

Exhibit 11 Listing of Required Measurements

Section 2.1033(c)(14)

The data required by Section 2.1046 through 2.1057, inclusive, measured in accordance with the procedures set out in Section 2.1041.

Each required measurement and its corresponding exhibit number are listed below along with the overall results:

<u>Exhibit #</u>	<u>Applicable FCC Rule</u>	<u>FCC Requirement Title</u>	<u>Test Result</u>
Exhibit 12	Section 2.1046	Measurement of Radio Frequency Power Output	Compliant
Exhibit 13	Section 2.1047	Measurement of Modulation Characteristics	Compliant
Exhibit 14	Section 2.1049	Measurement of Occupied Bandwidth	Compliant
Exhibit 15	Section 2.1051	Measurement of Spurious Emissions at Antenna	Compliant
Exhibit 16	Section 2.1053	Field Strength of Spurious Radiation	Compliant
Exhibit 17	Section 2.1055	Measurement of Frequency Stability	Compliant

Section 2.1057(a)(1)(b)(c) Frequency spectrum to be investigated.

The Frequency range of measurement is required to be from the lowest clock frequency to above the tenth harmonic of the transmit frequency.

Response:

The lowest RF clock frequency in the *UMTS-CDMA 9341 RRH 40W 1900 MHz System* is the 10 MHz Precision Crystal reference oscillator. Conducted and Radiated spurious measurements were performed over the range of 10 MHz to 20 GHz which is above the tenth harmonic of the transmit frequency range. Measurements for conducted and radiated spurious emissions were continuous

The following pages include the data required for the Product Certification authorization of the *UMTS-CDMA 9341 RRH 40W 1900 MHz System* / FCC ID: AS5ONEBTS-18, measured in accordance with the procedures set out in Section 2.1041 of the Rules.

Exhibit 12 MEASUREMENT OF RADIO FREQUENCY POWER OUTPUT

SECTION 2.1046

Measurements required: RF power output.

The test arrangements used to measure the radio frequency power output of the *UMTS-CDMA 9341 RRH 40W 1900 MHz System* / FCC ID: AS5ONEBTS-18 is on the following page. Measurements were made respectively at each frequency where Occupied Bandwidth measurements were performed. This Class II Change is for use of the *UMTS-CDMA 9341 RRH 40W 1900 MHz System* with CDMA modulation for one to seven carriers at 40 W total power. Demonstration of compliance with the operation using seven carrier configuration was demonstrated across the PCS band for de-aggregation application purposes and specifically for PCS Blocks A, B and C. There is no retuning or change in hardware necessary for operation in any PCS Block. This testing requires that the Antenna Connection (J4) power level be calibrated for the specific channel of use. The test configuration, Figure 12a, allowed the measurement of output power for each channel investigated for Occupied Bandwidth. These included the upper and lower Block edges and at the center channel for each Block.

In the *UMTS-CDMA 9341 RRH 40W 1900 MHz System* / FCC ID: AS5ONEBTS-18 system has a maximum power output of 40 Watts total at the antenna terminals (46.02 dBm/c +2/-4 dB for one to seven carriers). It also has a minimum power output at the antenna terminals of 0.040 Watts/c (16.02 dBm +2 / -4 dB), across the PCS downlink Band (1930.00-1990.00 MHz). The base station test model channel parameters signal applied to the *UMTS-CDMA 9341 RRH 40W 1900 MHz System* is defined in Table 12.1. The power was reset to the specified 20 W/c maximum at each measurement frequency to verify the spectral performance at that power level at each specific frequency of interest. The attenuation range was also verified. The specific Frequencies and channels and set power level was documented on each "Occupied Bandwidth" sheet.

The applied signal, from a *UMTS-CDMA 9341 RRH 40W 1900 MHz System*, met the recommended characteristics per "**Table 6.5.2-1 Base Station Test Model, Nominal**" from **3GPP2 C.S0010-C v2.0, 24 February 2006**, Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations, as defined below in table 12.1.

Type	Number of Channels	Fraction of Power (Linear)	Fraction of Power (dB)	Comments
Forward Pilot	1	0.2000	-7.0	Code channel W_0^{64}
Sync	1	0.0471	-13.3	Code channel W_{32}^{64} ; always 1/8 rate
Paging	1	0.1882	-7.3	Code channel W_1^{64} ; full rate only
Traffic	M = 37	$0.5647/M = 0.015262$	$-2.48 - 10 \log(M) = -18.1620$	Variable Walsh assignments, full rate only

TABLE 12.1 Base Station Test Model, Nominal for Main Path

Type	Number of Channels	Fraction of Power (Linear)	Fraction of Power (dB)	Comments
Transmit Diversity Pilot	1	0.2000	-7.0	Code channel W_{16}^{128}
Traffic	M = 37	$0.5647/M = 0.015262$	$-2.48 - 10 \log(M) = -18.1620$	Variable Walsh code channel assignments, full rate only

TABLE 12.2 Base Station Test Model, Nominal for Transmit Diversity Path

Exhibit 12 RF Power Test Configuration

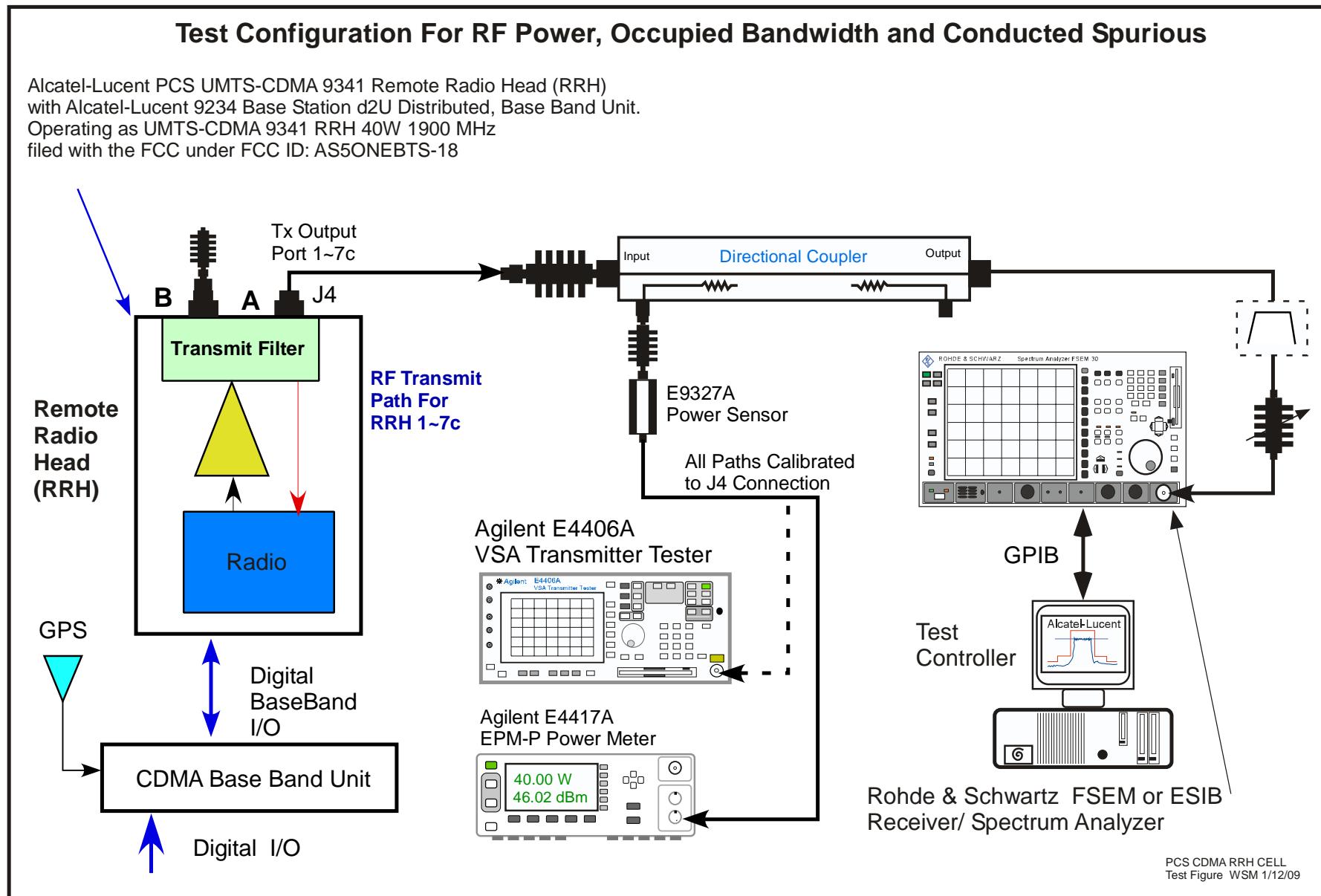


Exhibit 12 *continued***Equipment used for RF Power, Modulation, Occupied bandwidth, Conducted Spurious and Radiated Spurious Measurements**

<u>Equipment</u>	<u>Description</u>	<u>Number</u>	<u>Cal Date</u>
Power Meter:	Agilent N1912A P Series Power Meter	82-11293400	22-Jan-08
Power Head	Agilent N1921A 0.05-18 GHz Wideband Power Sensor	82-11293379	10-Nov-08
Spectrum Analyzer:	Rohde & Schwarz FSEM-30	167437	31-Oct-08
EMI Test Receiver	Rohde & Schwarz ESIB-40 (used till calibration expired)	100101	07-Dec-07
EMI Test Receiver	Rohde & Schwarz ESIB40	166736	4-Apr-08
System Controller	EMCO-Model 2090	1600	n/a
Code Domain Analyzer	Agilent E4406 VSA Transmitter Tester	169442 UR	02-Oct-08
Computer Controller:	EG Technology, Intel Pentium PC w/ WIN XP OS	POR-2, 6 & 7	n/a
EMC Test Software	TILE, Quantum Change,	Version 3.4.K.14	n/a
Printer:	HP Model 4500DN Printer	N/A	n/a
Low Pass Filters:	10 MHz-1.93 GHz, Custom manufactured	PCSLPF-11	12-Dec-08
High Pass Filters:	1.99-20 GHz, Custom manufactured	PCSHPF-11	12-Dec-08
High Pass Filters:	1.99-20 GHz, Custom manufactured	PCSHPF-12	12-Dec-08
Test Cables:	Low loss test cables custom mfg.	Chamber-1 set	29-May-08
Antenna	Active Rod A.H.Systems-SAS-550-1B	627	02-May-08
Antenna	BiLog ETS-Lindgren / EMCO, 3142B	1775	17-Jun-08
Antenna	Double Ridged Horn, ETS-Lindgren / EMCO -3115	9408-4309	12-May-08
Antenna	Double Ridged Guide, ETS-Lindgren / EMCO -3116	9810-2401	05-Jun-08
Preamplifier	Amplifier Low Noise, Miteq, 1.7 dB	LNA-1	29-May-08
RF Amplifier	Agilent-8447D	2944A10093	5-Feb-08
RF Amplifier	Agilent-8447D	2944A10093	5-Feb-08
Preamplifier	Hewlett Packard-8449B	3008A01270	29-May-08
Preamplifier	Hewlett Packard - 8449B	3008A01270	19-Jul-07
GPS Receiver	Symmetricom 58503B (former Agilent)	KR93200849	N/A
RF Test coupler	HP772B Coupler, Weinschel & 8494B and 8495B digital attenuators	Brown-Mule-Lim	29-Sep-08
<u>Equipment</u>	<u>Description</u>	<u>Number</u>	<u>Cal Due</u>
GPS T&F Reference Rcvr	Symmetricom 58503B GPS Time and Frequency Reference Receiver	KR93200773	NA
Power Meter	Agilent E4418B EPM Series	BC 82-11297418	13-Nov-10
Power Sensor	Agilent 8481A	3318A95611	14-Jan-09
VSA Transmitter Tester	Agilent E4406A	US40061191	31-Mar-09
Frequency Counter	HP-Agilent 53181A	3418A00309	21-Jan-09
30dB Attenuator	Weinschel 49-30-33	LX567	NA
Power Supply	Kikusui PAD 35-100L	BC 153178	NA

Exhibit 12 *continued***Measurements required: RF power output.**

PCS - Block	PCS - Channels	Number of carriers	Power per Carrier, W/c	Total Power Watts	Results RF Power
1 Carrier Configuration					
A	25	1	40	40	Compliant
A	275	1	40	40	Compliant
D + B	325 & 375	1	40	40	Compliant
B	425	1	40	40	Compliant
B	675	1	40	40	Compliant
E	725 & 775	1	40	40	Compliant
F	825 & 875	1	40	40	Compliant
C	925	1	40	40	Compliant
C	1175	1	40	40	Compliant
2 Carrier Configuration					
A-C	25-1175	2	20	40	Compliant
3 Carrier Configuration					
A-C	25-1175	3	13.33	40	Compliant
4 Carrier Configuration					
A-C	25-1175	4	10	40	Compliant
5 Carrier Configuration					
A-C	25-1175	5	8	40	Compliant
6 Carrier Configuration					
A-C	25-1175	6	6.66	40	Compliant
7 Carrier Configuration					
A	25 - 175	7	5.71	40	Compliant
A	125-275	7	5.71	40	Compliant
D + B	325-475	7	5.71	40	Compliant
B	425 - 575	7	5.71	40	Compliant
B	525-675	7	5.71	40	Compliant
B + E	625 - 775	7	5.71	40	Compliant
F + C	825 - 975	7	5.71	40	Compliant
C	925-1075	7	5.71	40	Compliant
C	1025-1175	7	5.71	40	Compliant

RESULTS:

The *UMTS-CDMA 9341 RRH 40W 1900 MHz System* / FCC ID: AS5ONEBTS-18 was configured in the test setup shown in Figure 12A. For the 1 through 7 carrier CDMA channel configurations the *UMTS-CDMA 9341 RRH 40W 1900 MHz System* / FCC ID: AS5ONEBTS-18 delivered a minimum of 40.0 Watts Total Power +2/-0 dB when measured at the J4 output connection. This data is recorded on the Occupied Bandwidth Data Sheets for "Left edge" and "Right Edge" of each frequency Block and summarized in the Table above.

Note: The *UMTS-CDMA 9341 RRH 40W 1900 MHz System* / FCC ID: AS5ONEBTS-18 Enhanced Digital Pre-Distortion System allows for remote calibration and adjustment of its power level at each cell site during setup.

Conclusion:

This demonstrates that the **UMTS-CDMA 9341 RRH 40W 1900 MHz System / FCC ID: AS5ONEBTS-18**, the subject of this application, complies with Sections 2.1053, 24.238 and 2.1046 of the Rules.

Exhibit 13

SECTION 2.1047 MEASUREMENT OF MODULATION CHARACTERISTICS

The modulation characteristics and accuracy of the output signal of the *UMTS-CDMA 9341 RRH 40W 1900 MHz System* / FCC ID: AS5ONEBTS-18 is solely a function of the Future Technology Radio 1900 (FTR1900) which is contained in the RRH assembly.

13.1 - Modulation Description

The modulation methods used in CDMA drastically differ from those used in a FM analog system. The methods used in evaluating the *UMTS-CDMA 9341 RRH 40W 1900 MHz System* / FCC ID: AS5ONEBTS-18 are described in the pertinent standards documents which include **TIA/EIA-97-C** “recommended Minimum performance Standards for Base Stations Supporting Dual-Mode Wideband Spread Spectrum Cellular Mobile Stations” and **3GPP2 C.S0010-C v2.0, 24 February 2006, Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations**. The modulation quantify criteria are as follows:

13.2 Modulation Requirements – Section 4.2 of TIA/EIA-97-C and 3GPP2 C.S0010-0

Waveform quality is tested by measuring the waveform quality ρ , as defined in 6.4.2.1, and code domain power as defined in 6.4.2.2. The range of values for the transmit waveform quality is from 1.0 for a perfect CDMA waveform to 0.0 for a non-CDMA signal. As an example, a base station with a 0.5 dB degradation in its transmit waveform would have a quality, ρ , of $10^{-(0.5/10)} = 0.89$.

13.3 Minimum Standard ...per Section 4.2.2.3 of 3GPP2 C.S0010-C v2.0

The normalized cross correlation coefficient, ρ , shall be greater than 0.912 (excess power ≤ 0.4 dB).

13.4 Results

The *UMTS-CDMA 9341 RRH 40W 1900 MHz System* / FCC ID: AS5ONEBTS-18 was configured in the test setup shown in Figure 13A. The **RRH** was configured with its pilot channel and the modulation quality measured with an Agilent -E4406A VSA Series Transmitter Analyzer. Measurements were performed at the PCS Channels shown in table 13.1.

PCS Band	Transmit Channel(s)	Measured Rho	Status
A	125	0.9989	Compliant
D	375	0.9989	Compliant
B	425	0.9990	Compliant
E	725	0.9990	Compliant
F	875	0.9989	Compliant
C	1175	0.9989	Compliant

TABLE 13.1 MCR-1900 Channels for Modulation Characteristics Measurement

Results Summary

For each of the PCS channels tested, the *UMTS-CDMA 9341 RRH 40W 1900 MHz System*’s modulation quality factor, Rho (ρ), was measured to be ≥ 0.9989 which exceeds the required minimum value of 0.912. The *UMTS-CDMA 9341 RRH 40W 1900 MHz System* transmit signal Code Domain and modulation parameters for PCS channel is shown in Figures 13B and 13C below. The data for channel 1175 is representative of the data recorded for the remaining channels listed above and was taken utilizing the Agilent -E4406A VSA Series Transmitter Analyzer. It also verified that the frequency offset is less than (+/- 0.05 PPM) of the frequency assignment.

Conclusion

This demonstrates that the **UMTS-CDMA 9341 RRH 40W 1900 MHz System** / FCC ID: AS5ONEBTS-18, the subject of this application, complies with Sections 2.1053, 24.238 and 2.1047 of the Rules.

Figure 13A

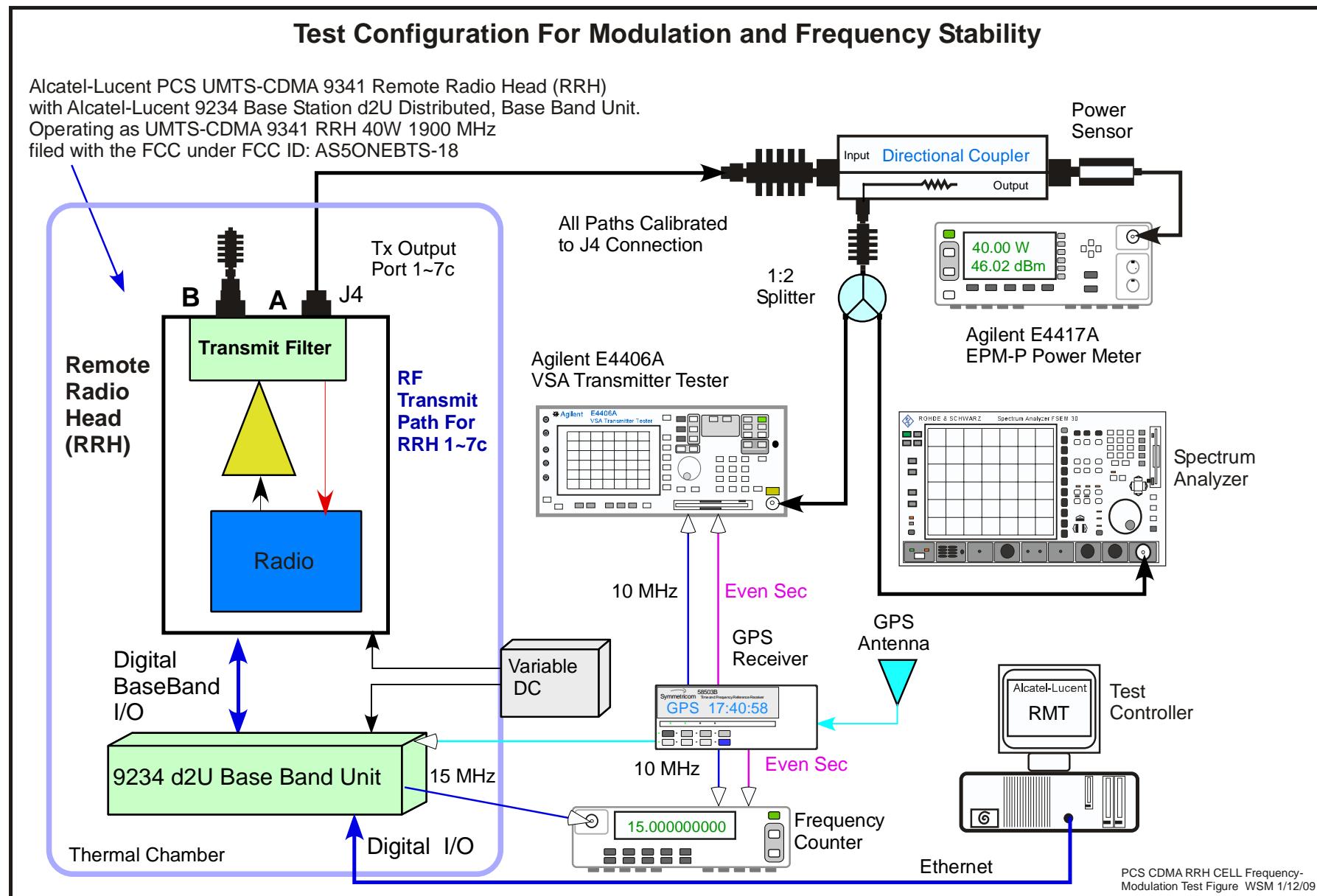


Figure 13B

Code Domain 1c C Block, Channel 1175

Tx Output

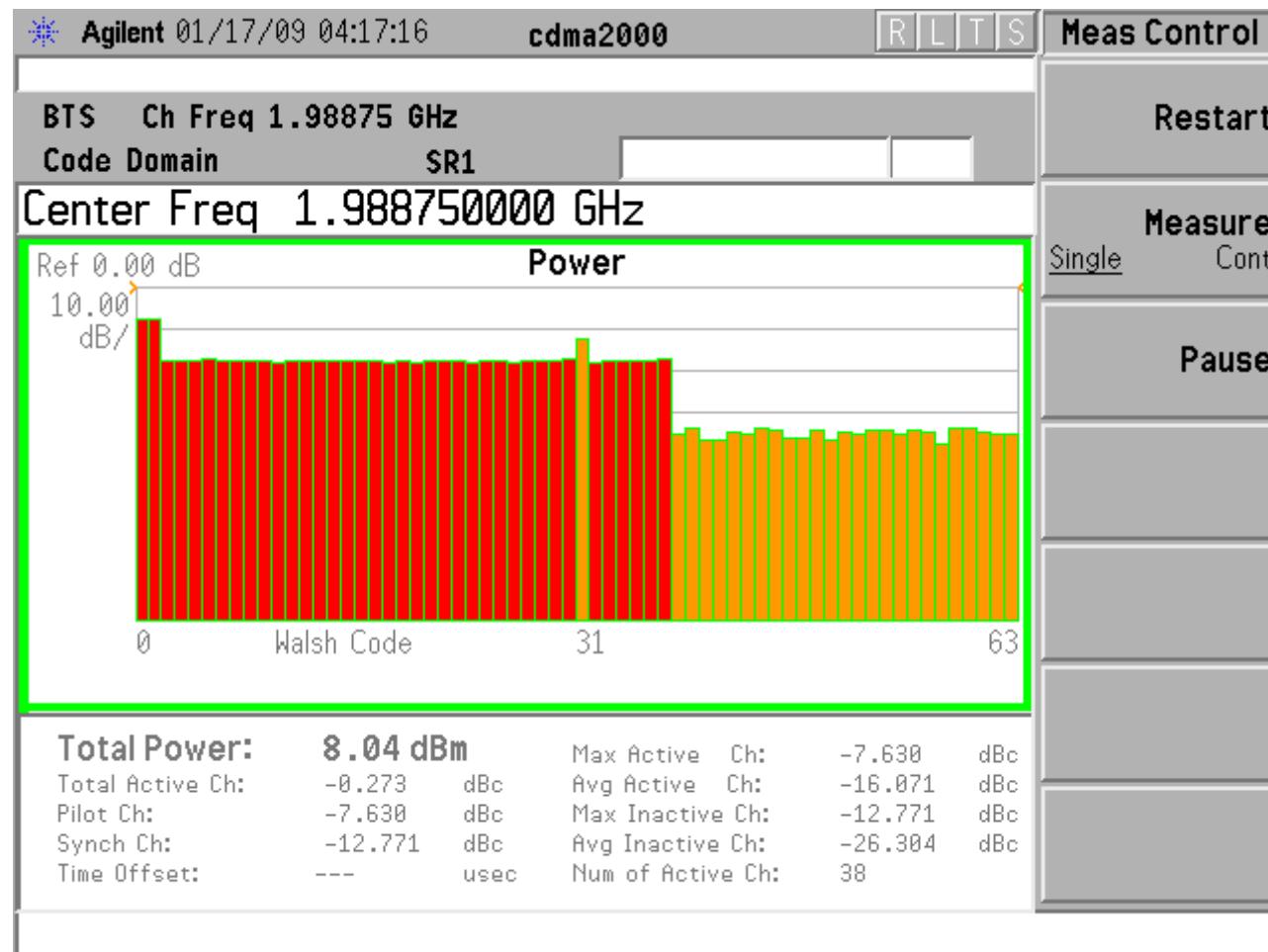


Figure 13C Rho 1c C Block, Channel 1175 Tx Output

