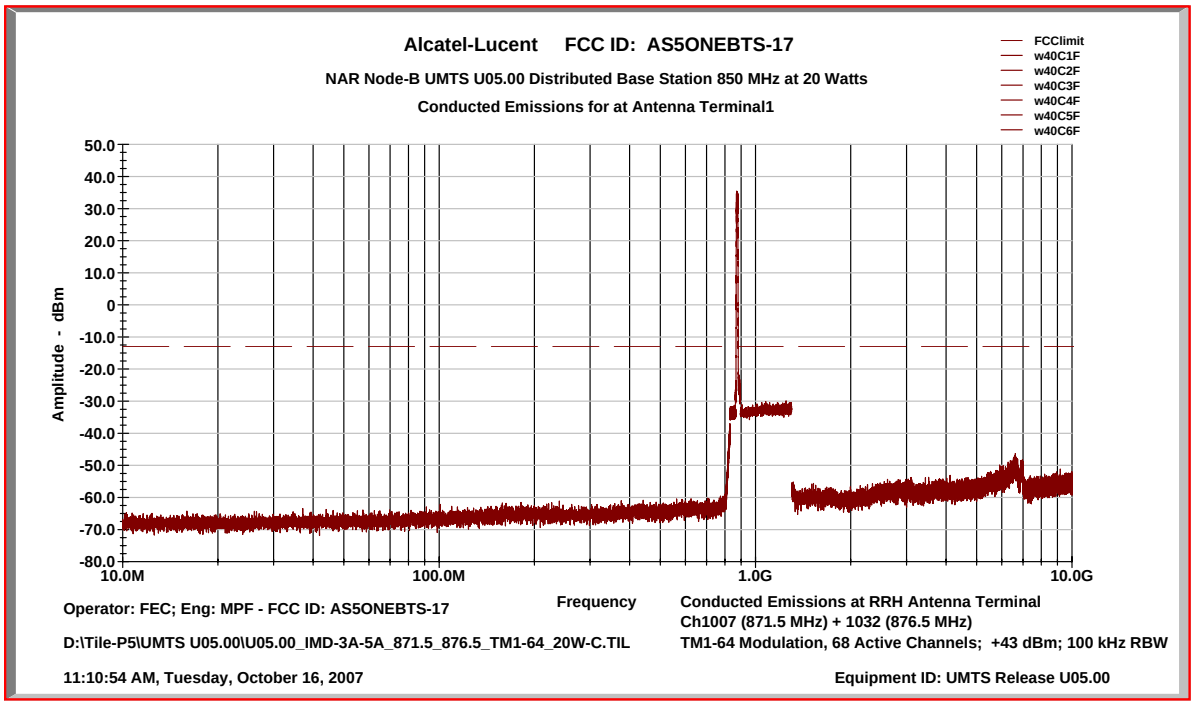
Results:

The data plots are attached . No intermodulation products were observed.

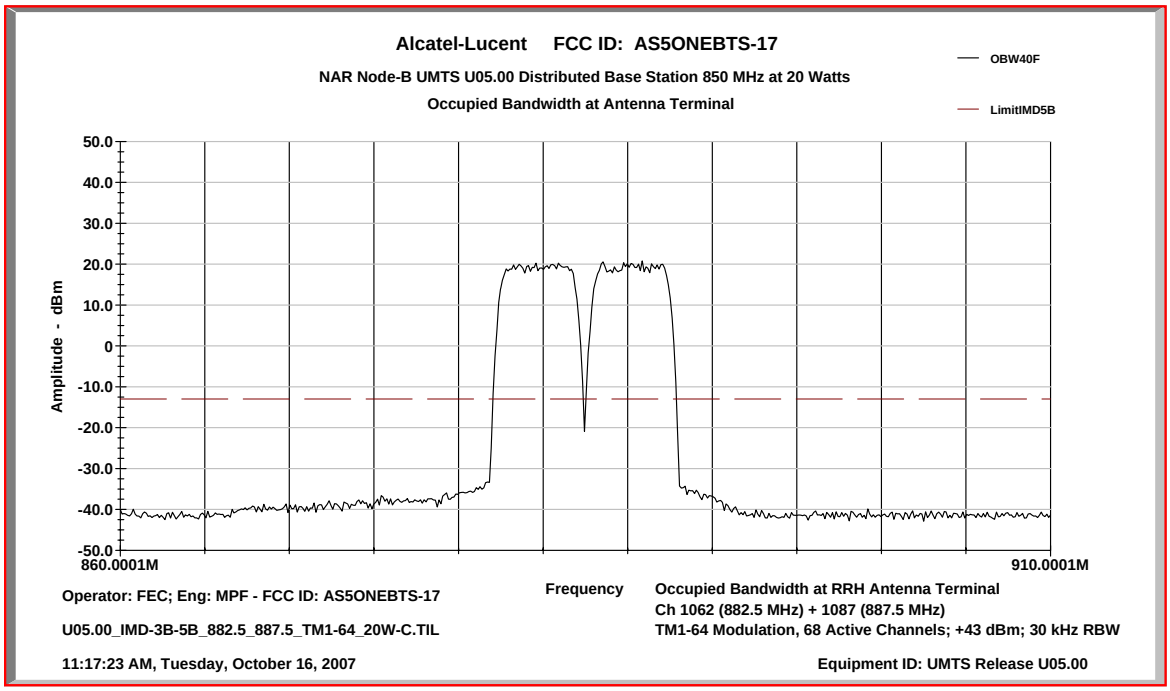
Pair #1, A-Band: Ch 1007, 871.5 MHz + Ch 1032, 876.5 MHz
Measurement Spectrum 849 – 899 MHz



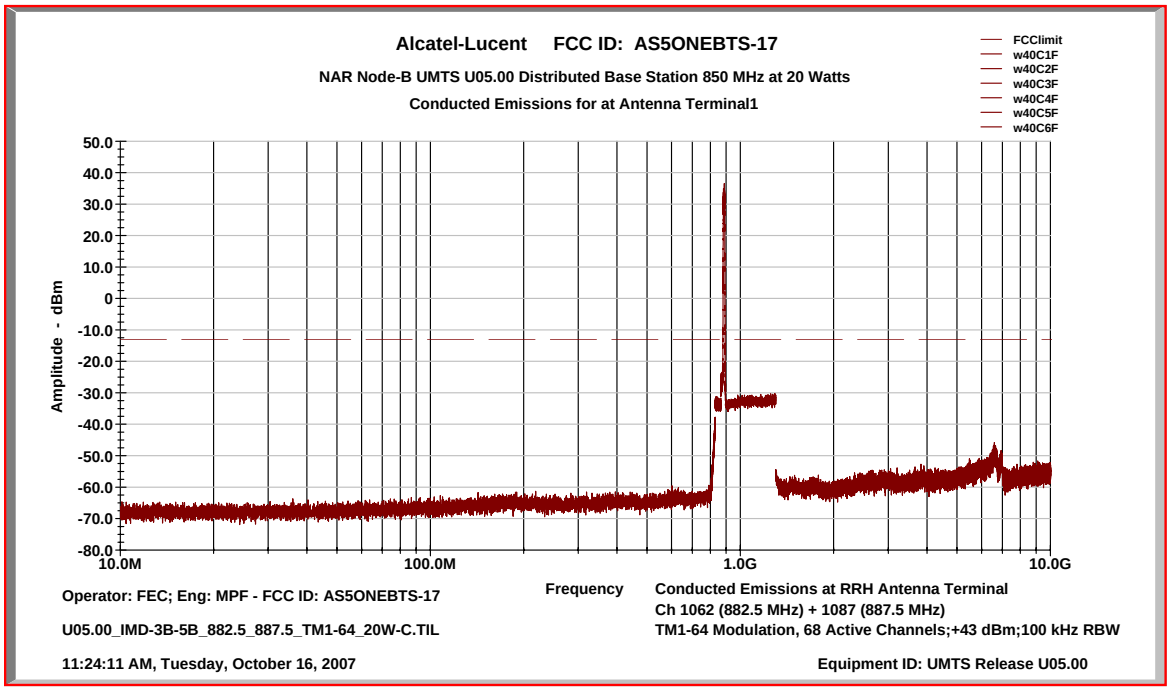
Pair #1, A-Band: Ch 1007, 871.5 MHz + Ch 1032, 876.5 MHz
Measurement Spectrum 10 MHz – 10 GHz



Pair #2, B-Band: Ch 1062, 882.5 MHz + Ch 1087, 887.5 MHz
Measurement Spectrum 860 – 910 MHz



Pair #2, B-Band: Ch 1062, 882.5 MHz + Ch 1087, 887.5 MHz
Measurement Spectrum 10 MHz – 10 GHz



PART 2.1051 MEASUREMENTS REQUIRED: SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS.

This test procedure is an extension of the occupied bandwidth measurement at the Equipment Antenna Connector (EAC) terminal, using the same carrier frequencies, power level setting procedure and modulated carrier offset procedure. In accordance with Part 2.1057(a), the required frequency spectrum to be investigated extends from the lowest RF signal generated to the 10^{th} harmonic of the carrier at the EAC terminal. The emission limits at the antenna terminal are specified in Part 22.917 (a) … the power of any emission shall be attenuated below the transmitter power (*P*) by at least 43 + 10 log (*P*) dBc. The power *P* is the average carrier power measured at the EAC (antenna) terminal in Watts. Setting the power level at EAC to 40 Watts average, produces an emission attenuation below the carrier of 59.0 dBc. Part 22.917 (b) specifies the required Resolution Bandwidth (RBW) to be 100 kHz or greater. In accordance with Part 2.1051, "the magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified"; i.e., these are not reportable. Hence, the measurement equipment must be adjusted and configured to provide an instrumentation noise floor that is at least 20 dB or more below the 43 + 10 log (*P*) dBc limit, which equates to 79.0 dBc. The pertinent test parameters are:

1.	Frequency Spectrum:	10 MHz to 10 GHz
2.	Resolution Bandwidth:	100 kHz or greater (Part 22.917)
3.	Emission Limitation:	43 + 10 log (*P*) dBc = 43 + 10 log (40 Watts) = 59.0 dBc
4.	Instrumentation Noise Floor:	at least 20 dB greater than "43 + 10 log (*P*) dBc" = 79.0 dBc

Minimum Standard Requirement:

The emission limits at the antenna terminal are specified in Part 22.917 (a) … the power of any emission shall be attenuated below the transmitter power (*P*) by at least 43 + 10 log (*P*) dBc (i.e., attenuation below the unmodulated carrier). The power *P* is the average carrier power measured at the J4 antenna terminal in Watts. The measurement equipment must be adjusted and configured to provide an instrumentation noise floor that is 20 dB or more below the 43 + 10 log (*P*) dBc limit. In summary:

1. Carrier Power Level = 46.0 dBm
2. Emission Limitation = 46.0 dBm – 59.0 dBc = -13.0 dBm
3. Reportable Emission Limit = -13.0 dBm – 20 dBc = - 33.0 dBm
4. Emission power levels less than – 33.0 dBm are not reportable; i.e., at $\geq$ 79.0 dBc

Test Set-up and Configuration: Same as previously used for Part 2.1046 RF Power Measurement.

Method of Measurement:

In order to suppress the instrumentation noise floor sufficient to detect and measure spurious signals that have power levels as low as 20 dB below the required limit, or as low as –33.0 dBm (i.e., 79 dBc), an EMC software package was employed to drive the spectrum analyzer, collect and compile the acquired data, perform mathematical corrections to the data by incorporating (i.e., programming) pre-measured path losses into the software, and then generate a graphical display as shown in this exhibit. The software package is: *TILE/IC (Total Integrated Laboratory Environment/Instrument Control System)*; purchased and licensed from Quantum Change/EMC Systems, Inc. The instrumentation noise floor is suppressed by the software's ability to split the spectrum being measured into many small segments, perform the mathematical corrections to each segment, and then sequentially compile all the segments into a continuous graphical display.

Part 22.917 requires that emissions over the required spectrum 10 MHz to 10 GHz be measured using an instrumentation resolution bandwidth of 100 kHz or greater. The TILE/IC software was able to sufficiently suppress the normally high noise floor by measuring the spectrum in a sequential series of short segments using a peak detector, in combination with an appropriate low-pass filter and then with an appropriate high-pass filter, installed at the input terminal of the spectrum analyzer, to prevent the carrier from over driving the spectrum analyzer. The spectrum portion 894 MHz – 1.3 GHz, in close proximity to the carrier, was measured without filters.

The specific EMC test filters used were manufactured by TRILITHIC, Inc., Indianapolis, IN:

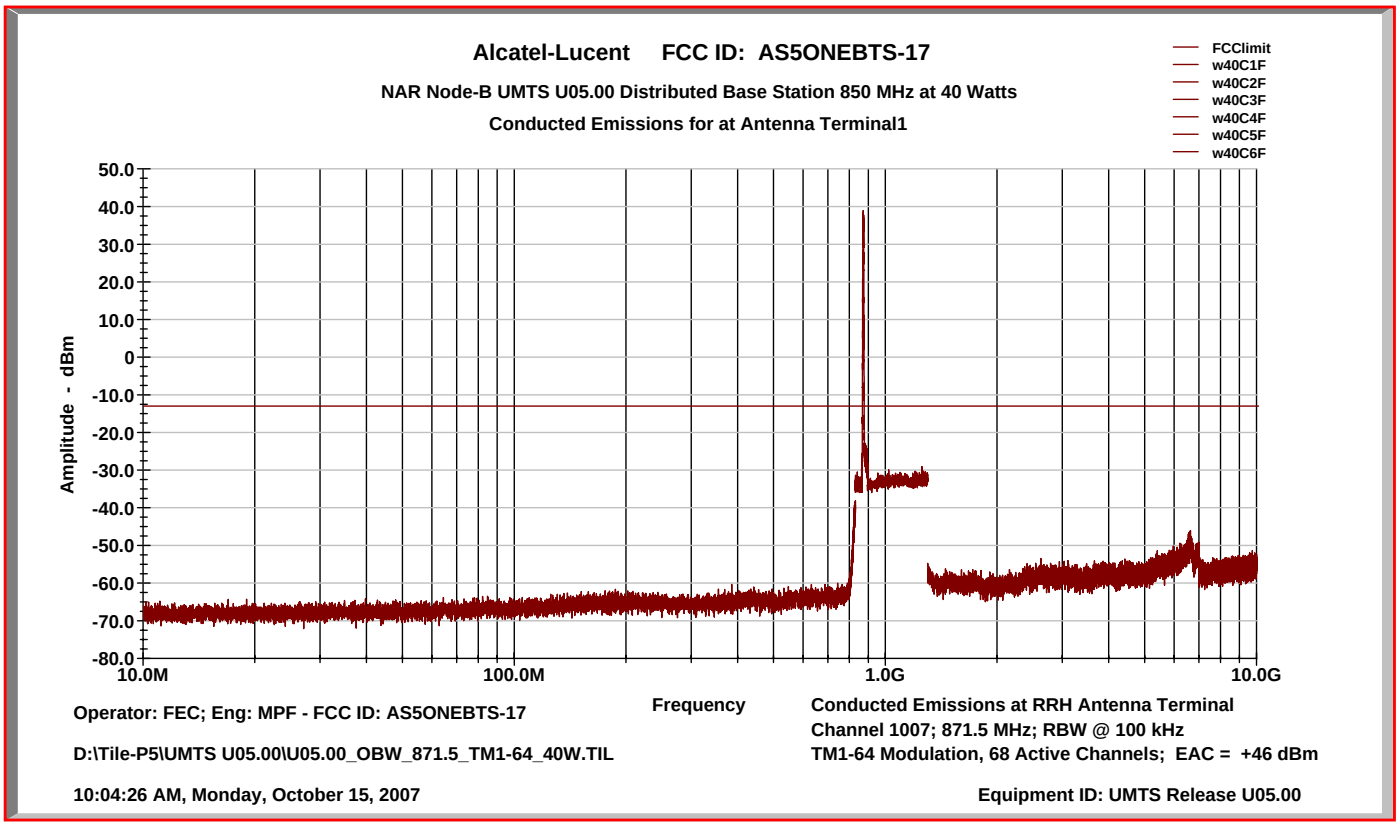
1. Low Pass Filter: Model 10LC800-3-AA; Product No. 23042
2. High Pass Filter: Model 4HC1400/8000-1-KK; Product No. 23042

The UARFCN 1007, 1037, 1062 & 1087 channels, tabulated below, all demonstrate compliance with the conducted emission limitation requirements specified by Part 22.917.

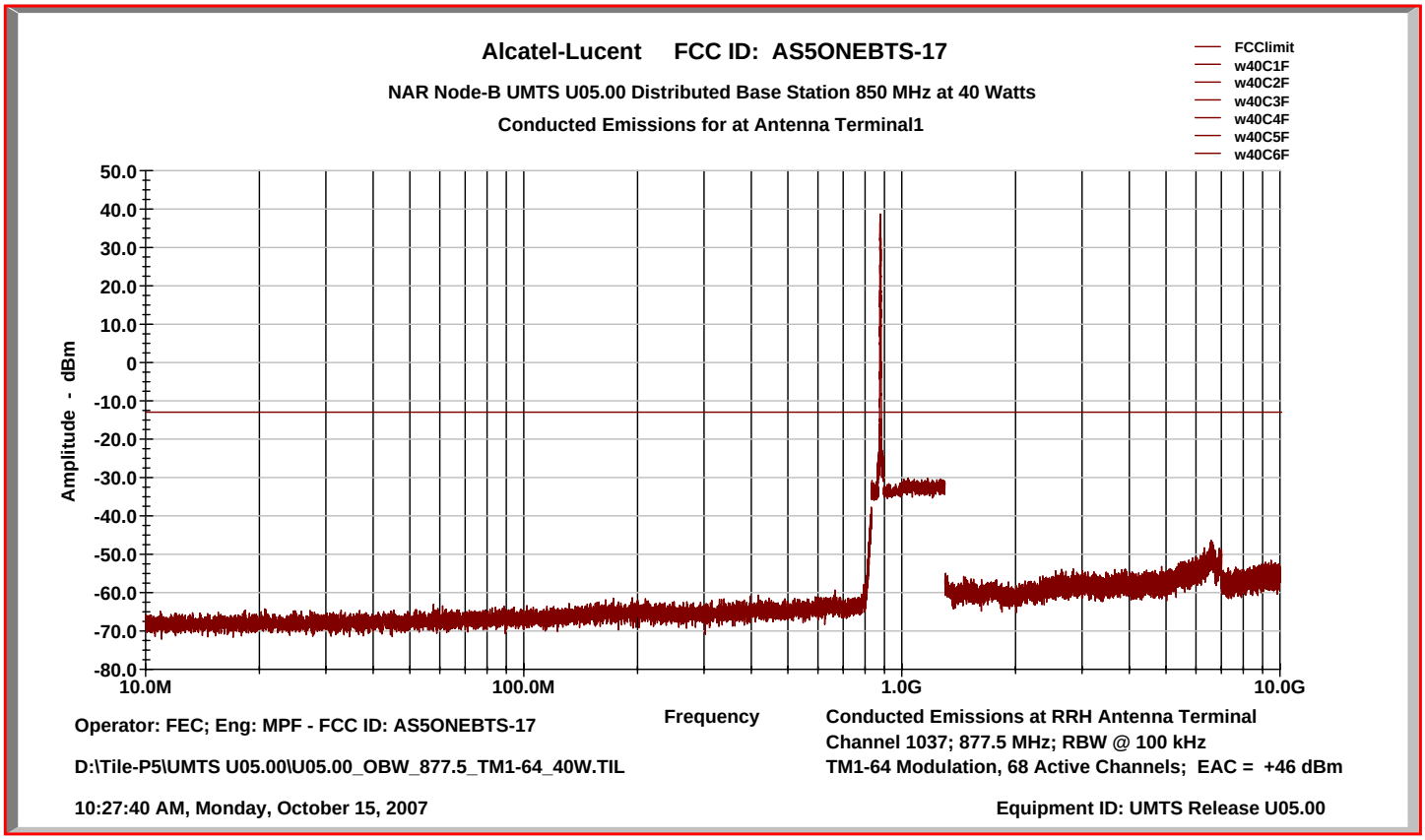
Cellular Frequency Band	UMTS850 Carrier	Single Carrier Bandwidth	UARFCN Channel Number	UMTS Carrier Center Frequency	Measured Carrier Power at Antenna Terminal
A	Lowest Settable for A-Band and to 869 MHz Band Edge	5 MHz	1007	871.5 MHz	+46 dBm
A	Highest Settable for A-Band	5 MHz	1037	877.5 MHz	+46 dBm
B	Lowest Settable for B-Band	5 MHz	1062	882.5 MHz	+46 dBm
B	Highest Settable for B-Band and to 890 MHz Band Edge	5 MHz	1087	887.5 MHz	+46 dBm

Results: For each UMTS carrier, there were no reportable emissions. Data plots for each carrier, with TM1-64 test modulation, are attached to this exhibit. The same results were achieved for the TM5-44 modulated carriers; the data plots need not be displayed.

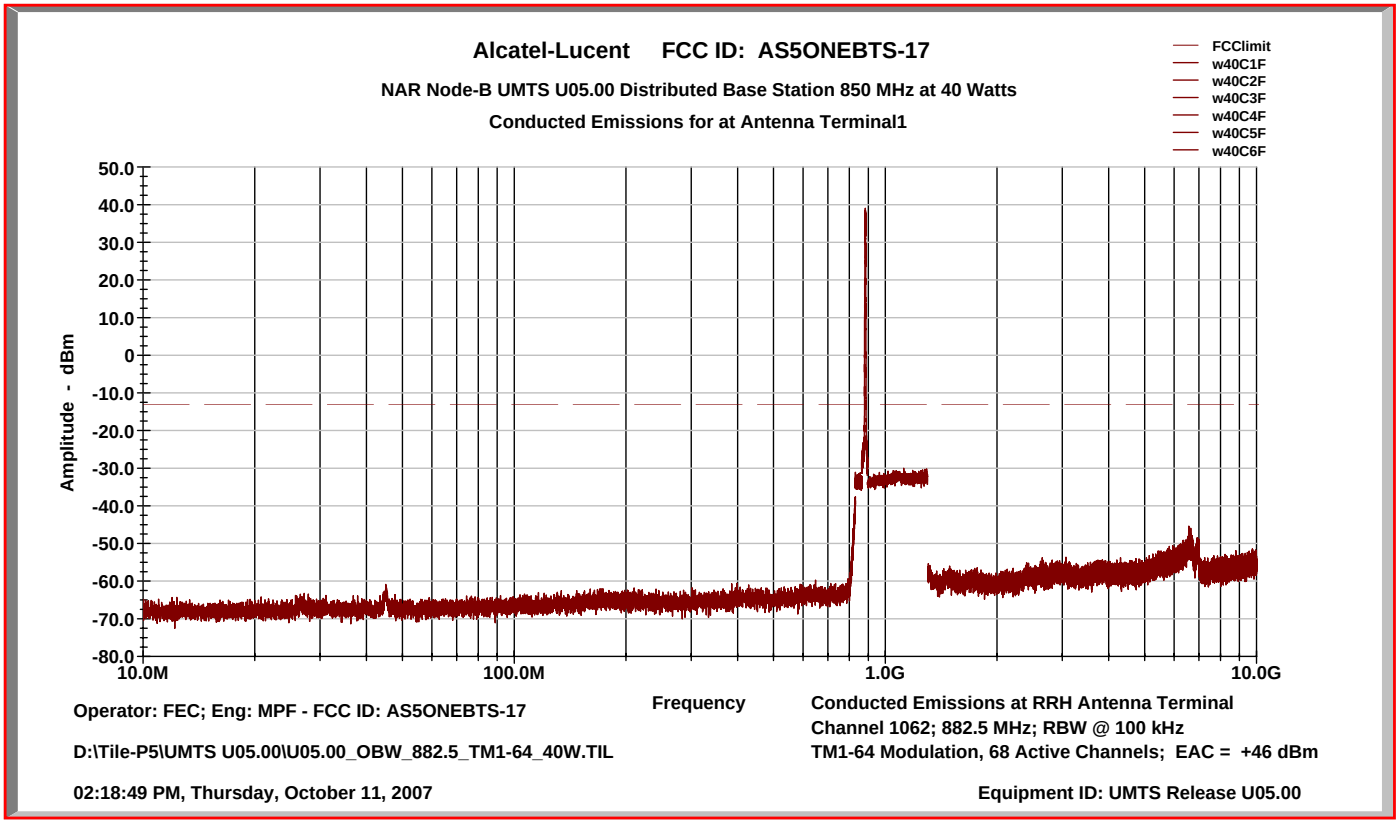
Conducted Emissions Characteristics: UARFCN Channel Number 1007 @ 871.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Test Modulation



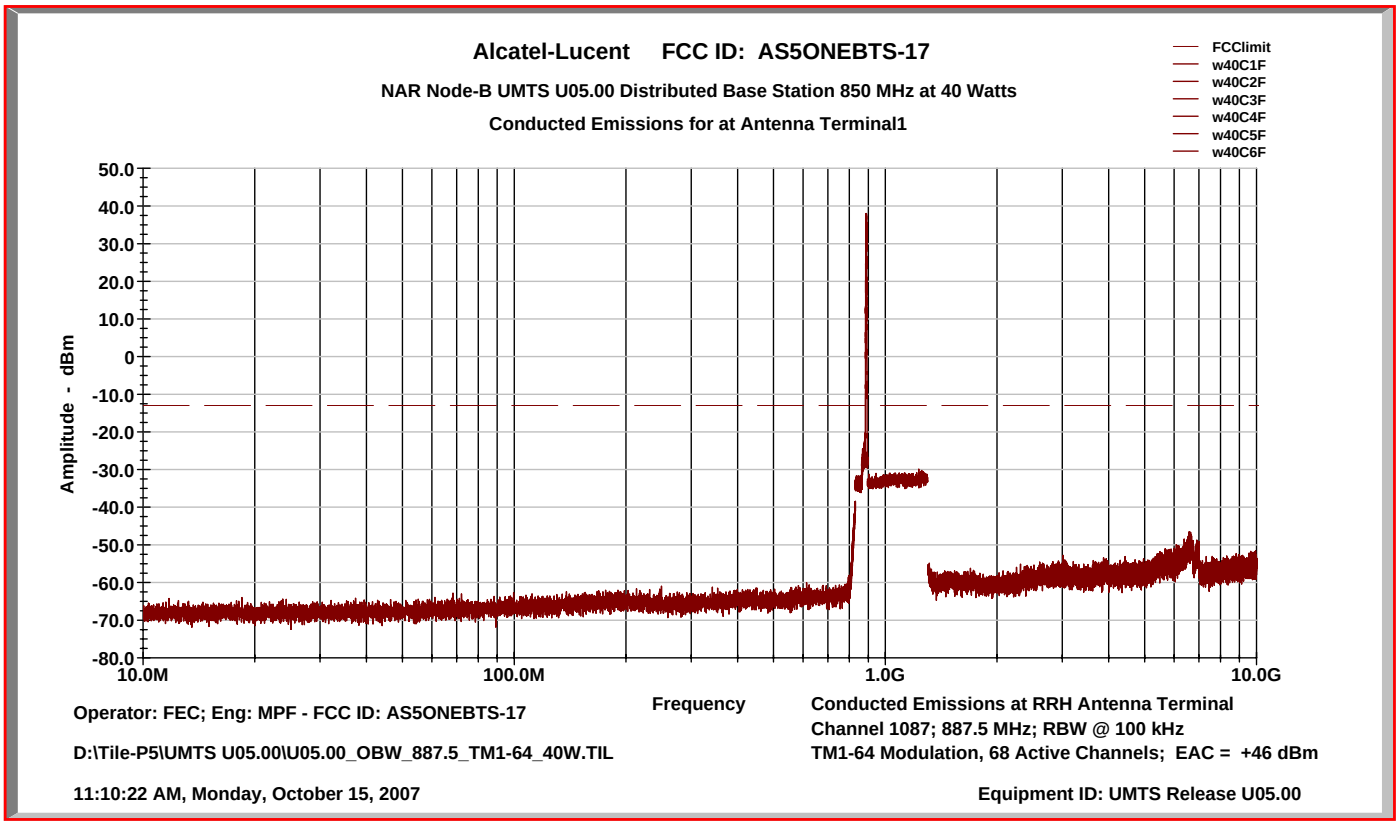
Conducted Emissions Characteristics: UARFCN Channel Number 1037 @ 877.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Test Modulation



Conducted Emissions Characteristics: UARFCN Channel Number 1062 @ 882.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Test Modulation



Conducted Emissions Characteristics: UARFCN Channel Number 1087 @ 887.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Test Modulation



PART 2.1053 MEASUREMENTS REQUIRED: FIELD STRENGTH OF SPURIOUS RADIATION

This test requires a single carrier at maximum rated power (40 Watts), transmitting into a non-radiating dummy load. The equipment under test (EUT) is configured for 1 sector at 1 carrier per sector (1S1C). As required, the frequency range investigated was from 10 MHz to 10 GHz (10^{th} harmonic of the carrier) as in the previous conducted spurious emissions test procedure. Four tests were performed with each of the previously cited carrier frequencies set to the TM1-64 test modulation. The corresponding carrier center frequencies are as cited in the previous occupied bandwidth tests, with each carrier adjusted to provide 40 Watts (46.0 dBm) at the Equipment Antenna Connector (EAC) transmit antenna terminal.

In compliance with the guidelines of ANSI C63.4-2003, the equipment under test (EUT) was configured as recommended for *floor standing equipment*. The EUT was installed and operated as in the *normal mode of operation* with external alarm and T1 cables connected to the EUT and routed as prescribed in ANSI C63.4-2003. Field strength measurements of radiated spurious emissions were evaluated in a 3m semi-anechoic pre-compliance chamber and verified as required at the ten meter Open Area Test Site (OATS) maintained by Alcatel-Lucent FCC Compliance Laboratory in Whippany, New Jersey. A complete description and full measurement data for the site have been placed on file with the Commission.

The spectrum from 10 MHz to the tenth harmonic of the carrier was searched for spurious radiation. Measurements were made using both horizontally and vertically polarized broadband antennas. Per FCC regulations, the comparison of out of band spurious emissions directly to the limit is appropriately made using the substitution method. However, when the emissions are more than 20 dB below the specification limit, the use of field strength measurements for compliance determination is acceptable and those emissions are considered not reportable (Section 2.1053 and the FCC Interpretive database for 2.1053). For this case the evaluation of acceptable radiated field strength is as follows.

The calculated emission levels were found by:

$$\text{Pmeas (dBm)} + \text{Cable Loss(dB)} + \text{Antenna Factor(dB)} + 107\ (\text{dB}\mu\text{V/dBm}) - \text{Amplifier Gain (dB)} = \text{Field Strength (dB}\mu\text{V/m)}$$

Section 22.917 and 2.1053 contains the requirements for the levels of spurious radiation as a function of the EIRP of the unmodulated carrier. The reference level for the unmodulated carrier is calculated as the field produced by an isotropic radiator excited by the transmitter output power according to the following relation taken from Reference Data for Radio Engineers, page 27-7, 6th edition, IT&T Corp.

$$E = (120\pi P)^{1/2} = [(30*P)^{1/2}] / R$$

$$20 \log (E*10^{6}) - (43 + 10 \log P) = 71.77 \text{ dB } \mu\text{V/meter}$$

Where: E = Field Intensity in Volts/ meter R = Distance in meters = 10 m
P = Transmitted Power in watts = 40 W/ Carrier

Results:

For this particular test, the field strength of any spurious radiation is required to be less than 71.8 dBμV/meter. Emissions equal to or less than 51.8 dBμV/meter are not reportable and may be verified using field strength measurements. Over the out of band spectrum investigated from 30 MHz to tenth harmonic of the carrier, no reportable spurious emissions were detected. This demonstrates that the UMTS Distributed Base Station Transceiver System (850 MHz)), the subject of this application, complies with Sections 2.1053, 22.917 and 2.1057 of the Rules.

PART 2.1055 MEASUREMENTS REQUIRED: FREQUENCY STABILITY

The frequency stability was measured both at the Equipment Antenna Terminal (EAC) of the RF Remote Radio Head (RRH) and at the reference frequency output terminal of the digital Base Band Unit (BBU) for a single carrier set to 881.5 MHz, which corresponds to mid cellular frequency band.. Frequency stability measurements were performed by N. Hussain, Alcatel-Lucent, Swindon, United Kingdom, under the direction of M. P. Farina, and in adherence to the previously cited ISO/TL9000 test plan. The complete test report is attached, which shows the test results, test equipment configuration and photographs of the test set-up.

The procedure required by the FCC is specified in CFR 47, Part 2, Subpart J – Equipment Authorization Procedures, Section 2.1055 – Measurements Required: Frequency Stability, Effective: October 01, 2006. The requirements for base station/land station equipment, are summarized as:

Section 2.1055(a)(1): The frequency stability shall be measured with variation of ambient temperature from –30 °C to +50 °C

Section 2.1055(b): Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10 °C through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement. The short term transient effects on the frequency of the transmitter due to keying (except for broadcast transmitters) and any heating element cycling normally occurring at each ambient temperature level also shall be shown. (*Note: The term "keying" does not apply to base station/land station equipment. "Heating element" applies to "heat cartridges" if used* .) Only the portion or portions of the transmitter containing the frequency determining and stabilizing circuitry need be subjected to the temperature variation test.

Section 2.1055(d)(1): The frequency stability shall be measured with variation of primary supply voltage from 85% to 115% of the nominal value.

Frequency Stability Limitation:

The frequency stability is the measurement of the carrier center frequency deviation from its assigned value as a function of (1) temperature variation from – 30°C to + 50°C, in +10°C increments, and (2) variation of supply voltage, at the equipment frame power input terminals, from 85% to 115% of the nominal value. This is a lengthy procedure and is performed one time with a single UMTS 850 carrier set to 881.5 MHz. The required tolerance limit for UMTS 850 base station/land station equipment is specified in ETSI TS 25.141 as ± 0.05 ppm.

Exception:

The FCC requires testing over the temperature range -30C to +50C, in 10C increments. This would apply to equipment installed and operated in an outdoor, non-controlled environment. Equipment installed in an indoor, controlled environment should be compliant with Telcordia, GR-63-CORE, Issue 3, March 2006 - *NEBS™ Requirements: Physical Protection*. Equipment installed and operated in an indoor, controlled environment are required to demonstrate frequency stability compliance over the temperature range -5C to +50C. This would apply to the Indoor BBU, which is the subject of this certification.

Results:

The UMTS Distributed Base Station Transceiver System (850 MHz), subject of this application for certification under FCC ID: AS5ONEBTS-17, demonstrated full compliance with the requirements of FCC Rule Part 2.1055. The frequency stability for all measurements were well within the required ± 0.05 ppm, as shown in detail in the attached Test Report. The measurement results are summarized below.

Frequency stability testing for 850 RRH with BBU.

TEST FREQUENCY: 881.5MHz (Middle channel)
P_out max: 40W(46dBm)

Note:
Test Model 4 used to check RF Output frequency, Trace on Max hold and part per million calculated.
On 15 MHz reading deviation from 15MHz noted and PPM calculated.

RF Remote Radio Head (RRH)

Stabilized temperature (°C)		TEST: TRANSMITTED FREQUENCY ERROR Spec: F_tx ± 50ppb = 881.5MHz ± 44.1Hz					
		Supply voltage: @85% of nominal (i.e. 24V–15%= +20.4V)		Supply voltage: @100% of nominal (i.e. +24.0V)		Supply voltage: @115% of nominal (i.e. 24V+15%= +27.6V)	
Indoor BBU	Outdoor RRH	Measured Tx Freq Error (Hz)	Deviation (ppm)	Measured Tx Freq Error (Hz)	Deviation (ppm)	Measured Tx Freq Error (Hz)	Deviation (ppm)
–5 C	–30 C	-9.14	-0.011	-7.6	-0.0086	-9.8	-0.011
–5 C	–20 C	-10.2	-0.012	-8.9	-0.009	-10.7	-0.0122
–5 C	–10 C	-8.62	-0.009	-10.23	-0.012	-9.43	-0.011
0 C	0 C	-9.11	-0.011	-8.04	-0.009	-9.83	-0.011
+10 C	+10 C	-8.65	-0.009	-11.07	-0.013	-7.71	-0.0086
+20C	+20 C	-8.23	-0.009	-9.41	-0.011	-10.73	-0.0122
+30 C	+30 C	-9.1	-0.011	-9.56	-0.011	-10.1	-0.012
+40 C	+40 C	-8.42	-0.009	-8.62	-0.009	-8.75	-0.009
+50 C	+50 C	-10.6	-0.012	-11.53	-0.013	-10.97	-0.0124

Digital Base Band Unit (BBU)

Stabilized temperature (°C)								TEST: STABILITY OF 15MHz REFERENCE FREQUENCY Spec: 15MHz ± 50ppb = 15MHz ± 0.75Hz					
								Supply voltage: @85% of nominal (i.e. 24V–15%= +20.4V)		Supply voltage: @100% of nominal (i.e. +24.0V)		Supply voltage: @115% of nominal (i.e. 24V+15%= +27.6V)	
Indoor BBU	Outdoor RRH							Measured Ref freq stability (Hz)	Deviation (ppm)	Measured Ref freq stability (Hz)	Deviation (ppm)	Measured Ref freq stability (Hz)	Deviation (ppm)
–5 C	–30 C							-0.08	-0.005	-0.09	-0.006	-0.08	-0.005
–5 C	–20 C							0.08	-0.005	-0.09	-0.006	0.09	-0.006
–5 C	–10 C							-0.09	-0.006	-0.08	-0.005	-0.09	-0.006
0 C	0 C							-0.08	-0.005	-0.08	-0.005	-0.09	-0.006
+10 C	+10 C							-0.09	-0.006	-0.09	-0.006	-0.091	-0.006
+20C	+20 C							-0.09	-0.006	-0.09	-0.006	-0.09	-0.006
+30 C	+30 C							-0.091	-0.006	-0.091	-0.006	-0.09	-0.006
+40 C	+40 C							-0.09	-0.006	-0.09	-0.006	-0.09	-0.006
+50 C	+50 C							-0.089	-0.006	-0.089	-0.006	-0.089	-0.006

UMTS

P2 d2u BBU Indoor with RRH 850 Outdoor Compliance

Release U05.00

Frequency Stability

Test Report

RRH850MHz UMTS Distributed Base Station

FCC 47 CFR 2.1055

Number:
Issue: 1.00
Status: Issued

Author: Nayyar Hussain
Date: 24 October 2007

1. Summary

This report describes the FCC 47 CFR 2.1055 tests completed on the BBU Indoor and 850RRH Outdoor UMTS system to verify compliance Release U05.00.

Functional tests were scheduled during the thermal test conditioning.

The test results showed that when the equipment was powered up all functional tests passed. These were:

Frequency Error
OMA Frequency Stability

CONTENTS

2. Object

This test was carried out to determine the frequency stability of a P2 d2u (Baseband Unit) with Outdoor 850 RRH (40 Watt) over the temperature range –30°C to 50°C and at voltage extremes of +/– 15% from nominal (+24V).

3. Introduction

This document contains the results of the FCC 47 CFR 2.1055 tests carried out on the UMTS BBU & 850 RRH.[Release U05.00] FCC Test Plan for UMTS Distributed Base Station.
Also included are lists showing the ancillary test equipment, equipment under test and functional tests conducted.

3.1 Glossary

A/C	Alternating Current
°C	Degree Celsius
ETSI	European Telecommunications Standards Institution
HIOU	Hybrid Input Output Unit
Node B	UMTS Base Station
OMA	Oscillator Module
RH	Relative Humidity
RX	Receive
SRD	System Requirement Definition
TX	Transmit
MCR	Multi Carrier Radio
UCU	Universal Channel Unit
UDT	UMTS Diagnostic Tool
UMTS	Universal Mobile Telecommunication System
RRH	Remote Radio Head
BBU	Base Band Unit

3.2 Scope

This test was applied to the BBU & 850 RRH Indoor UMTS Macrocell as per product specification Release 5.0 (40 Watts).

3.3 Specifications

[U05.00] FCC Test Plan for UMTS indoor Base Band Unit (BBU) and 850 RRH outdoor Unit by M.P.Farina.

3.4 Standards

[3.4.3] ESTI TS 125 141 V5.8.0 (2003-12) Release 5
[3.4.4] Title 47--Telecommunication 47 Part 2 -- Frequency Allocations and Radio Treaty Matters; General Rules and Regulation, 2.1055 Measurements required: Frequency stability.

4. Equipment

4.1 Under Test

The UMTS distributed system 40 watts was equipped with hardware as listed in Appendix A - Table 4.0.

Appendix A contains the full list of equipment under test, together with their serial numbers.

4.2 Test Equipment

The test equipment used to perform the investigation has been documented in Appendix B - Table 5.0 Figure 1.0 shows a schematic view of the test equipment layout

Rohde $ Schwarz SQ3 Radio Tester	Ser No:100056	Cal Due: Feb 08	Asset No: CR1882
Fluke PM6685R Universal Frequency Counter	Ser No:SM655693	Cal Due: 23 May2008	Asset No: CR0227

5. Test Procedure

5.1 Test Set up

Prior to starting, the hardware was installed into the cabinet as per specification and configured to release U05.00.

Note: The cabinet was installed onto its test platform as shown in the picture.

5.2 Test Parameters

a) Points of Measurement: The Oscillator Frequency measured at its 15 MHz output terminal.

b) Carrier Modulation: Test Model 4

c) Test Frequencies: The FCC accepts a single test frequency, 881.5 MHz for 850MHz.

d) Carrier Power Level: TM 4 (Pmax – 18dB = 28.0dBm) at EAC.

e) Temperature Range: Variation of ambient temperature from –30°C to +50°C. Stabilized at increments of 10°C.

f) Supply Voltage Variation:

Input Supply Voltage	DC Voltage
85 % of Nominal	20.4 Volts
100 % of Nominal	24.0 Volts
115 % of Nominal	27.6 Volts

Table 1 Supply Voltage Variation

5.3 Functional Tests

Functional tests were carried out during thermal conditioning at stabilized temperatures. Measurement of Frequency Error and OMA Frequency Stability were taken

The universal diagnostic tool (UDT) and (TCI) were used to perform the tests.
The BBU and RRH were connected through the single mode Fibre Optic cable.

Results table on next sheet.

Frequency stability testing for 850 RRH with BBU.

TEST FREQUENCY: 881.5MHz (Middle channel)
P_out max: 40W(46dBm)

Note:

1) Test Model 4 used to check RF Output frequency, Trace on Max hold and part per million calculated.
2) On 15 MHz reading deviation from 15MHz noted and PPM calculated.

Stabilized temperature (°C)		TEST: TRANSMITTED FREQUENCY ERROR Spec: F_tx ± 50ppb = 881.5MHz ± 44.1Hz						TEST: STABILITY OF 15MHz REFERENCE FREQUENCY Spec: 15MHz ± 50ppb = 15MHz ± 0.75Hz					
		Supply voltage: @85% of nominal (i.e. 24V–15%= +20.4V)		Supply voltage: @100% of nominal (i.e. +24.0V)		Supply voltage: @115% of nominal (i.e. 24V+15%= +27.6V)		Supply voltage: @85% of nominal (i.e. 24V–15%= +20.4V)		Supply voltage: @100% of nominal (i.e. +24.0V)		Supply voltage: @115% of nominal (i.e. 24V+15%= +27.6V)	
Indoor BBU	Outdoor RRH	Measured Tx Freq Error (Hz)	Deviation (ppm)	Measured Tx Freq Error (Hz)	Deviation (ppm)	Measured Tx Freq Error (Hz)	Deviation (ppm)	Measured Ref freq stability (Hz)	Deviation (ppm)	Measured Ref freq stability (Hz)	Deviation (ppm)	Measured Ref freq stability (Hz)	Deviation (ppm)
–5 C	–30 C	-9.14	-0.011	-7.6	-0.0086	-9.8	-0.011	-0.08	-0.005	-0.09	-0.006	-0.08	-0.005
–5 C	–20 C	-10.2	-0.012	-8.9	-0.009	-10.7	-0.0122	0.08	-0.005	-0.09	-0.006	0.09	-0.006
–5 C	–10 C	-8.62	-0.009	-10.23	-0.012	-9.43	-0.011	-0.09	-0.006	-0.08	-0.005	-0.09	-0.006
0 C	0 C	-9.11	-0.011	-8.04	-0.009	-9.83	-0.011	-0.08	-0.005	-0.08	-0.005	-0.09	-0.006
+10 C	+10 C	-8.65	-0.009	-11.07	-0.013	-7.71	-0.0086	-0.09	-0.006	-0.09	-0.006	-0.091	-0.006
+20C	+20 C	-8.23	-0.009	-9.41	-0.011	-10.73	-0.0122	-0.09	-0.006	-0.09	-0.006	-0.09	-0.006
+30 C	+30 C	-9.1	-0.011	-9.56	-0.011	-10.1	-0.012	-0.091	-0.006	-0.091	-0.006	-0.09	-0.006
+40 C	+40 C	-8.42	-0.009	-8.62	-0.009	-8.75	-0.009	-0.09	-0.006	-0.09	-0.006	-0.09	-0.006
+50 C	+50 C	-10.6	-0.012	-11.53	-0.013	-10.97	-0.0124	-0.089	-0.006	-0.089	-0.006	-0.089	-0.006

Table 3 FCC 47 CFR 2.1055 Frequency Error Measurement

6. Conclusions

The 850RRH Node B (40 Watts)l Release 5.0 release meets the FCC Title 47 Part 2.1055 Frequency stability requirements.

APPENDIX A

Equipment Under Test

Table 4 details the Node BBU hardware.

BTS Element	Comcode	Serial number	Comment
BBU P2 d2u	300966017	07wh31142015	Baseband unit
UCU lll	109579805	05C811000050	Channel card

RRH850

BTS Element	Comcode	Serial number	Comment
RRH850	201305091	07wh31142015	
FTR	201299823	850P203	Future Technologies Radio
Duplexer Filter	409037496	07u307390074	
Power supply unit	409035052	Db0728A0101	
RF Amplifier	109637447	07w354k50033	
Optical Daughter PCB	201292935	N.S.N	

APPENDIX B

Test Equipment

Table 5 details the test equipment used to conduct the testing.

Equipment	Make & Model Number	Serial Number	Calibration
Environmental Chamber	HERAEUS HC7120	Ser No:60024100	Cal Due: 23rd May 2008
HS(Environmental Chamber)	Design Environmental LTD WIR 18-65	Ser No:A2834	Cal Due: 10th November 07
Humidity and Temperature Sensor	Vaisala HMT335	A0230008	Cal Due: 10th November 07

Table 5 – Test Equipment

APPENDIX C

Functional Tests

The following functional tests were carried out during thermal conditioning. These functional tests and the system configurations were extracted from the requirements

Test	Configuration	Functional Test	Notes
FCC 47 Part 2.1022	TM4	TX: TM 4 Pmax-18dBm Frequency Error	Middle of the band
		TX: OMA Frequency	OMA

Table 6 – Functional Tests

Functional Test	Pass / Fail Criteria
TX: Frequency Error	(50 Parts Per Billion = 0.05 Parts Per Million) TX Frequency, 881.5 MHz x 0.05 PPM = (+/- 44.1Hz)
OMA Frequency Accuracy	(50 Parts Per Billion = 0.05 Parts Per Million) PPM = +/- 0.75Hz

Table 7 – Functional Tests Pass / Fail Criteria

All functional test Pass / Fail Criteria was extracted from Standards [3.4.3].

APPENDIX C

Functional Tests

The following functional tests were carried out during thermal conditioning. These functional tests and the system configurations were extracted from the requirements

Test	Configuration	Functional Test	Notes
FCC 47 Part 2.1022	TM4	TX: TM 4 Pmax-18dBm Frequency Error	Middle of the band
		TX: OMA Frequency	OMA

Table 6 – Functional Tests

Functional Test	Pass / Fail Criteria
TX: Frequency Error	(50 Parts Per Billion = 0.05 Parts Per Million) TX Frequency, 881.5 MHz x 0.05 PPM = (+/- 44.1Hz)
OMA Frequency Accuracy	(50 Parts Per Billion = 0.05 Parts Per Million) PPM = +/- 0.75Hz

Table 7 – Functional Tests Pass / Fail Criteria

All functional test Pass / Fail Criteria was extracted from Standards [3.4.3].

APPENDIX D
BTS Testing Photographs

Figure 1 Test Equipment used in Measurement

Figure 3: 850 RRH mounted on test stand

Figure 3: 850 RRH mounted on test stand different angle.

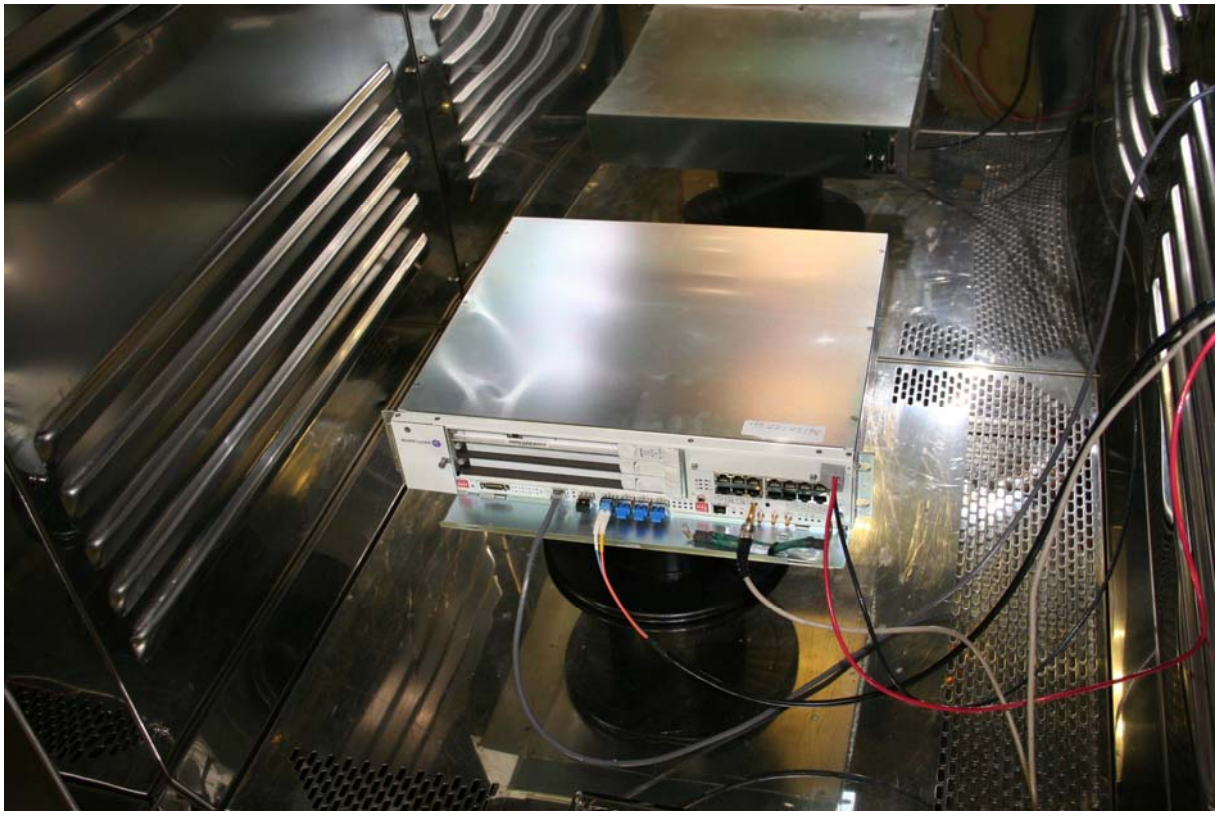


Figure 4: P2 d2u (Baseband Unit) closed unit under test.