Exhibit 15: SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Section 2.1051 Spurious Emissions at Antenna Terminals

Spurious Emissions at the antenna terminals were investigated over the frequency range of 10 MHz to 20 GHz which is beyond the 10th harmonic of the carrier frequency. The RF output from the transmitter was reduced, to an amplitude usable by the spectrum analyzer, by use of a broadband attenuator. The complete RF test path was calibrated over the 10 MHz-20 GHz range. The RF power level was measured and monitored prior to and during the test via the test setup in Figure 15A. The spurious measurements were made using an automated test system. The test system consists of a Rohde & Schwarz FSEM30 Spectrum Analyzer (or ESIB Test Receiver), a PC based computer test controller, calibrated test hardware and a TILE ™ software program to acquire the test data. This system allows measurement and presentation of the data in an accurate and compact form for FCC review. The volume of collected data is greater than 2 $x10^5$ data points over the frequency range of 10 MHz to 20 GHz.

The required emission limitation specified in Section 24.238 of the Code was applied to these tests. Based upon the criterion given in Section 24.238 of the Code and as developed in Exhibit 14, the required emission limit is -13 dBm when measured with a resolution bandwidth of 1 MHz. The measurements of the spurious signals were therefore made using a resolution bandwidth of 1 MHz. All spurious and harmonics of the CDMA Carrier was also shown to be lower than –13 dBm limit.

The carrier signal shown on these plots was measured at a resolution Bandwidths of 3 MHz. This was done so that the carrier plot correctly and accurately depicts the carrier output power in relation to the spurious signals and the defined limit.

In order to adequately evaluate performance the worst case modulation factors of 2G Voice (vs. 3G1X or 3G1X-EV-DO) were used from the governing documents. Thus, 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 15.1.

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 15.1 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 15.2 Base Station Test Model, Nominal for Transmit Diversity Path

Exhibit 12 *continued*

The FCC limits contained in **47CFR 24.238 1-Oct-2007** were followed along with the minimum standard presented in **3GPP2 C.S0010-C v2.0, 24 February 2006.** Where combinational measurements of 3G1x-EV-DO are made along with the 2 GV configuration above the applied signal were based upon the 3GPP2 TSG-C.S0032-1 titled "Recommended Minimum Performance Standards for CDMA2000 High Rate Packet Data Access Network ". Section 3.1.2.4 Limitations on Emissions. This standard covers the emissions situation except that we use the maximum 25 MAC full traffic configuration as the standard.

Test Results Summary:

Conducted Spurious measurements were performed for the one through seven carrier channel configurations at each edge of PCS Block for which the *UMTS-CDMA 9341 RRH 40W 1900 MHz System* supports operation. Conducted Transmit Spurious measurements were performed as part of the test profile for Occupied Bandwidth. Every PCS Block Edge measurements configuration therefore included a Conducted Transmit Spurious measurements as documented in Table 15.2.

Conclusion

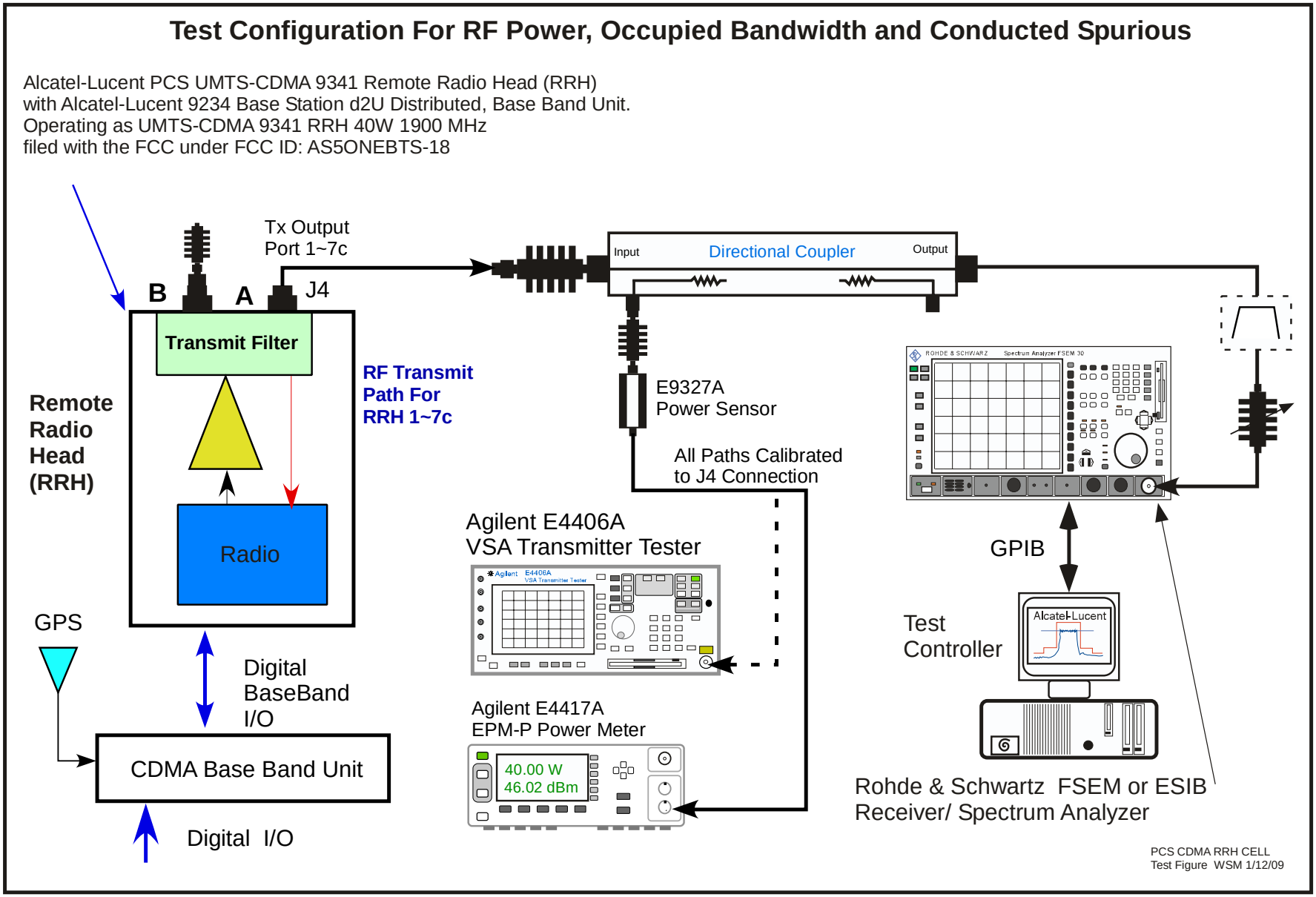
The attached spectral plots are representative of the Conducted Spurious compliance performance of the *UMTS-CDMA 9341 RRH 40W 1900 MHz System***.** The compliance for all of the representative transmit configurations are documented in Table 15.2. This Table lists PCS Blocks/ Channels tested the Channel configuration and the status of the performance. The performance data, charts and tables all show that there are no “Out of Block” harmonics or spurious emissions above the applicable limit of –13 dBm. The attached table and sample data plots document the results. 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 2.1051 of the Rules.

Exhibit 15 *continued*

PCS - Block	PCS - Channels	Number of carriers	Power per Carrier, W/c	Total Power Watts	Results Conducted Spurious Emissions
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

TABLE 15.2 PCS Conducted Spurious Compliance Tabulation

Figure 15A Test Setup for Antenna Port Measurement of Transmit Power, Occupied Bandwidth and Conducted Spurious Emissions

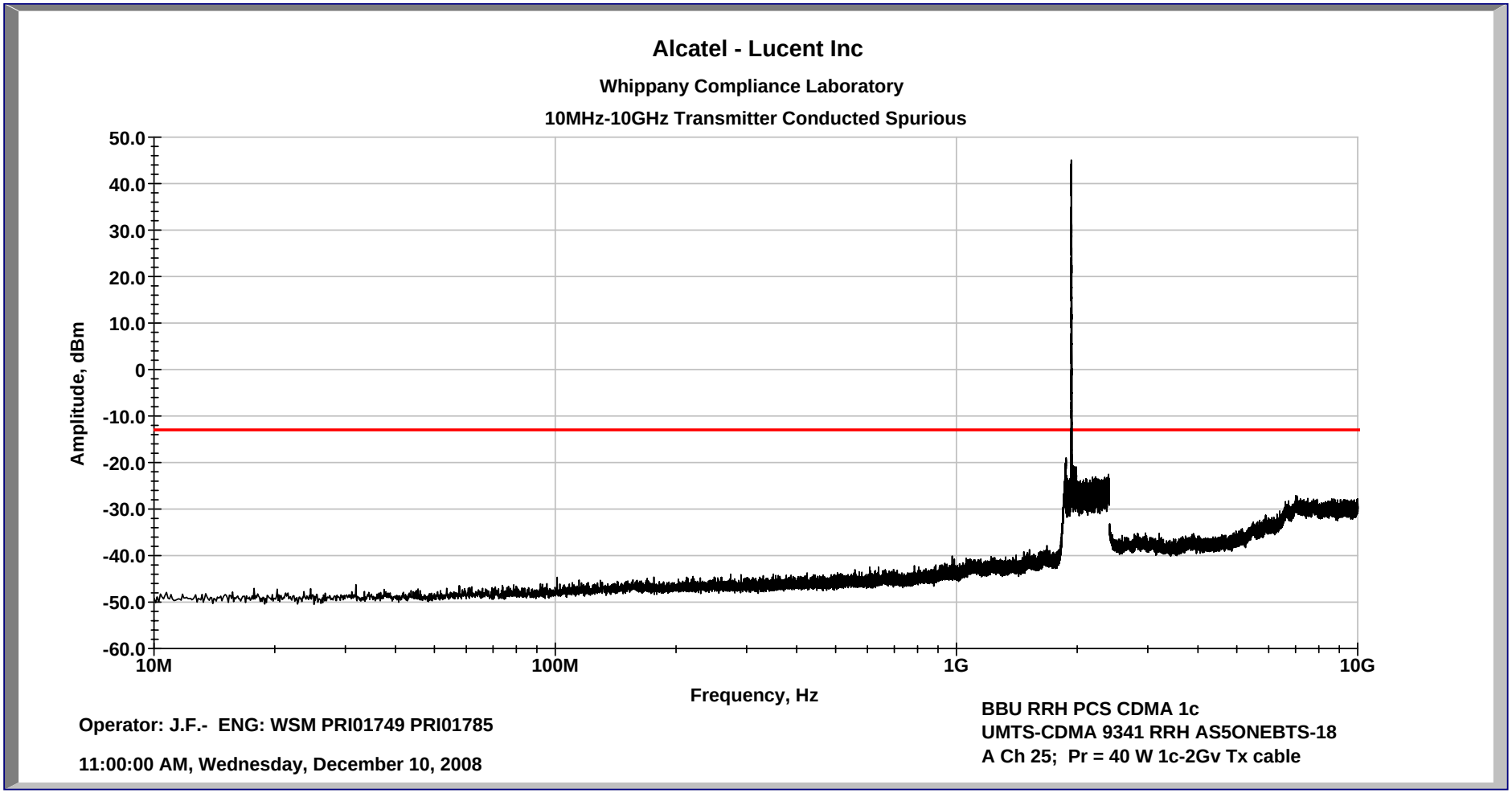


Transmitter Measurements
of
Conducted Spurious Emissions
for
Alcatel-Lucent Inc.
UMTS-CDMA 9341 RRH 40W 1900 MHz System
FCC ID: AS5ONEBTS-18
with
9234 Base Station d2U Distributed Base Band Unit (BBU)
One to Seven Carrier Configurations
CDMA Operation at
40W Total Power

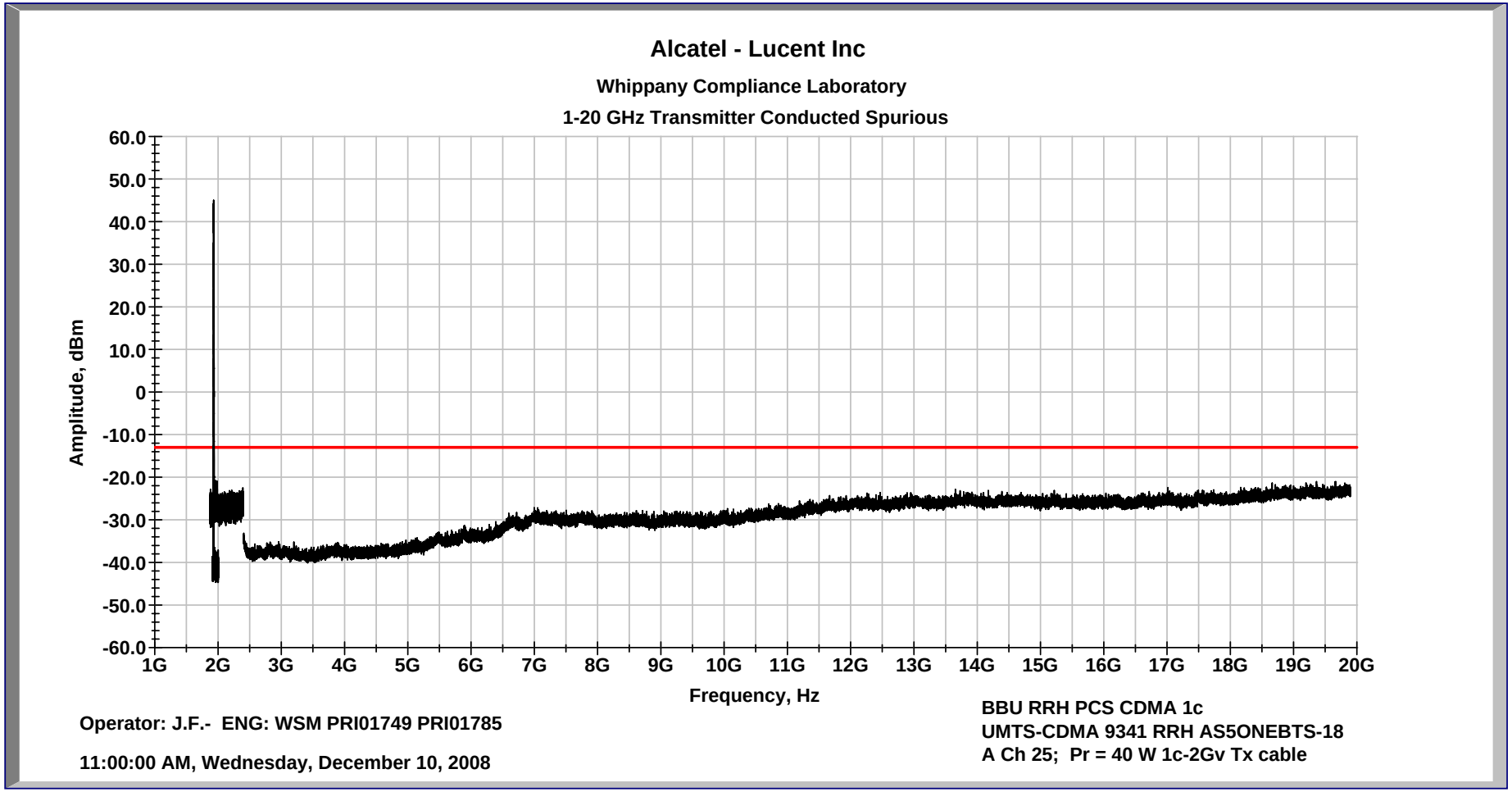
W. Steve Majkowski NCE
CDMA Certification Lead
Whippany FCC Compliance Laboratory
Alcatel-Lucent.
Lab: 973-386-2135
majkowski@alcatel-lucent.com

Conducted Spurious Emissions Data
One Carrier Transmitter Configuration
for
Left side of PCS Blocks A
and
Right side of PCS Blocks C

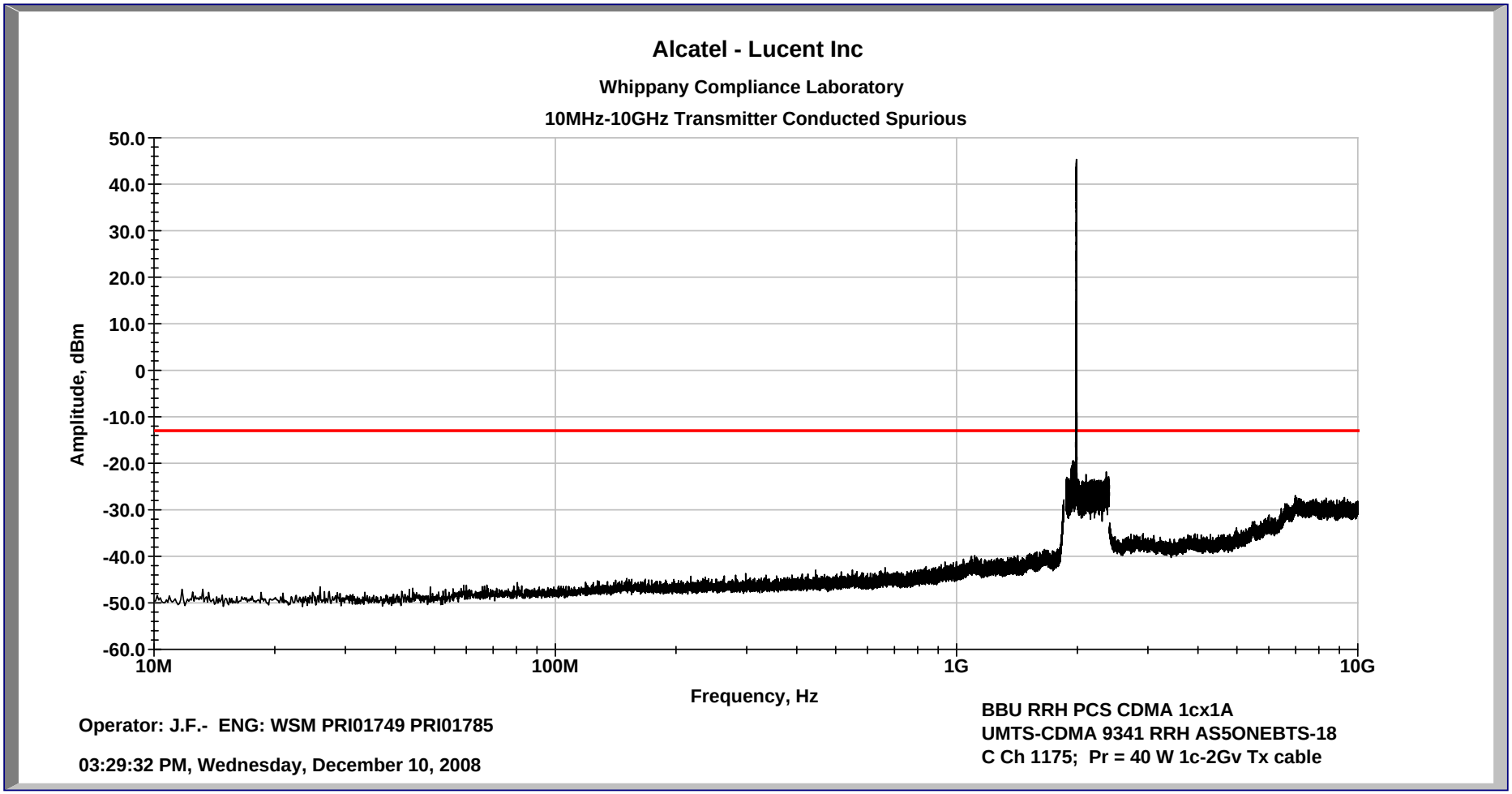
Transmitter Conducted Spurious 10 MHz – 10 GHz PCS Ch A1-25 1c w/EDPD 40W Total



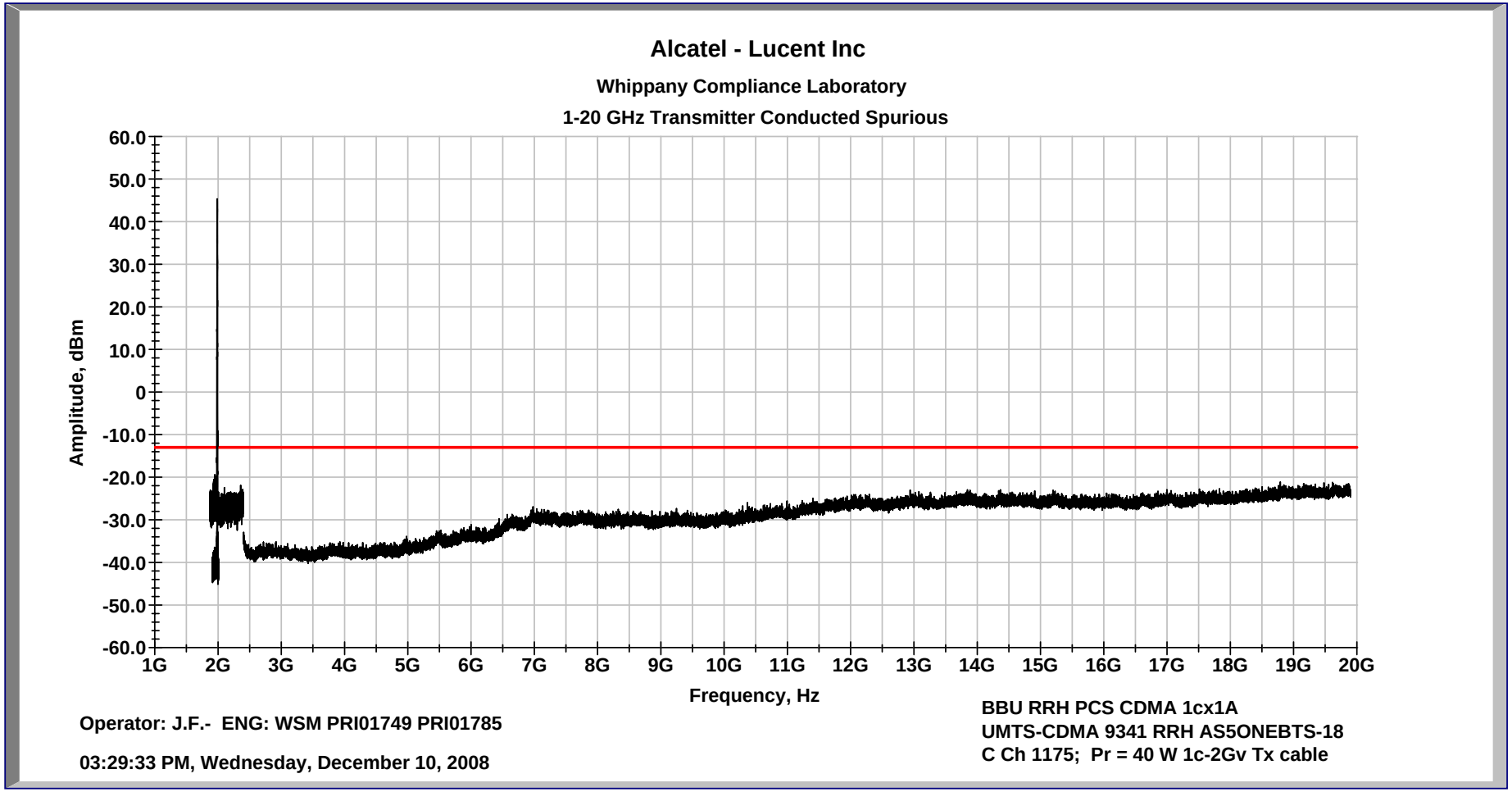
Transmitter Conducted Spurious 1 GHz – 20 GHz PCS Ch A1-25 1c w/EDPD 40W Total



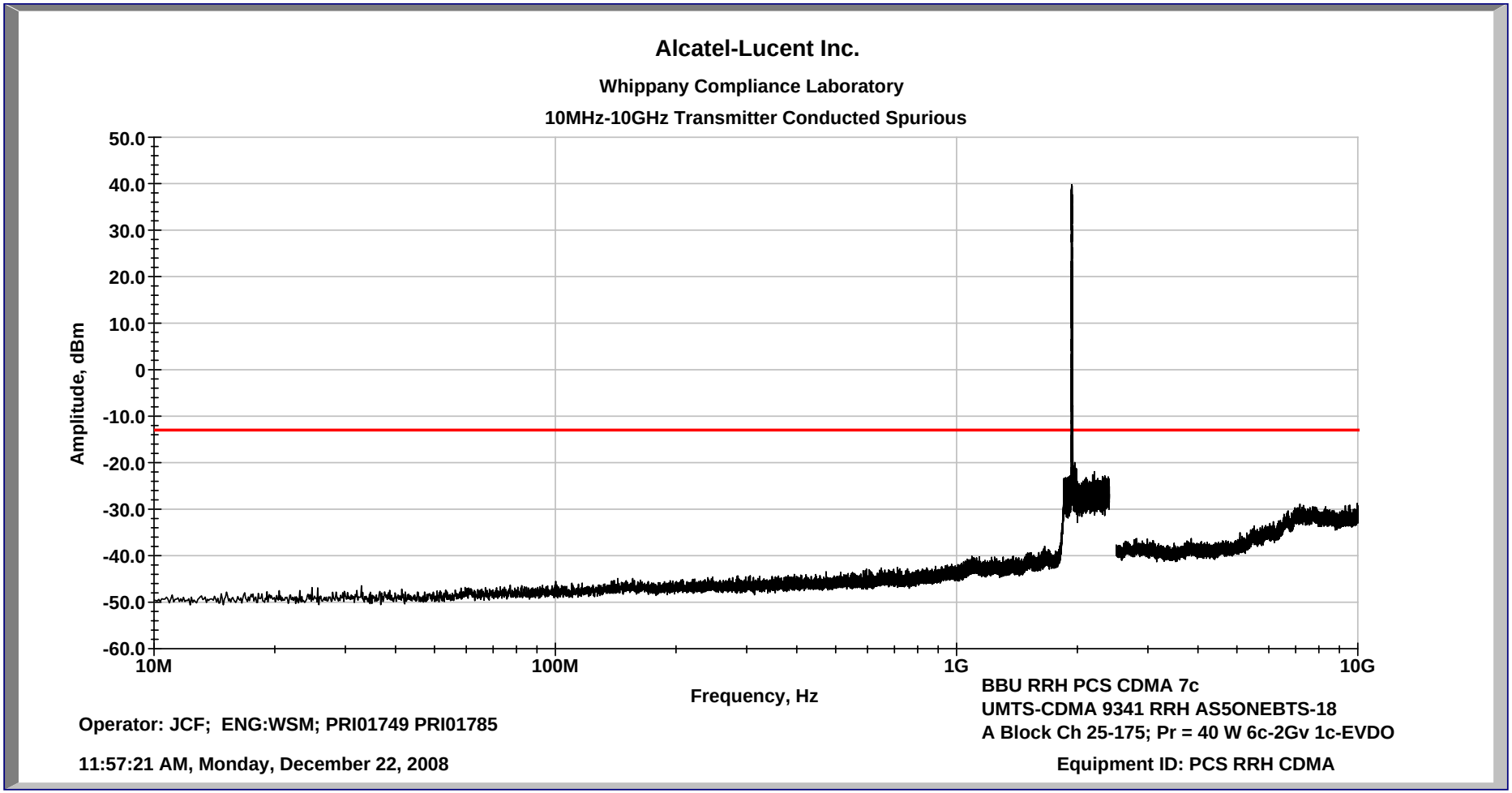
Transmitter Conducted Spurious 10 MHz – 10 GHz PCS Ch C5-1175 1c w/EDPD 40W Total



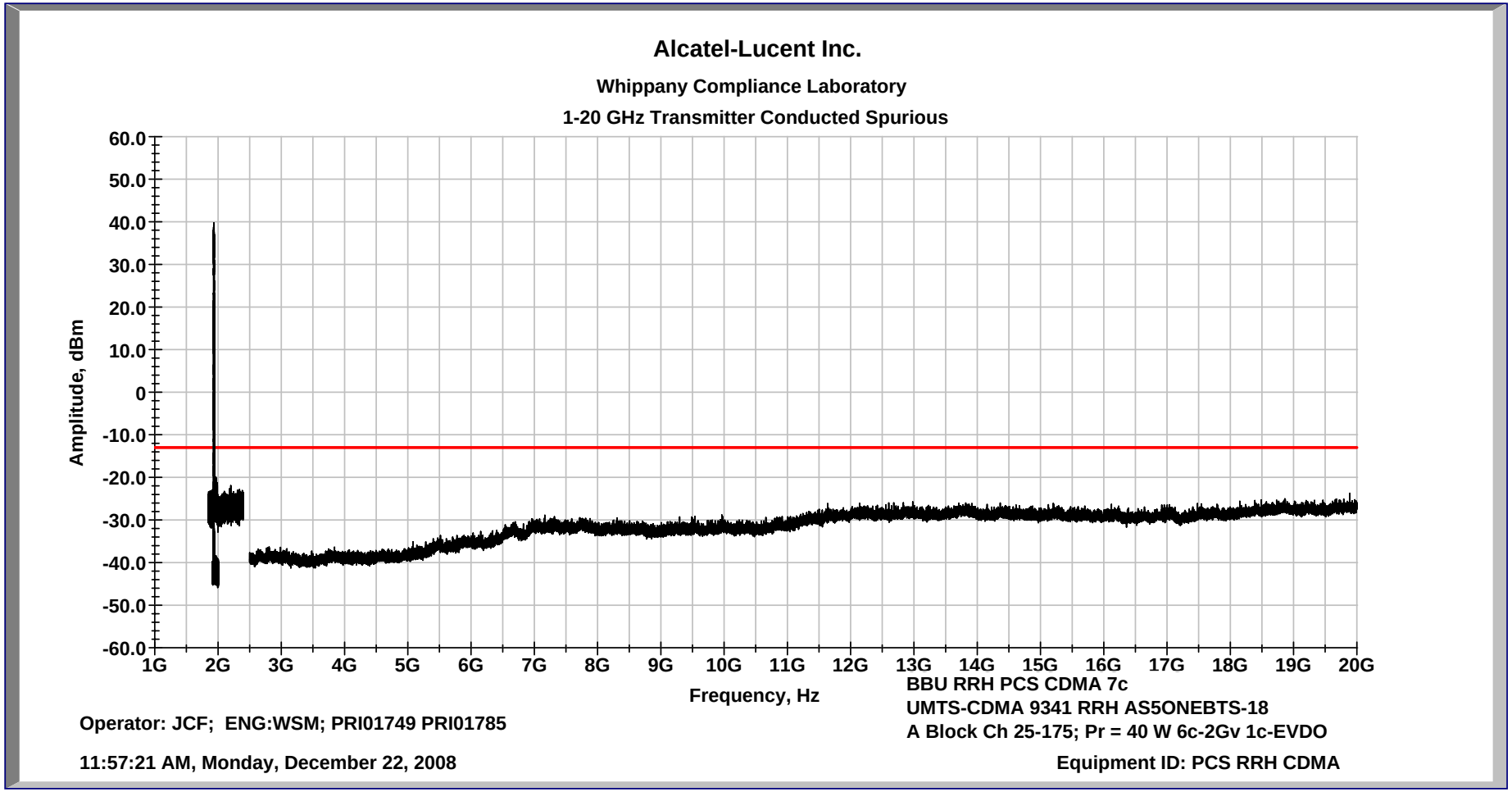
Transmitter Conducted Spurious 1 GHz – 20 GHz PCS Ch C5-1175 1c w/EDPD 40W Total



Transmitter Conducted Spurious 10 MHz – 10 GHz PCS Ch A1 25-175 7c 2Gv w/EDPD 40W Total

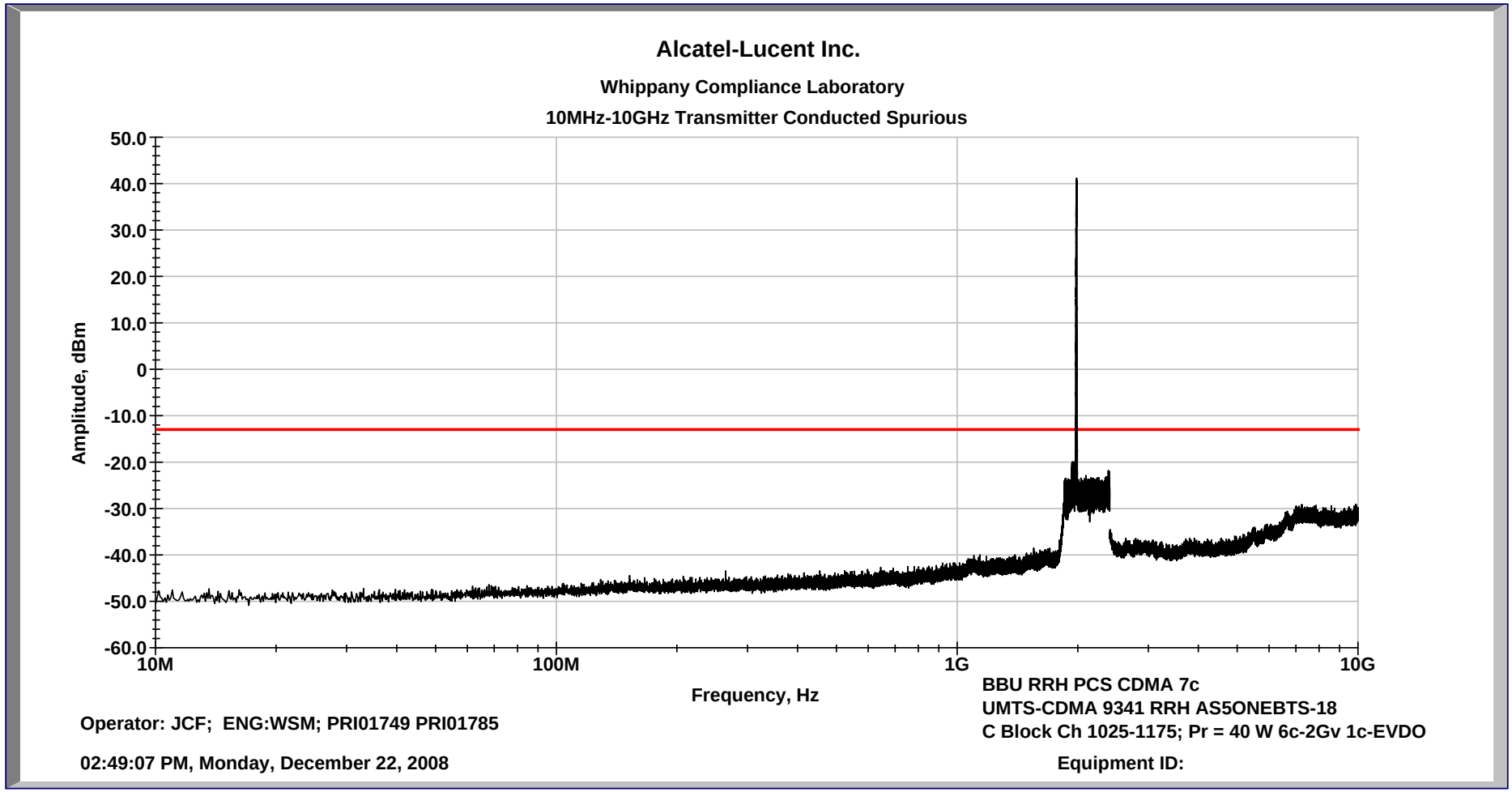


Transmitter Conducted Spurious 1 GHz – 20 GHz PCS Ch A1 25-175 7c 2Gv w/EDPD 40W Total



]

Transmitter Conducted Spurious 10 MHz – 10 GHz PCS Ch C5 1025-1175 7c 2Gv w/EDPD 40W Total



Transmitter Conducted Spurious 1 GHz – 20 GHz PCS Ch C5 1025-1175 7c 2Gv w/EDPD 40W Total

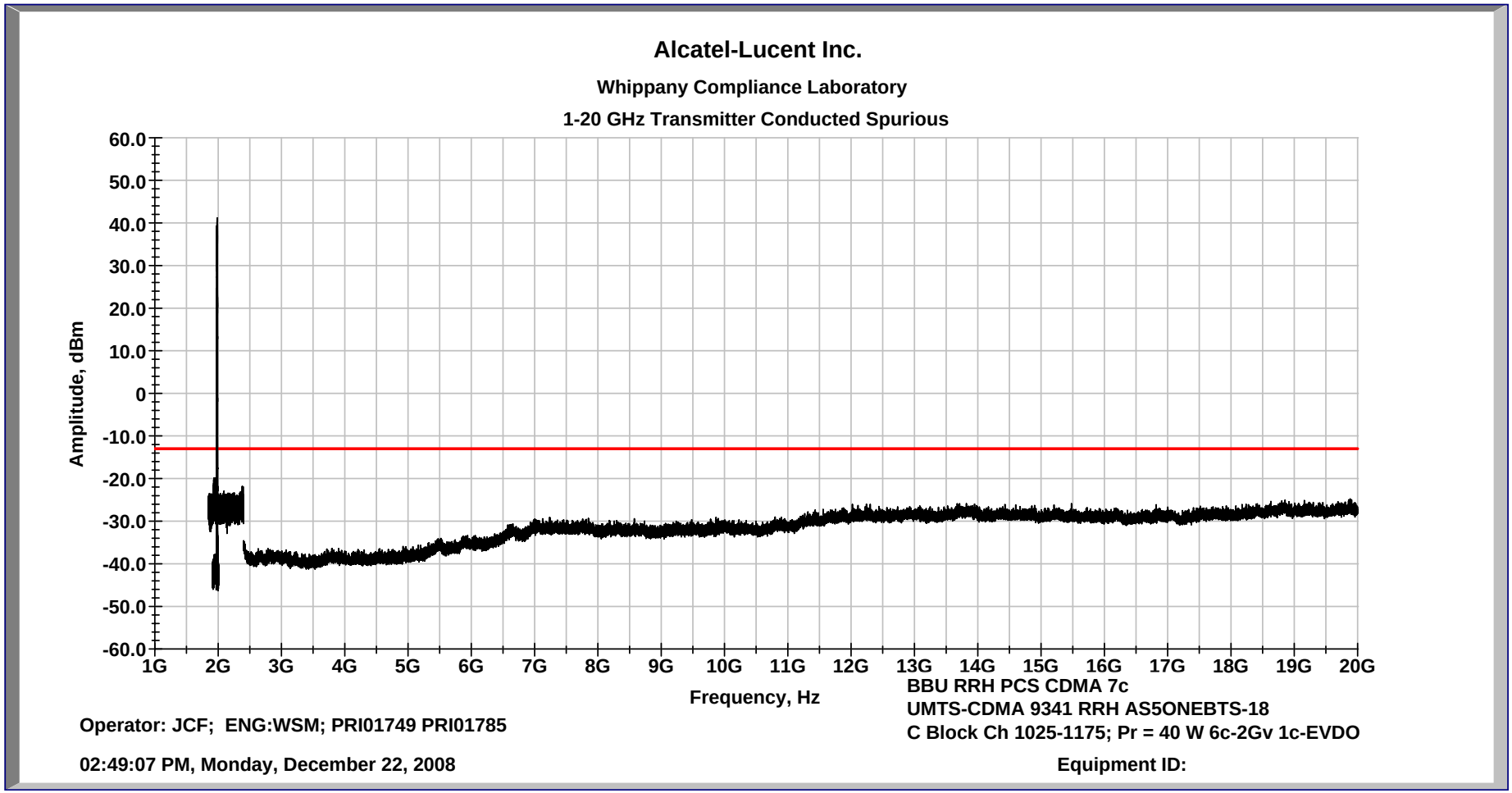


Exhibit 16 FIELD STRENGTH OF SPURIOUS RADIATION

SECTION 2.1053 Field Strength Of Spurious Radiation

Field strength measurements of radiated spurious emissions were evaluated in a 3m anechoic pre-compliance chamber and verified as required at the ten meter Open Area Test Site OATS maintained by Lucent Technologies Bell Laboratories 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 *UMTS-CDMA 9341 RRH 40W 1900 MHz System* was configured with an 9234 Base Station d2U Distributed (Baseband Unit or BBU) and all other associated equipment. The product was tested while operating in all PCS blocks as FCC ID: AS5ONEBTS-18. The spectrum from 10 MHz to the tenth harmonic of the carrier (20 GHz) 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:

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

Section 24.238 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.

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

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

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

RESULTS:
For this particular test, the field strength of any spurious radiation, measured at 10m, is required to be less than 71.77 dBμV/meter. Emissions equal to or less than 51.77 dBμV/meter are not reportable and may be verified using field strength measurements and broadband antennas. Over the out of band spectrum investigated from 10 MHz to beyond the tenth harmonic of the carrier (20GHz), no reportable spurious emissions were detected.

Conclusion

The test data demonstrated 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 2.1057 of the Rules.

Exhibit 17 MEASUREMENT OF FREQUENCY STABILITY

SECTION 2.1055 Measurement of Frequency Stability

The design and performance of the **UMTS-CDMA 9341 RRH 40W 1900 MHz System** has not been changed and remains compliant with the 0.05 ppm requirement. The external frequency standard for CDMA operation adds GPS discipline to the Baseband Units timing system which further enhances performance. The overall frequency stability performance is documented below.

Frequency Stability Test Details

Frequency Stability performance was verified by measuring Frequency Tolerance at J4 using an Agilent VSA Series Transmitter Tester as depicted in Figure 17. Frequency Tolerance is a measurement of the difference between the actual transmit frequency and the assigned frequency (1951.25MHz). To gain further confidence in the Frequency Stability of the Unit Under Test, the reference 15 MHz output was also measured directly. This was done by monitoring the 15 MHz output with a high precision Frequency Counter. Throughout the testing, Code Domain was monitored to ensure proper cell performance.

DC Configuration Frequency Stability Test Results

The following tables document the measured results of the testing.

Stabilized Temp. (°C)	**Δf 85% V_{norm} (20.4) (Hz)**	**Δf 100% V_{norm} (24) (Hz)**	**Δf 115% V_{norm} (27.6) (Hz)**
-40	3.95	10.05	-5.55
-30	10.65	4.75	12.97
-20	6.71	-7.06	-4.76
-10	7.15	-2.71	-5.88
0	-4.63	5.96	11.00
+10	3.39	6.13	-4.64
+20	-3.37	2.57	-1.60
+30	4.43	4.23	5.09
+40	-3.63	-3.70	-2.26
+50	-4.63	5.23	3.54

Table 17.1: Transmit Frequency Deviation (Requirement = 97.7 Hz, 0.05 ppm) vs. Temperature

Stabilized Temp. (°C)	**Δf 85% V_{norm} (20.4) (mHz)**	**Δf 100% V_{norm} (24) (mHz)**	**Δf 115% V_{norm} (27.6) (mHz)**
-40	3	4	4
-30	5	5	4
-20	3	4	4
-10	4	4	4
0	4	4	3
+10	4	5	5
+20	4	4	4
+30	4	4	4
+40	5	4	5
+50	7	47	18

Table 17.2 : 15 MHz Reference Frequency Deviation (Requirement = 750 mHz, 0.05 ppm) vs. Temperature

Results:

The data documented that the maximum frequency deviation measured for the RF carrier frequency (1951.25 MHz) at the transmit antenna port was +0.006 ppm (12.97 Hz). The specification for FCC compliance is +/- 0.05 ppm (+/- 97.87 Hz). The maximum frequency deviation measured for the Base Band Units Frequency Standard output (15 MHz) was +0.003 ppm (47 mHz). The specification for FCC compliance is +/- 0.05 ppm (+/-0.75 Hz).

Conclusions

The PCS **UMTS-CDMA 9341 RRH 40W 1900 MHz System** with the 9234 Base Station d2U Distributed Base Band Unit (BBU). successfully met the Frequency Stability requirements over the variable DC voltage and temperature ranges as stated. 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 2.1055 of the Rules.

Figure 17 Frequency Stability Test Configuration