EXHIBIT 9: TEST REPORT

Applicant:	**Lucent Technologies**
Equipment:	**UMTS 9341 RRH 60W 850MHz**
FCC ID:	**AS5ONEBTS-21**
Rule Part:	**Part 22, Subpart H – Cellular Radiotelephone Service**
Frequency Range:	**869 - 894 MHz**
Power:	**60 Watts Total Composite**
Frequency Tolerance:	**± 0.05 ppm**
Emission Designator:	**4M10F9W**

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September 3, 2008

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Subject: **Application for Certification under FCC ID: AS5ONEBTS-21, Covering the UMTS *9341 RRH 60W 850MHz* Wireless Base Station System, Operating in theCellular Radiotelephone Service, 869-894 MHz**.

September 3, 2008

TEST REPORT

INTRODUCTION:

The exhibits presented in this test report demonstrate that the Alcatel-Lucent Cellular Frequency UMTS **9341 RRH 60W 850MHz** wireless base station system, 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, 2007. All testing was performed in accordance with CFR 47, Part 2, Subpart J – Equipment Authorization Procedures; effective October 1, 2007. 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 Remote Radio Head (RRH) base station transceiver system. The objective of this application is to obtain initial FCC authorization, under FCC ID: AS5ONEBTS-21, for operation in the Universal Mobile Telecommunications System (UMTS) with 1) a single 5 MHz emission bandwidth carrier (4M10F9W) set to a maximum power level at the antenna terminal of 60 Watts, and 2) 2 adjacent carriers set to 30 Watts per carrier.

The UMTS **9341 RRH 60W 850MHz** base station system is the subject of this application for authorization by the Federal Communications Commission under the new FCC ID: AS5ONEBTS-21. The 60W RRH is designed to operate in the North America Region (NAR) Cellular Frequency Spectrum 869-894 MHz, with bandwidth of 25 MHz over the A", A, B, A' and B' frequency blocks. The 60W RRH system can be configured for both 1) single carrier (1S1C) operation at 60 Watts (+47.78 dBm) and for 2) two adjacent carrier (1S2C) operation at 30 Watts (+44.77 dBm) per carrier with a total composite power of 60 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 the ETSI TS 25.141 test modulation schemes: 1) TM1-64 with up to 68 active channels, consisting of 64 voice + 4 control, 2) TM5-44 with up to 44 active channels, which include 8 High Speed Downlink Packet Access (HSDPA) channels, and 3) TM4 with a single active channel *Synchronization Channel* (SCH).

The **9341 RRH 60W 850MHz** base station system 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 (i.e., co-located) 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 August 15 – September 4, 2008, 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.

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 **9341 RRH 60W 850MHz** Base Station Transceiver System 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, 2007. All testing was performed in accordance with CFR 47, Part 2, Subpart J – Equipment Authorization Procedures; effective October 1, 2007. 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 **9341 RRH 60W 850MHz** system are:

Part 2.1046	RF Power Output	**Pages 4 – 5**
Part 2.1047	Modulation Characteristics	**Pages 6-8**
Part 2.1049	Occupied Bandwidth	**Pages 9-19**
Part 2.1051	Spurious Emissions at the Antenna Terminals.	**Pages 20-27**
Part 2.1053	Field Strength of Spurious Radiation	**Pages 28**
Part 2.1055	Frequency Stability	**Pages 29-30**
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 **9341 RRH 60W 850MHz** base station transceiver system is designed to provide a maximum RF power level, per single 5 MHz carrier emission bandwidth, of 60 Watts (+47.78 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 25 MHz bandwidth, over the cellular frequency spectrum: 869-894 MHz.

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+B' frequency blocks. 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 +47.8 dBm (60 Watts at 3-second average) before performing each emission measurement.

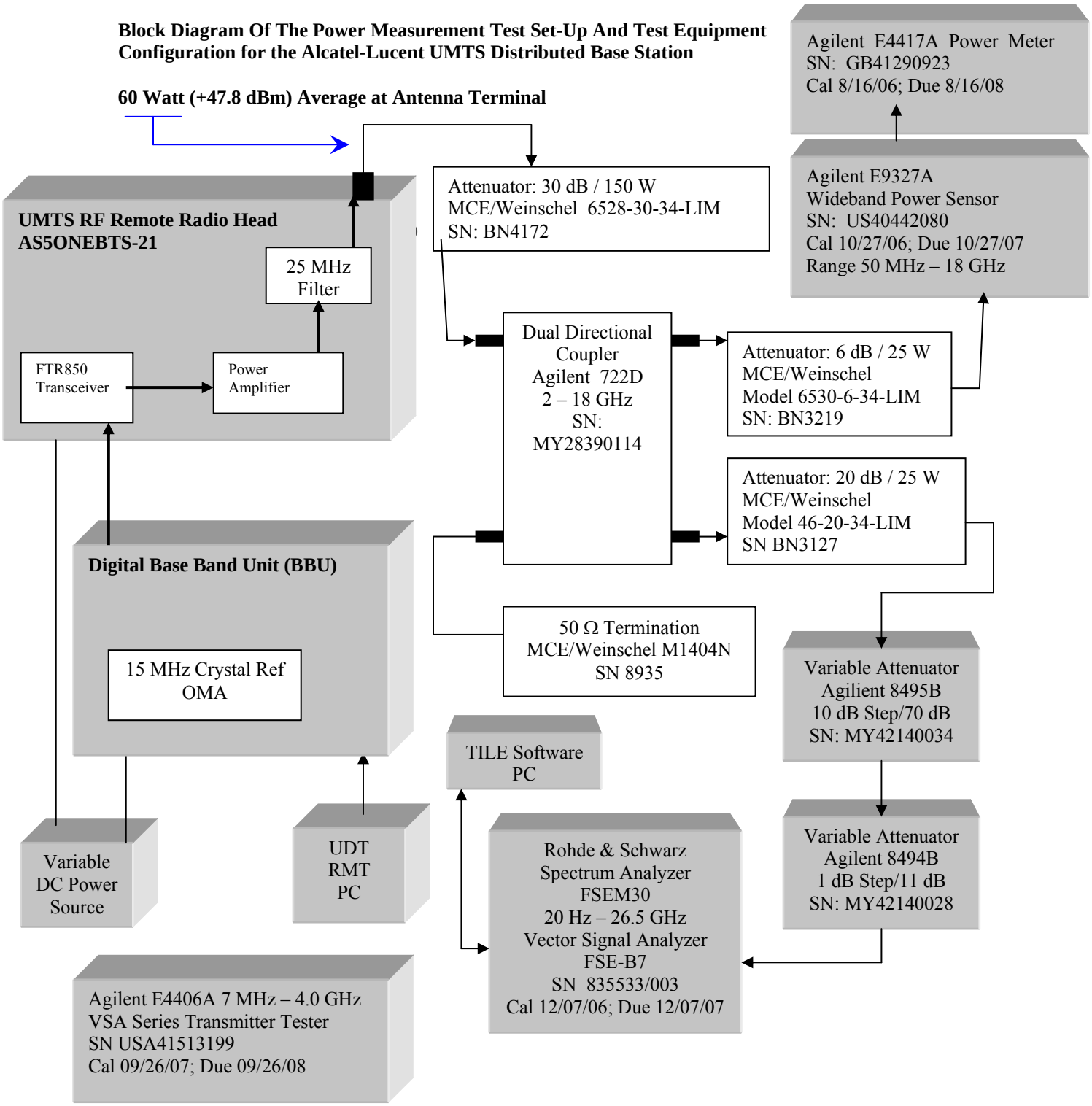
Cellular Frequency Band	UMTS850 Carrier	Single Carrier Bandwidth	UARFCN Channel Number	UMTS Carrier Center Frequency	Measured Power Level
A	Lowest Settable for A-Band and to 869 MHz Band Edge	5 MHz	1007	871.5 MHz	+47.8 dBm
A	Highest Settable for A-Band	5 MHz	1037	877.5 MHz	+47.8 dBm
B	Lowest Settable for B-Band	5 MHz	1062	882.5 MHz	+47.8 dBm
B	Highest Settable for B-Band and to 894 MHz Band Edge	5 MHz	1107	891.5 MHz	+47.8 dBm

Note: UARFCN = UTRA Absolute Radio Frequency Channel Number

Results: The 5 MHz UMTS **9341 RRH 60W 850MHz** Base Station Transceiver System 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

60 Watt (+47.8 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 MHz carriers UARFCN 1007, 1037, 1062, and 1107. ETSI TS 25.141 specifies that the Error Vector Magnitude (EVM) be measured for a single carrier at Pmax = +47.8 dBm using the TM5-44 Test Modulation.

TM5-44: with 44 Active Channels, Including 8 HSDPA (High Speed Downlink Packet Access)
ETSI TS 25.141 Rel 7, Table 6.6A : Test Model 5 Active Channels

Type	Number of Channels	Fraction of Power (%)
P-CCPCH+SCH	1	7.9
Primary CPICH	1	7.9
PICH	1	1.3
S-CCPCH containing PCH (SF=256)	1	1.3
DPCH (SF=128)	30	14
HS-SCCH	2	4
HS-PDSCH (16 QAM)	8	63.6

Instrumentation used was the Agilent E4406A VSA Series Transmitter Tester (7 MHz – 4.0 GHz) (SN US41513199). For TM5-44 with 44 active channels (16QAM) and the power level set to Pmax, the Error Vector Magnitude limit is EVM < 12.5% rms for 16QAM.

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

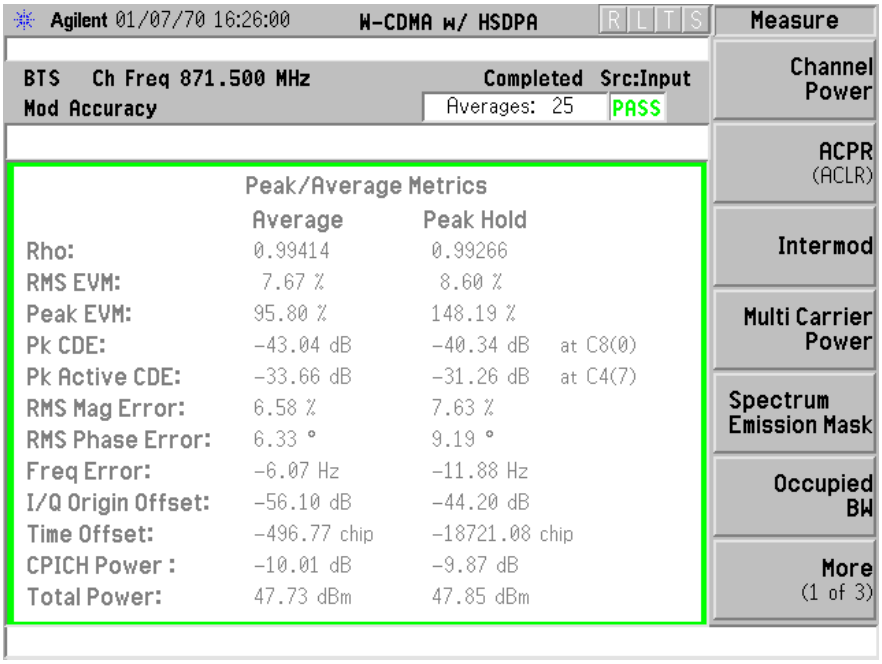
Cellular Frequency Band	UMTS850 Carrier	Single Carrier Bandwidth	UARFCN Channel Number	UMTS Carrier Center Frequency	Modulation Accuracy EVM
A"	Lowest Settable for A-Band and to 869 MHz Band Edge	5 MHz	1007	871.5 MHz	**8.60 % rms**
A	Highest Settable for A-Band	5 MHz	1037	877.5 MHz	**7.65 % rms**
B	Lowest Settable for B-Band	5 MHz	1062	882.5 MHz	**7.53 % rms**
B'	Highest Settable for B-Band and to 894 MHz Band Edge	5 MHz	1107	891.5 MHz	**9.49 % rms**

Minimum Standard Requirement: The minimum standard requirement is that the RMS Error Vector Magnitude (EVM) shall be less than 12.5% rms for 16QAM.

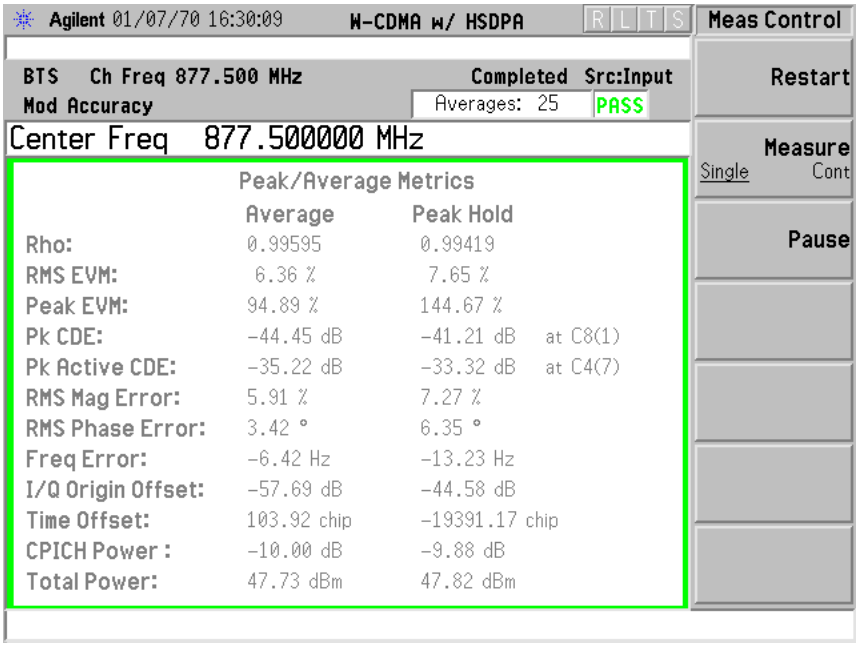
Test Set-up and Configuration: Same as previously used for Part 2.1046 RF Power Measurement, with exception that the FSEM30 Spectrum Analyzer is replaced by:
1) Agilent E4406A VSA Series Transmitter Tester, 7 MHz – 4.0 GHz, SN US41513199

RESULTS: The UMTS **9341 RRH 60W 850MHz** base station system demonstrated full compliance with the modulation accuracy requirements specified in ETSI TS 25.141. All 4 channels were less than the 12.5% rms limitation. The measurement data for each channel are included in this exhibit as shown below.

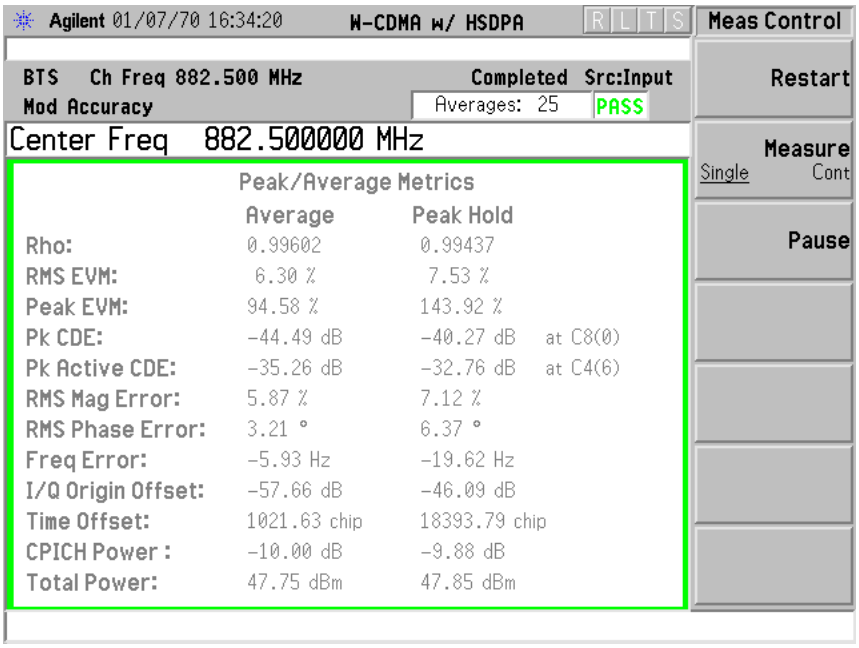
Modulation Characteristics: UARFCN Channel Number 1007 @ 871.50 MHz
Tx Antenna Terminal at +47.8 dBm per single 5 MHz carrier



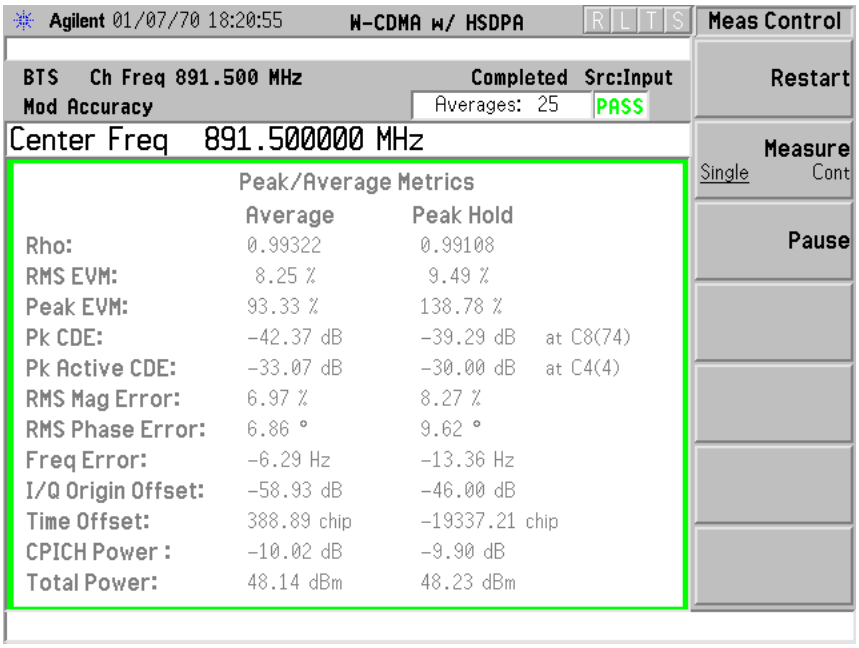
Modulation Characteristics: UARFCN Channel Number 1037 @ 877.50 MHz
Tx Antenna Terminal at +47.8 dBm per single 5 MHz carrier



Modulation Characteristics: UARFCN Channel Number 1062 @ 882.50 MHz
Tx Antenna Terminal at +47.8 dBm per single 5 MHz carrier



Modulation Characteristics: UARFCN Channel Number 1107 @ 891.50 MHz
Tx Antenna Terminal at +47.8 dBm per single 5 MHz carrier



PART 2.1049 MEASUREMENTS REQUIRED: OCCUPIED BANDWIDTH - SINGLE CARRIER

The occupied bandwidth was measured at the Equipment Antenna Terminal (EAC) for each of the four single carriers cited above. The power level was set to 60 Watts (+47.8 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:

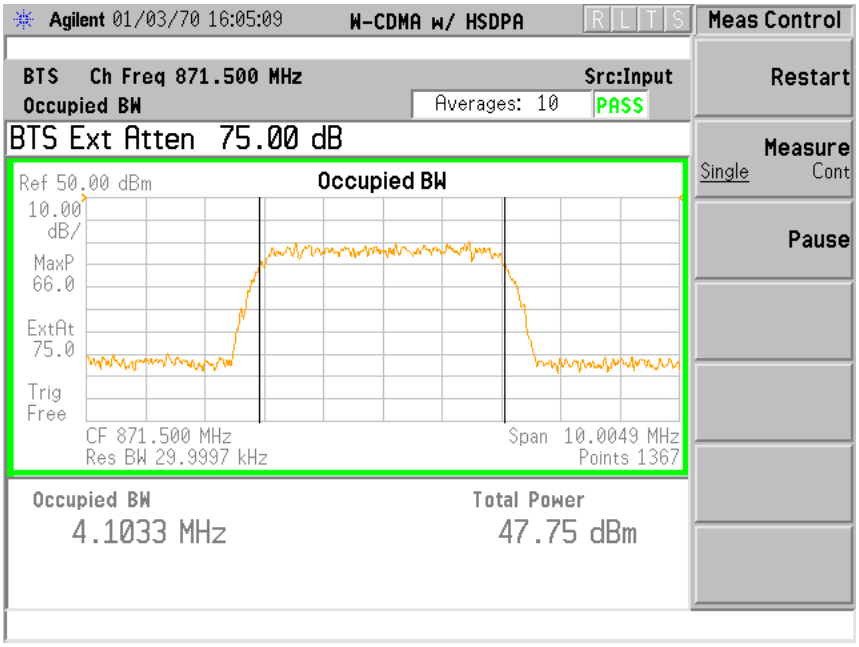
1. The carrier 99% power bandwidth, which is also the necessary bandwidth, using an Agilent E4406A VSA Series Transmitter Tester (SN US41513199).
2. Emission mask limitation using a Rohde & Schwarz: Spectrum Analyzer FSEM30 (SN 835533/003), to demonstrate compliance with the ETSI TS 25.141 emission mask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

Method 1: The carrier 99% power bandwidth was measured at the Equipment Antenna Terminal (EAC) with the single 5 MHz carrier set to +47.8 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.

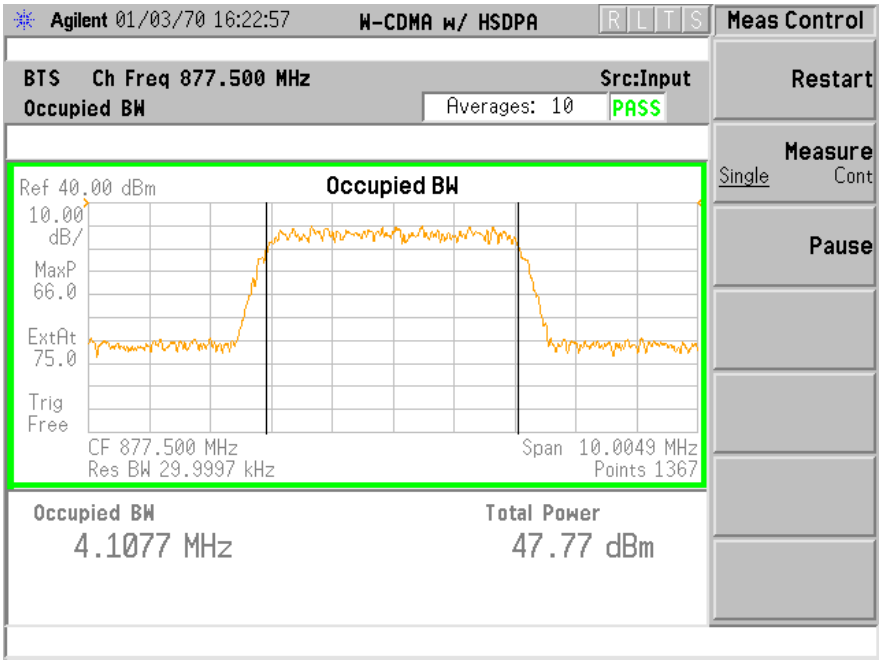
Cellular Frequency Band	UMTS850 Carrier	UARFCN Channel Number	UMTS Carrier Center Frequency	99% Bandwidth TM1-64	99% Bandwidth TM5-44
A	Lowest Settable for A-Band and to 869 MHz Band Edge	1007	871.5 MHz	**4.1033 MHz**	**4.1070 MHz**
A	Highest Settable for A-Band	1037	877.5 MHz	**4.1077 MHz**	**4.1092 MHz**
B	Lowest Settable for B-Band	1062	882.5 MHz	**4.1014 MHz**	**4.1048 MHz**
B	Highest Settable for B-Band and to 890 MHz Band Edge	1107	891.5 MHz	**4.1024 MHz**	**4.1018 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**.

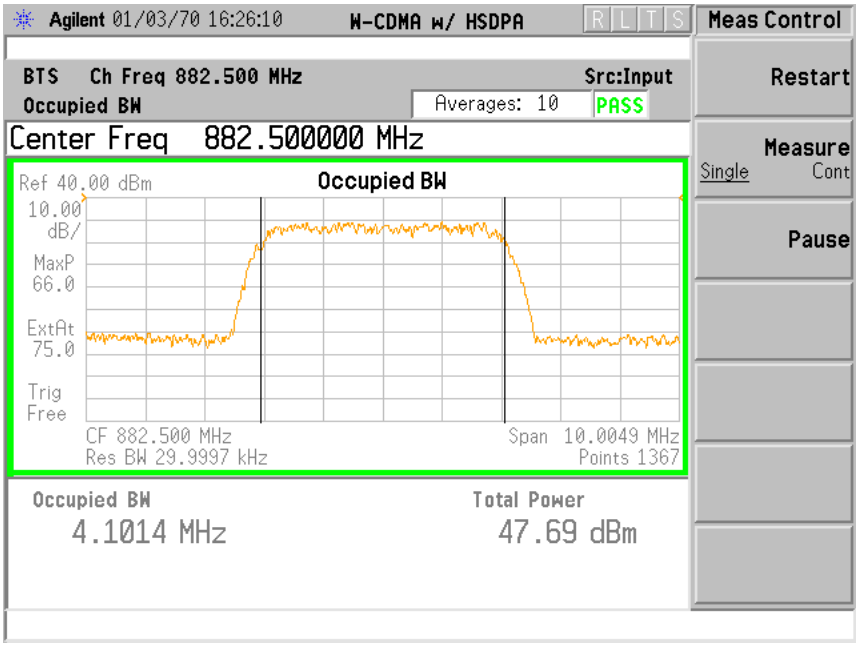
Carrier 99% Bandwidth Characteristics: UARFCN Channel Number 1007 @ 871.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Modulation



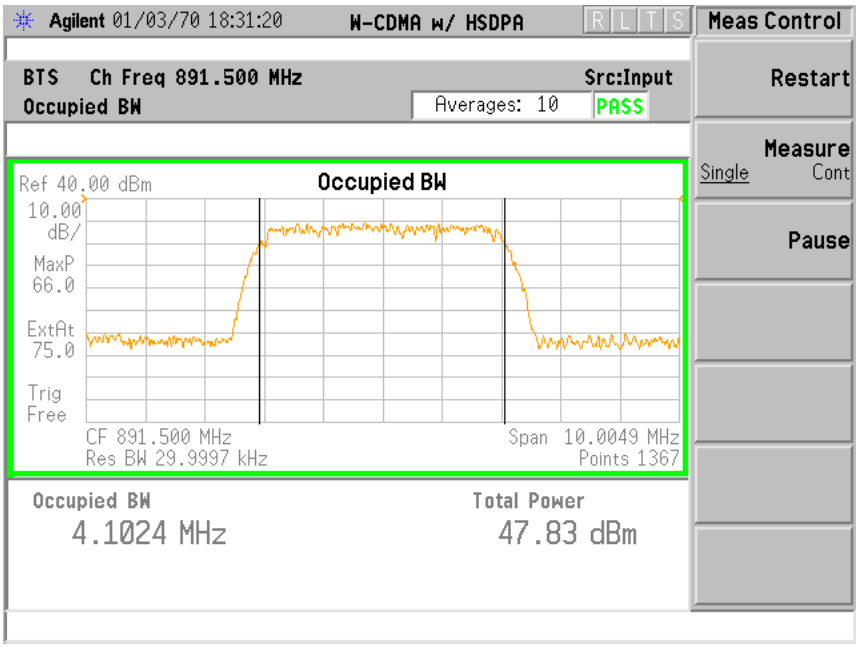
Carrier 99% Bandwidth Characteristics: UARFCN Channel Number 1037 @ 877.50 MHz
Tx Antenna Terminal at +46 dBm per single 5 MHz carrier
TM1-64 Modulation



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 1107 @ 891.50 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 single carrier set to +47.8 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 +47.8 dBm by –22.2184 dB, in accordance with the equation:

Carrier Offset = 10 log (30 kHz/5 MHz) = –22.2184 dB
Resultant Offset Power Level = +25.5630 dBm

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.

Part 22.917 Compliance: Each data plot attached shows two measurement Resolution Bandwidths (RBW) to demonstrate compliance with Rule Part 22.917:

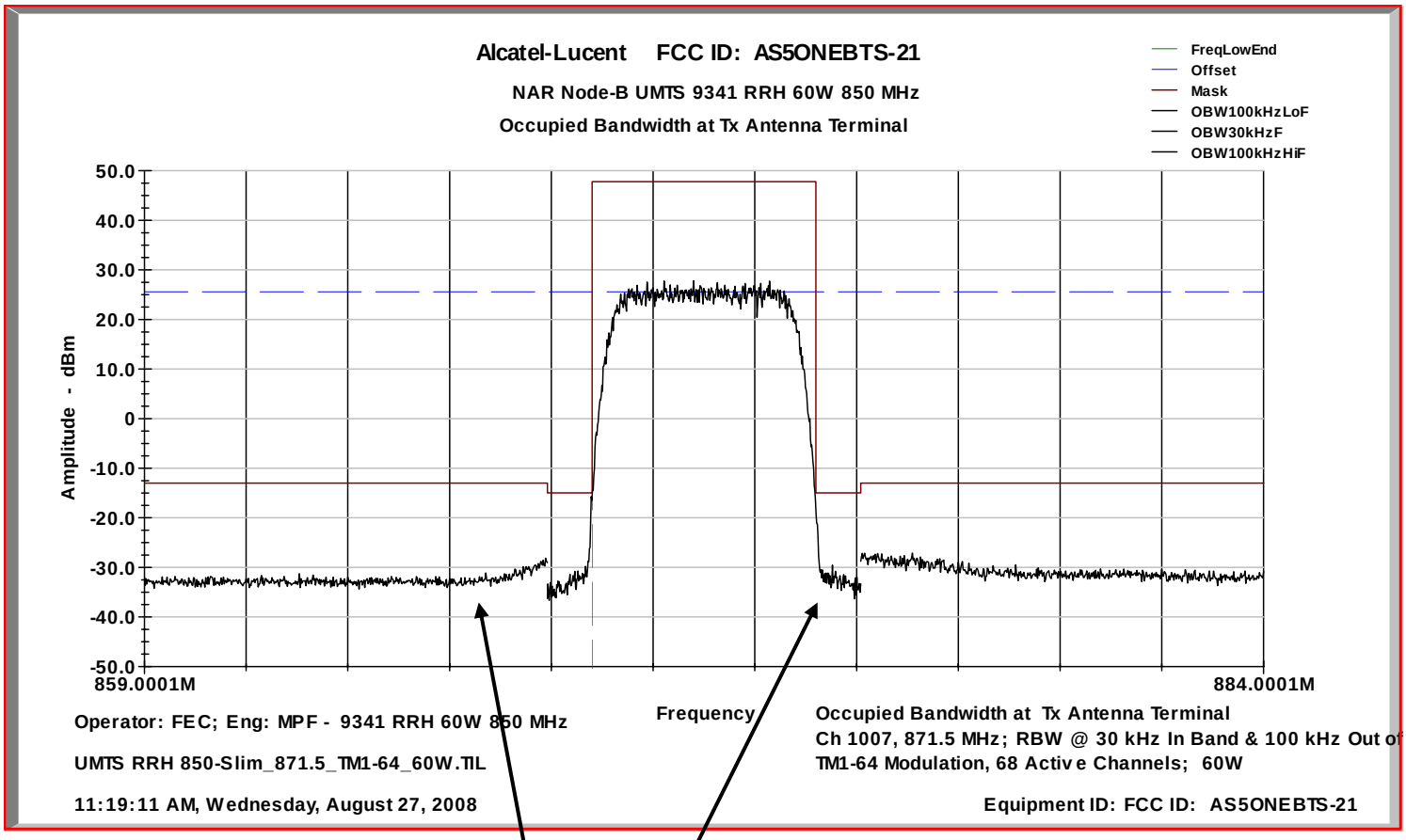
1. RBW = 30 kHz
   a. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy….
   b. The ETSI emission mask is defined with a 30 kHz RBW.
   c. 30 kHz RBW is sufficiently close to 1% of the necessary bandwidth (4.10 MHz)

2. RBW = 100 kHz
   a.. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater.
   b. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. This limit is then -13 dBm when measured with a 100 kHz RBW.

RESULTS: The UARFCN 1007, 1037, 1062, & 1107 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 and the out-of-band emissions are suppressed below -13 dBm.

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

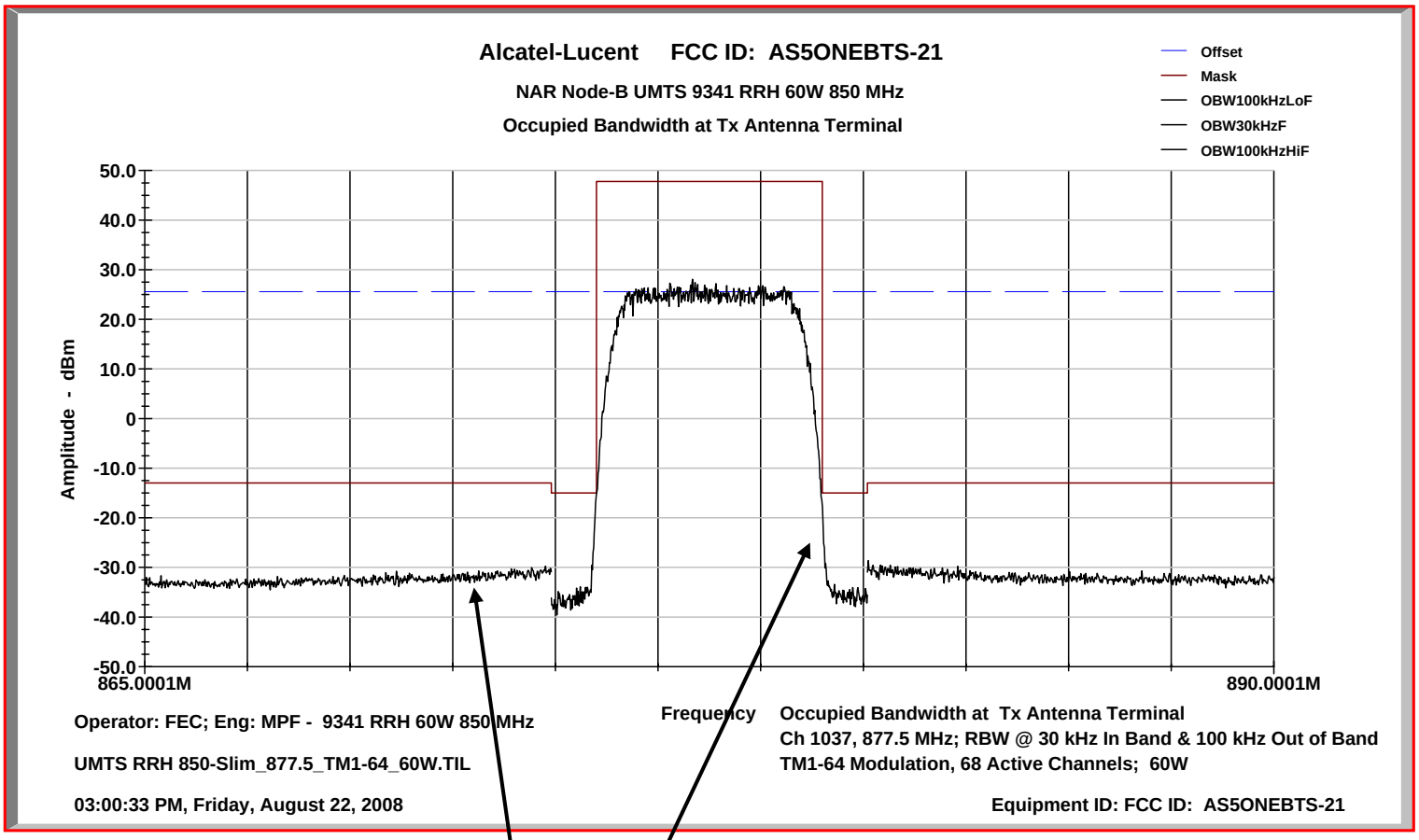
Occupied Bandwidth Characteristics: UARFCN Channel Number 1007 @ 871.50 MHz
Tx Antenna Terminal at +47.8 dBm per single 5 MHz carrier
TM1-64 Test Modulation



RBW = 100 kHz

RBW =30 kHz

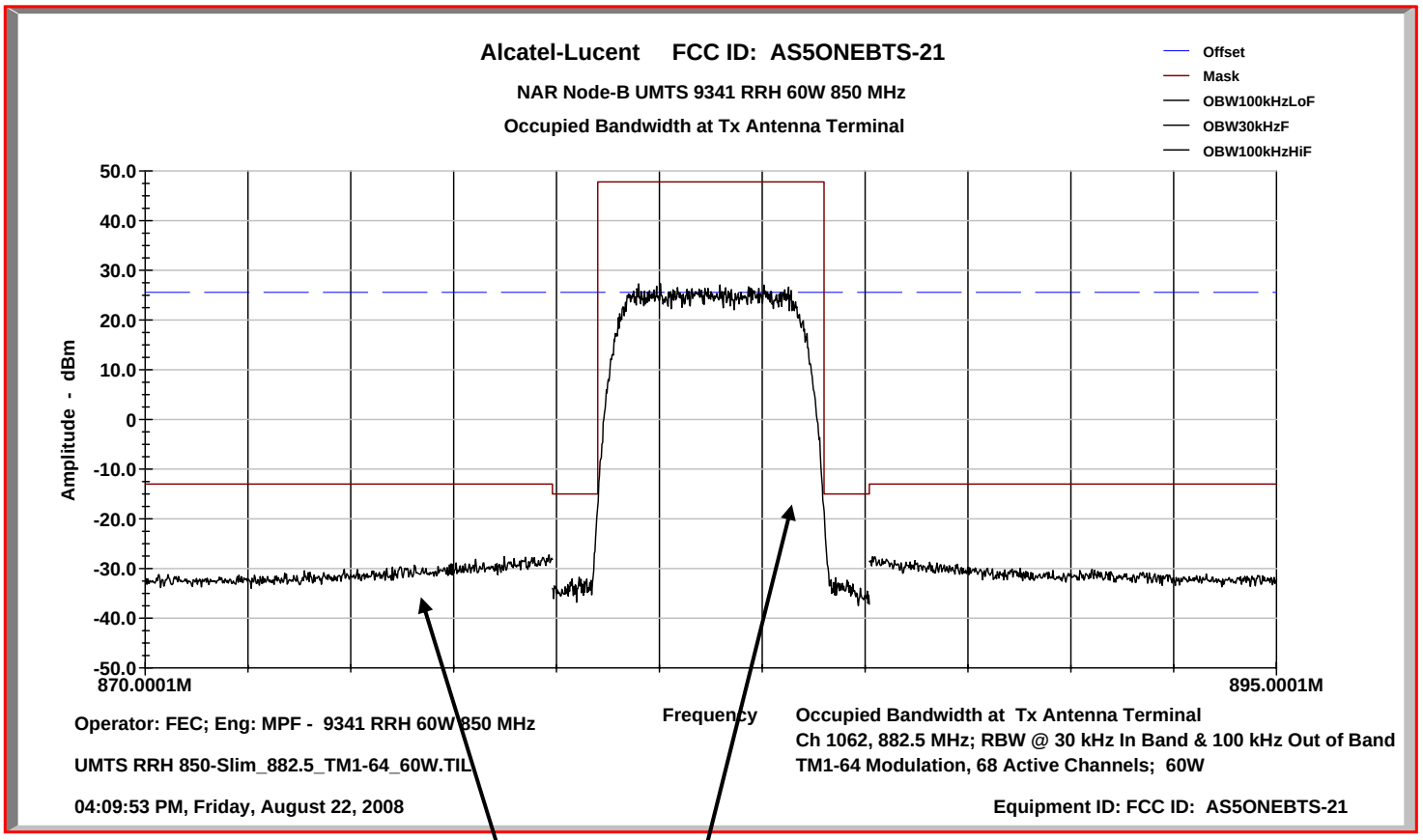
Occupied Bandwidth Characteristics: UARFCN Channel Number 1037 @ 877.50 MHz
Tx Antenna Terminal at +47.8 dBm per single 5 MHz carrier
TM1-64 Test Modulation



RBW = 100 kHz

RBW = 30 kHz

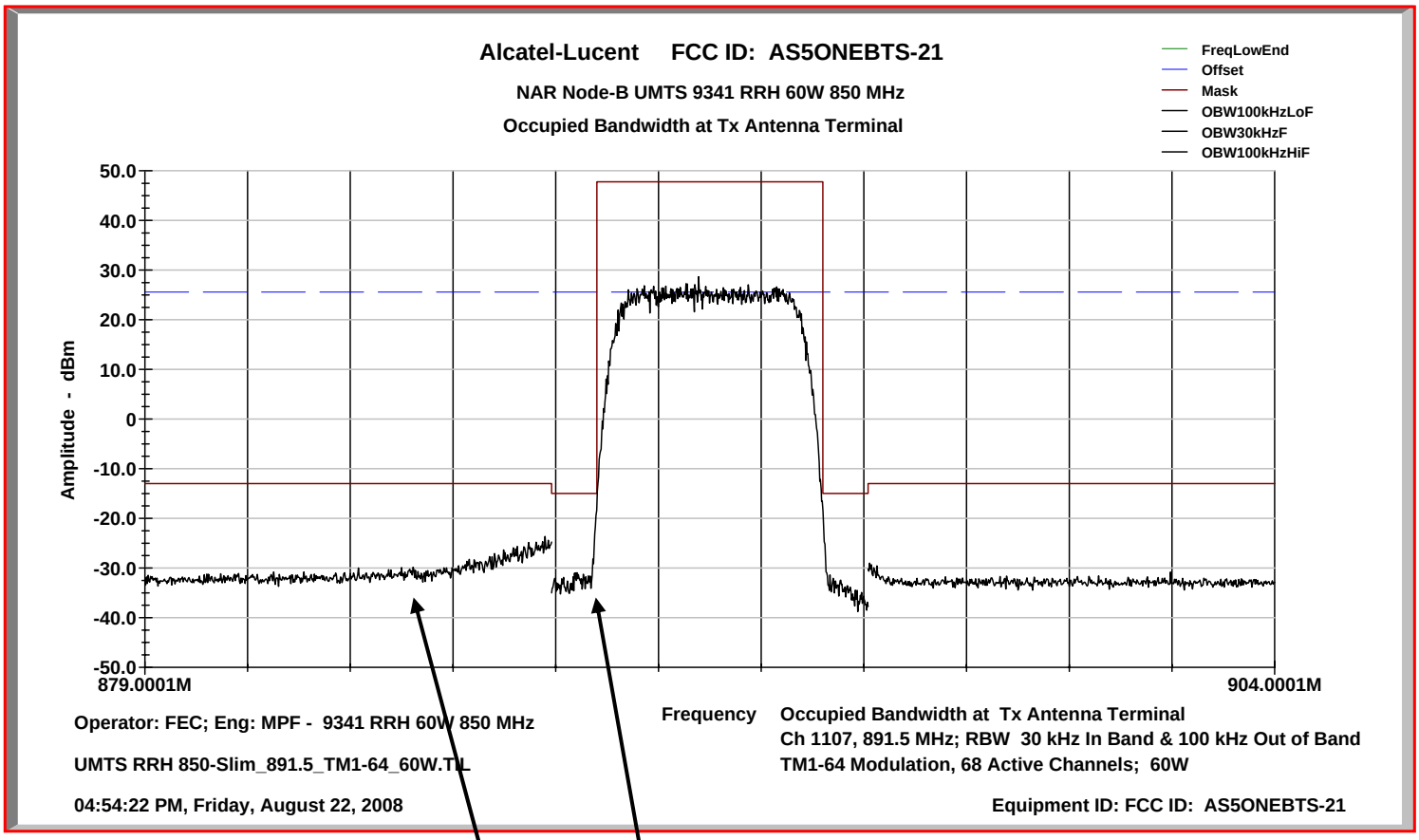
Occupied Bandwidth Characteristics: UARFCN Channel Number 1062 @ 882.50 MHz
Tx Antenna Terminal at +47.8 dBm per single 5 MHz carrier
TM1-64 Test Modulation



RBW = 100 kHz

RBW = 30 kHz

Occupied Bandwidth Characteristics: UARFCN Channel Number 1107 @ 891.50 MHz
Tx Antenna Terminal at +47.8 dBm per single 5 MHz carrier
TM1-64 Test Modulation



RBW = 100 kHz

RBW = 30 kHz

PART 2.1049 MEASUREMENTS REQUIRED: OCCUPIED BANDWIDTH - TWO ADJACENT CARRIERS

In addition to single carrier operation, the occupied bandwidth was measured at the Equipment Antenna Terminal (EAC) for two adjacent carriers positioned at the lowest settable and the highest settable channels in the cellular frequency band. The power level was set to 30 Watts (+44.8 dBm) per carrier. A single ETSI Test Modulation scheme was sufficient to demonstrate compliance:

TM1-64 with up to 68 active channels, consisting of 64 Voice + 4 Control active channels

The carrier pairs used were:

Pair #1, Lowest Settable: Ch 1007, 871.5 MHz + Ch 1032, 876.5 MHz
Pair #2, Highest Settable: Ch 1082, 886.5 MHz + Ch 1107, 891.5 MHz

The occupied bandwidth was measured for emission mask compliance using a Rohde & Schwarz, Spectrum Analyzer FSEM30 (SN 835533/003). Compliance was demonstrated with the ETSI TS 25.141 emission mask limitation requirements and with Part 22.917. The mask attenuation values were based on a 30 kHz resolution bandwidth, which made the modulated 5 MHz carrier to be offset from +44.8 dBm (30W) by –22.2184 dB, in accordance with the equation:

Carrier Offset = 10 log (30 kHz/5 MHz) = –22.2184 dB
Resultant Offset Power Level (30W) = +22.5527 dBm

This series of measurements were performed using the EMC software:

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

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

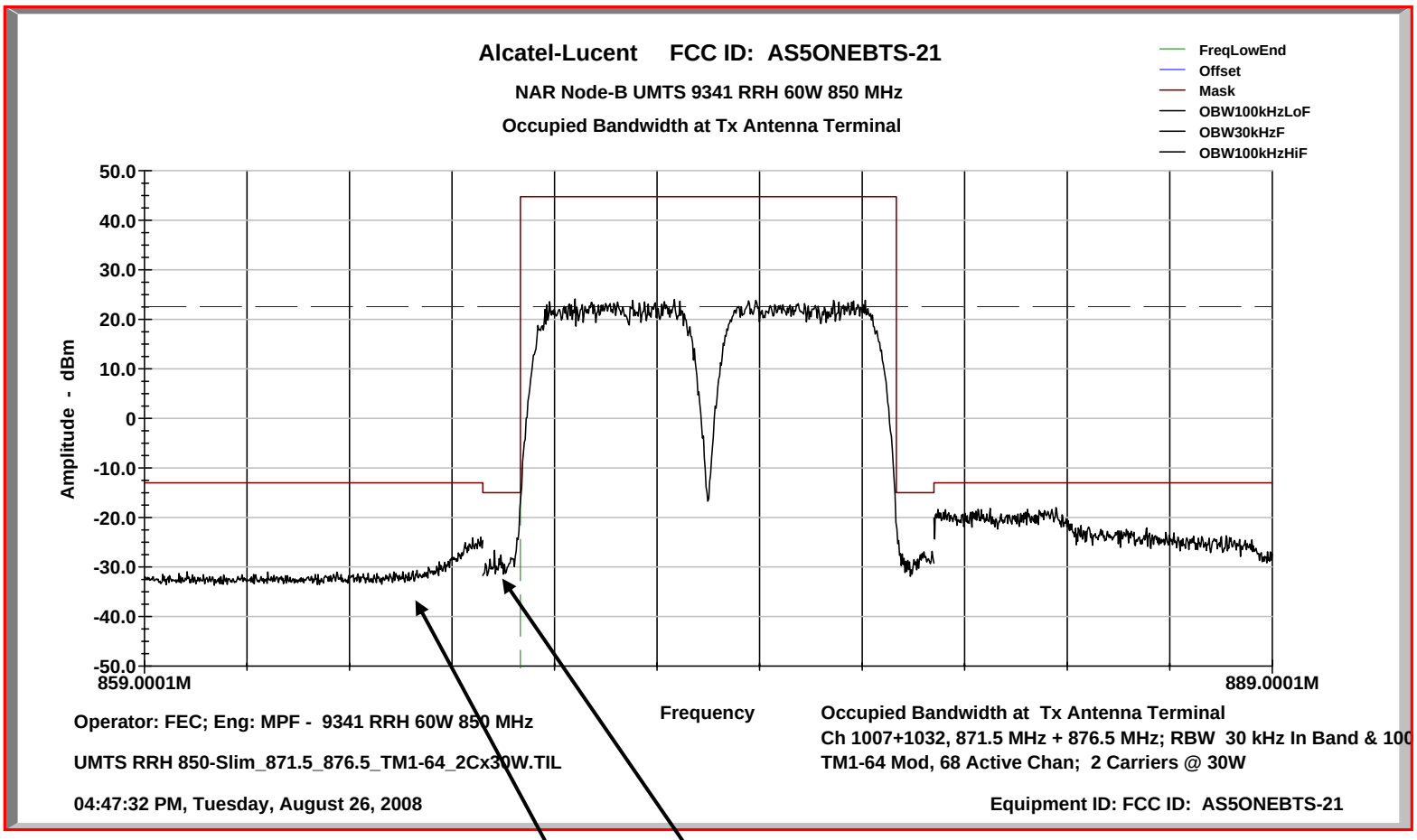
Part 22.917 Compliance: Each data plot attached shows two measurement Resolution Bandwidths (RBW) to demonstrate compliance with Rule Part 22.917:

1. RBW = 30 kHz
   a. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy….
   b. The ETSI emission mask is defined with a 30 kHz RBW.
   c. 30 kHz RBW is sufficiently close to 1% of the necessary bandwidth (4.10 MHz)

2. RBW = 100 kHz
   a.. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater.
   b. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. This limit is then -13 dBm when measured with a 100 kHz RBW.

RESULTS: The UARFCN 1007 + 1032 and 1082 + 1107 channel pairs all demonstrate compliance with the emission mask specified by ETSI TS 25.141. In each test, the carriers do not exceed the mask limitation and the out-of-band emissions are suppressed below -13 dBm. The data plots are attached below for the TM1-64 test modulation scheme.

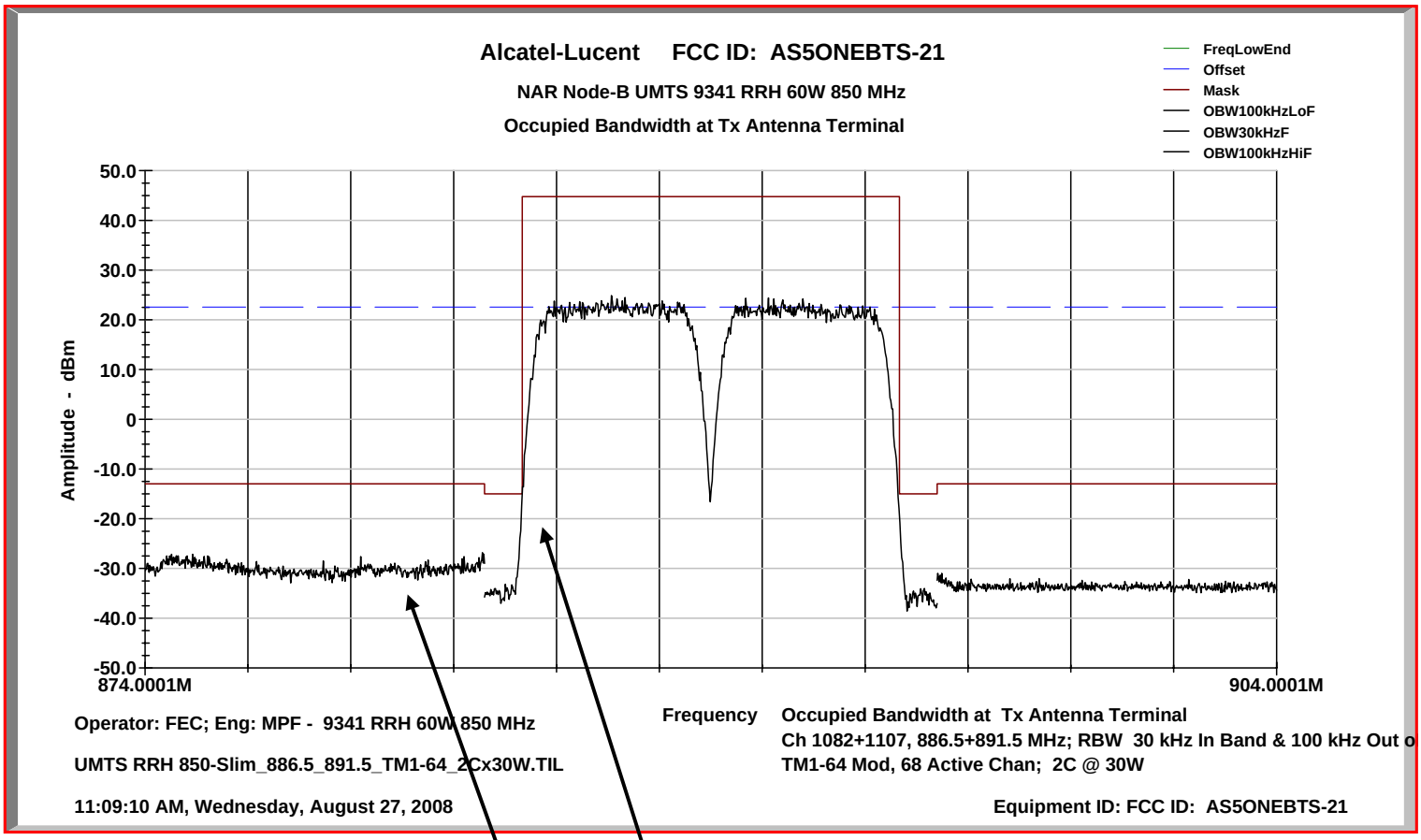
Two Carrier Occupied Bandwidth Characteristics:
UARFCN Channel Number 1007 @ 871.50 MHz + CN 1032 @ 876.5 MHz
Tx Antenna Terminal at +44.8 dBm per carrier
TM1-64 Test Modulation



RBW = 100 kHz

RBW = 30 kHz

Two Carrier Occupied Bandwidth Characteristics:
UARFCN Channel Number 1082 @ 886.50 MHz + CN 1107 @ 891.5 MHz
Tx Antenna Terminal at +44.8 dBm per carrier
TM1-64 Test Modulation



RBW = 100 kHz

RBW = 30 kHz

PART 2.1051 MEASUREMENTS REQUIRED: SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS - SINGLE CARRIER AND TWO CARRIER OPERATION

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 60 Watts average, produces an emission attenuation below the carrier of 60.8 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 80.8 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 (60 Watts) = 60.8 dBc
4.	Instrumentation Noise Floor:	at least 20 dB greater than "43 + 10 log (*P*) dBc" = 80.8 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. Single Carrier Power Level = 47.8 dBm
2. Emission Limitation = 47.8 dBm – 60.8 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 $\geq$ 80.8 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., 80.8 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 typical 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 & 1107 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	+47.8 dBm
A	Highest Settable for A-Band	5 MHz	1037	877.5 MHz	+47.8 dBm
B	Lowest Settable for B-Band	5 MHz	1062	882.5 MHz	+47.8 dBm
B	Highest Settable for B-Band and to 894 MHz Band Edge	5 MHz	1107	891.5 MHz	+47.8 dBm

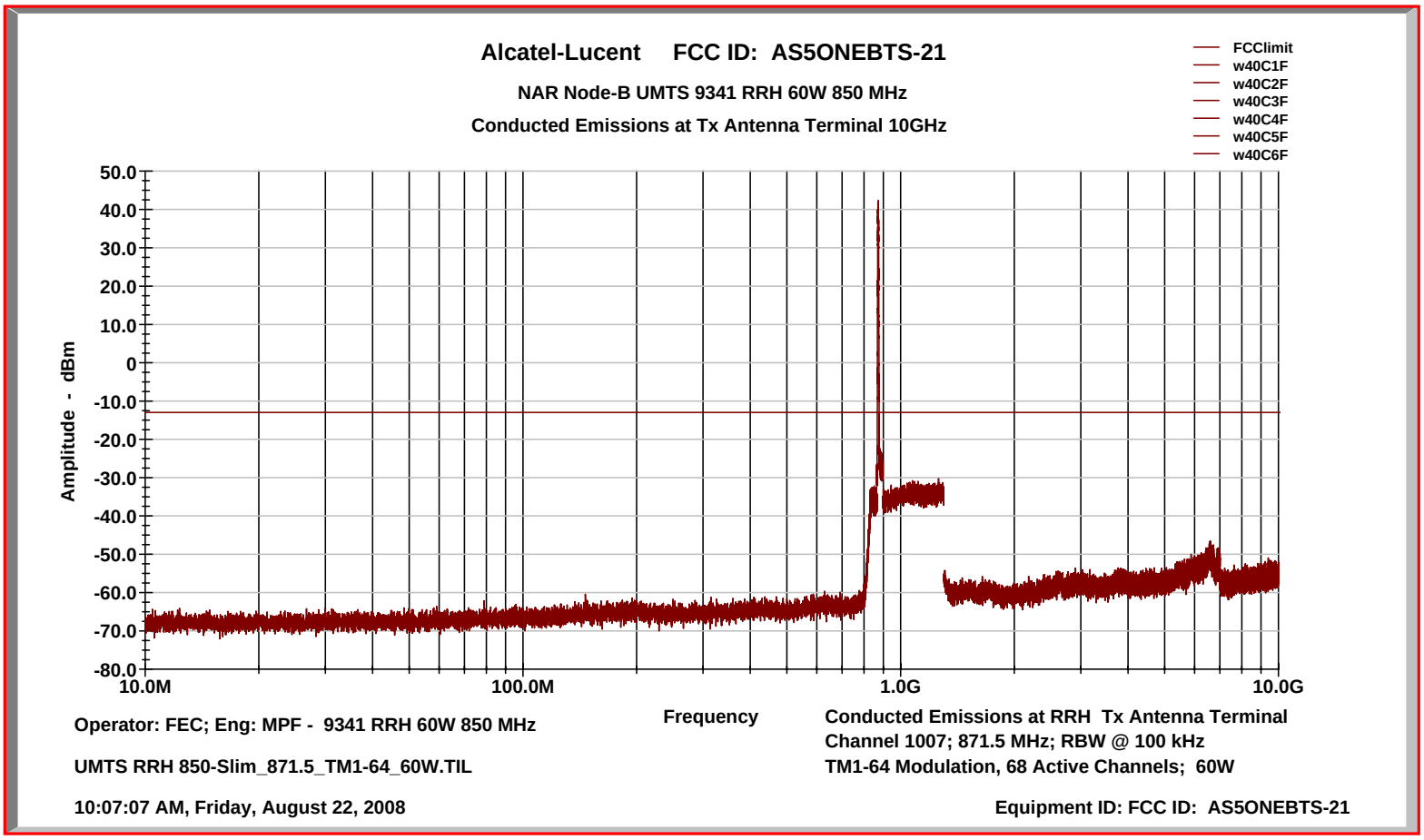
Results - Single Carrier Operation: For each UMTS carrier, there were no reportable emissions. Data plots for each carrier, with TM1-64 test modulation, are attached to this exhibit. The same results were achieved for the TM5-44 modulated carriers; the data plots need not be displayed.

Results - Two Carrier Operation: The lowest and highest settable carrier pairs tested were

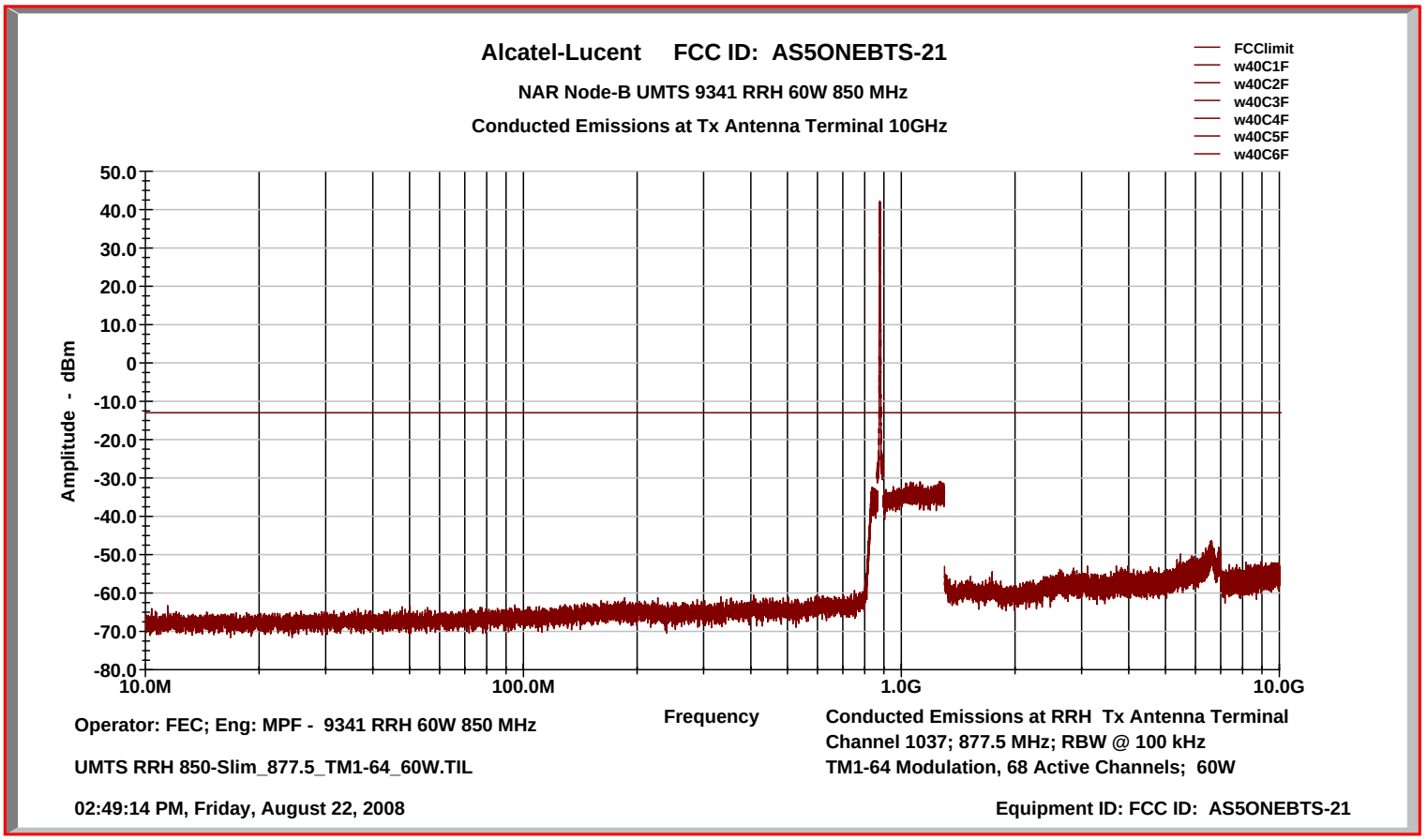
Pair #1, Lowest Settable: Ch 1007, 871.5 MHz + Ch 1032, 876.5 MHz
Pair #2, Highest Settable: Ch 1082, 886.5 MHz + Ch 1107, 891.5 MHz

Each test was performed with the carriers set to 30W/C and modulation for TM1-64. The data plots are attached.

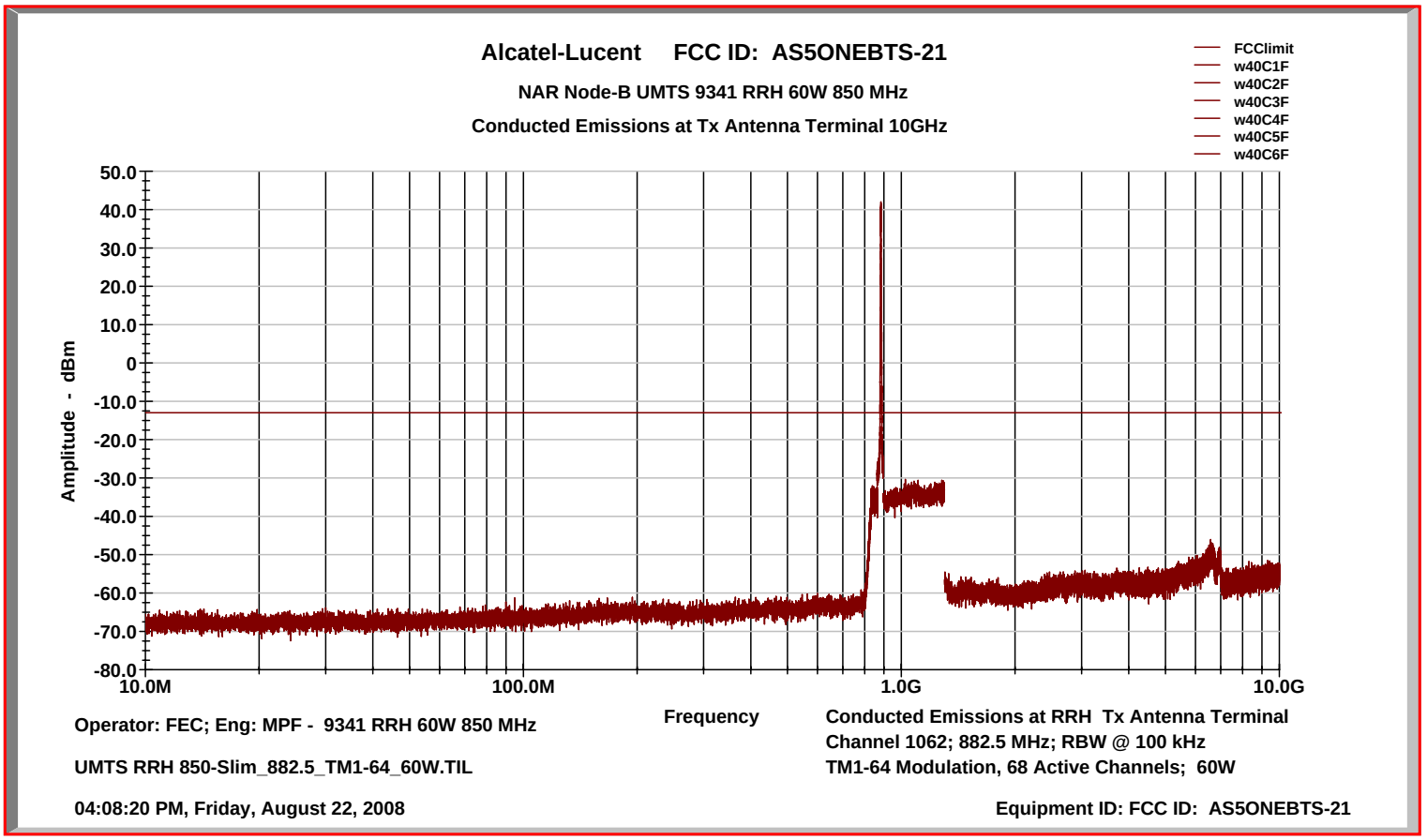
Conducted Emissions Characteristics: UARFCN Channel Number 1007 @ 871.50 MHz
Tx Antenna Terminal at +47.8 dBm per single 5 MHz carrier
TM1-64 Test Modulation



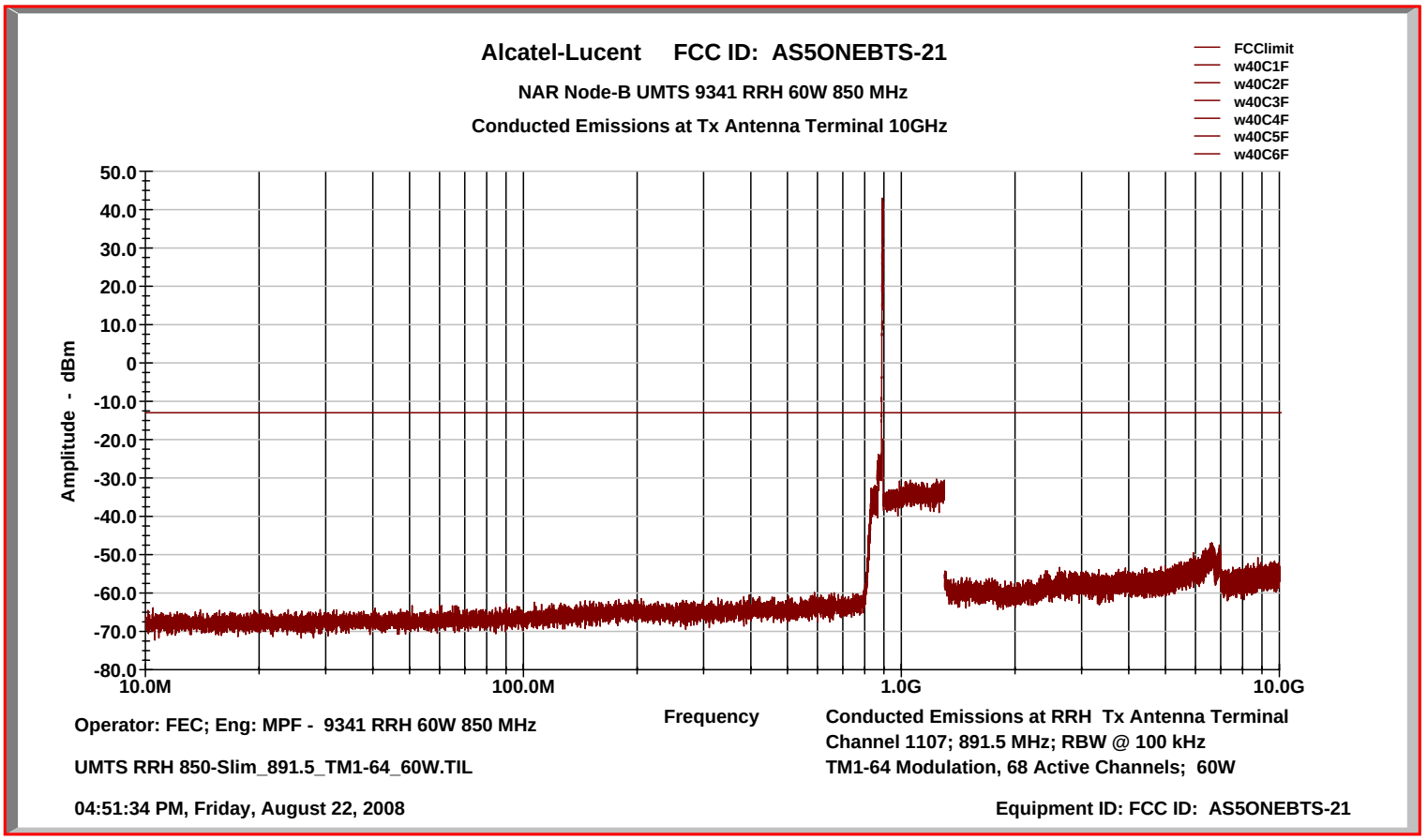
Conducted Emissions Characteristics: UARFCN Channel Number 1037 @ 877.50 MHz
Tx Antenna Terminal at +47.8 dBm per single 5 MHz carrier
TM1-64 Test Modulation



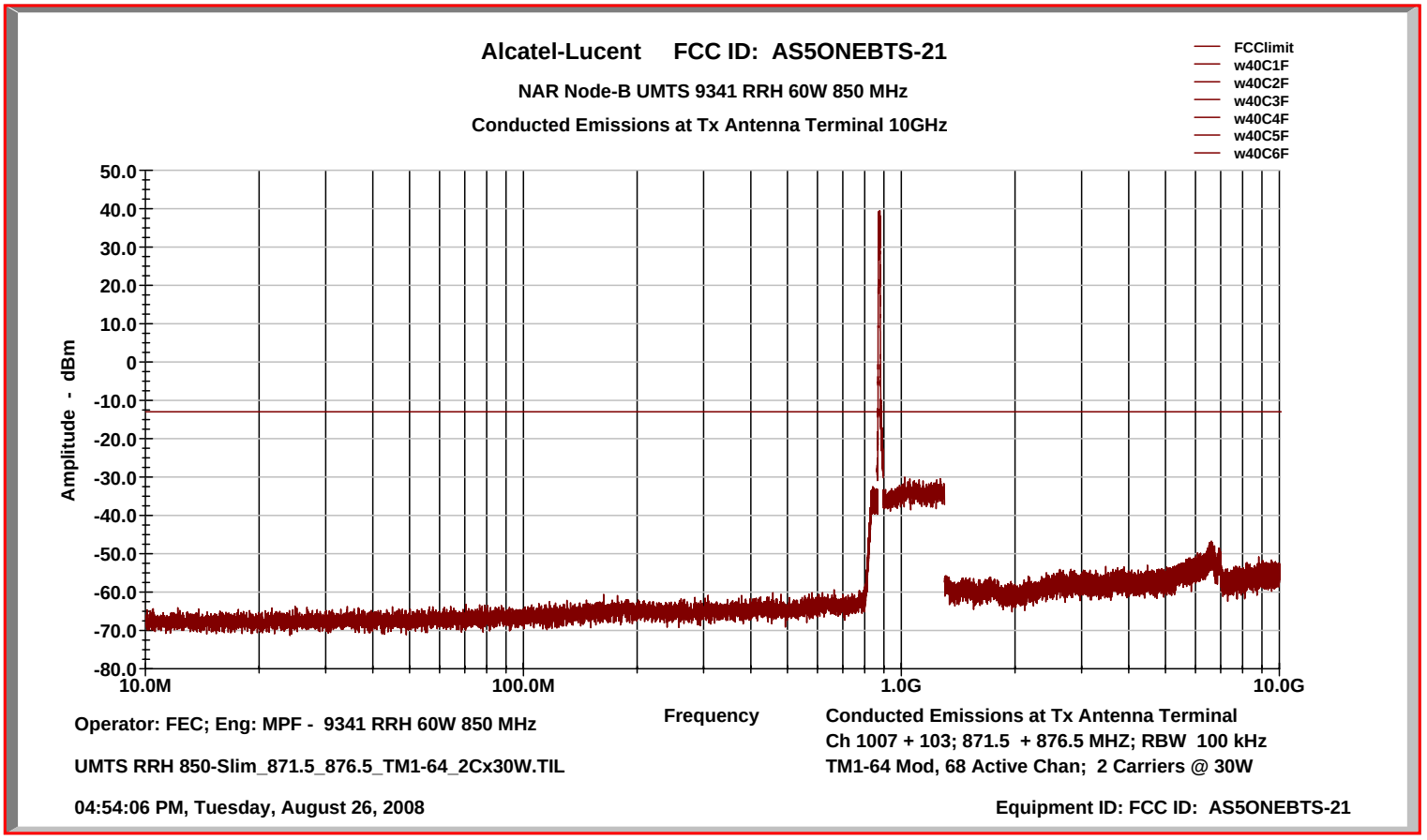
Conducted Emissions Characteristics: UARFCN Channel Number 1062 @ 882.50 MHz
Tx Antenna Terminal at +47.8 dBm per single 5 MHz carrier
TM1-64 Test Modulation



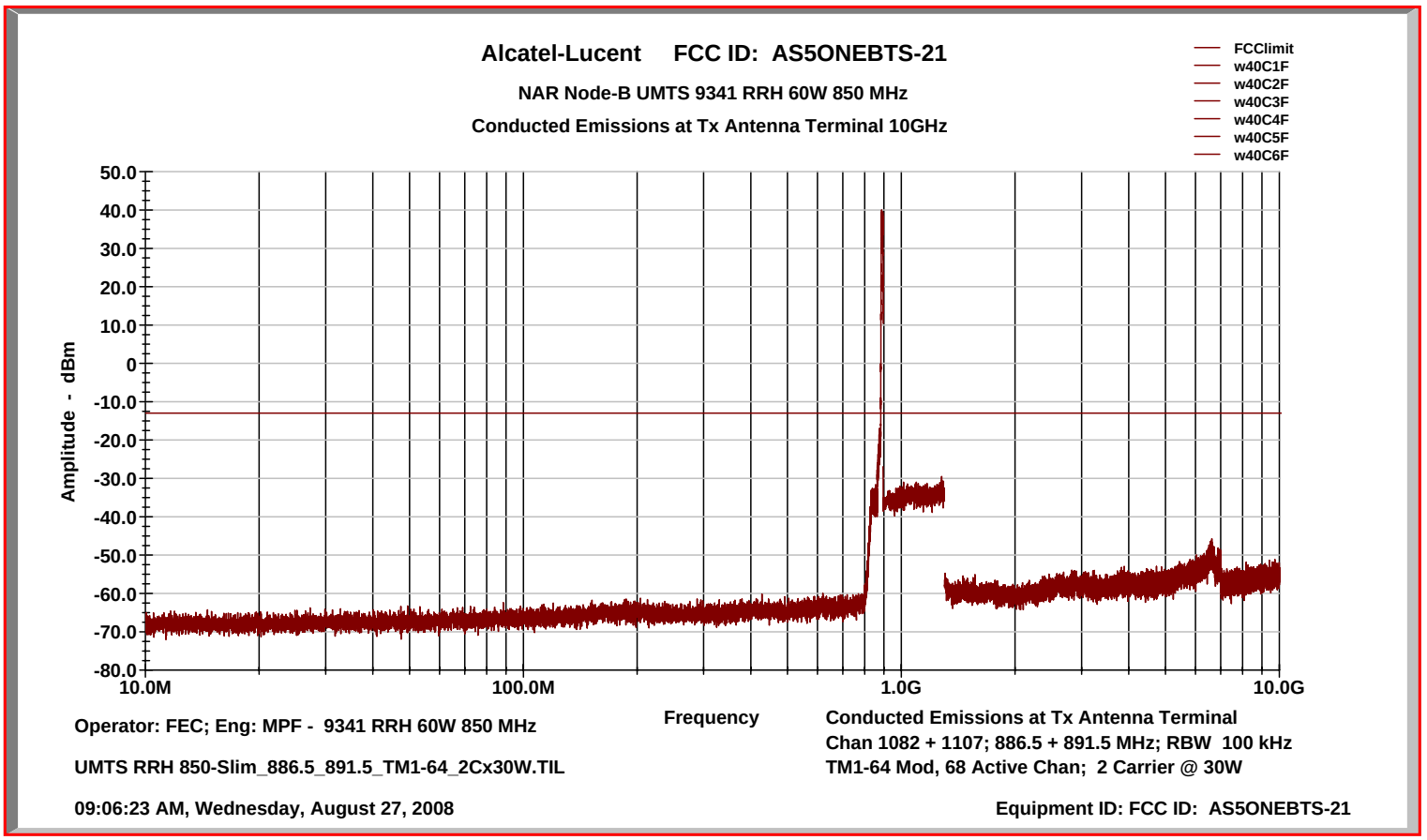
Conducted Emissions Characteristics: UARFCN Channel Number 1107 @ 891.5 MHz
Tx Antenna Terminal at +47.8 dBm per single 5 MHz carrier
TM1-64 Test Modulation



Two Carrier Conducted Emissions Characteristics:
UARFCN Channel Number 1007 @ 871.50 MHz + CN 1032 @ 876.5 MHz
Tx Antenna Terminal at +44.8 dBm per carrier
TM1-64 Test Modulation



Two Carrier Conducted Emissions Characteristics:
UARFCN Channel Number 1082 @ 886.50 MHz + CN 11107 @ 891.5 MHz
Tx Antenna Terminal at +44.8 dBm per carrier
TM1-64 Test Modulation



PART 2.1053 MEASUREMENTS REQUIRED: FIELD STRENGTH OF SPURIOUS RADIATION

This test was performed both with a single carrier at maximum rated power 60 Watts and with two carriers at 30W/C, transmitting into a non-radiating dummy load. The equipment under test (EUT) is configured for 1 sector at 1 carrier per sector (1S1C) and at 2 carriers per sector (1S2C). 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. Three tests were performed using the previously cited single carrier frequencies at the lowest settable, mid band and the highest settable channels, plus two tests demonstrating two carrier operation, all set to the TM1-64 test modulation. The corresponding carrier center frequencies are as cited in the previous occupied bandwidth tests, with each single carrier adjusted to provide 60 Watts (47.8 dBm) and each two carrier pair set to 30W/C (+44.8 dBm/C) 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 9341 60W RRH 850 MHz base station transceiver system, 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 retained on file in the Whippany Compliance Laboratory, 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, 2007. 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 9341 60W RRH 850 MHz** base station transceiver system, subject of this application for certification under FCC ID: AS5ONEBTS-21, 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. 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