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Section 2.1051

Spurious Emissions at Antenna Terminals

The **BCR** can be operated with FCC Product Certified Cellular or PCS Transmitters. Examples include the CDMA Amplifier Module - **CAM/ FCC ID: AS5CMP-25** and the PCS CDMA Transmit Unit **CTU/FCC ID: AS5CMP-23** (i.e. a Cellular to PCS frequency Upconverter-Amplifier). This latter equipment configuration is the worst case situation for the generation of spurious products.

Results:

Data was collected for the **BCR** alone, as well as the **BCR** integrated with a typical transmitter, **CTU**/ **FCC ID: AS5CMP-23**. In both cases, the **BCR** and the **BCR** with the **CTU**, are compliant. The test methodology is described below and the test results are attached.

Test Methodology

Spurious Emissions at the antenna terminals were investigated over the frequency range of 10 MHz to 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 using a calibrated test fixture (attenuator, coupler filter and cables) calibrated over the 10 MHz-20 GHz range. The RF power level was measured prior, during and post test via the test setup in Figure 15A.

Measurements were made using a Rohde & Schwarz ESMI EMI Test Receiver, a PC based computer test controller, specialized RF components and a TILE TM 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 1×10^6 data points over the frequency range of 10 MHz to 20 GHz.

The use of a High-Pass Carrier reject filter allows for rapid and accurate acquisition of CDMA broadband spurious without desensitization or spurious generation by the carrier in the front end of the spectrum analyzer. The entire RF test setup is calibrated as a unit over the frequency range. Their are two specific high pass filter types which are calibrated for use. The Cellular Band filter is designed to reject the Cellular carrier but pass frequencies from 1.3 GHz to 10 GHz. The PCS filter is designed to reject the PCS Transmit carrier but pass frequencies from 2.5 GHz to 20 GHz.

The required emission limitation specified in Section 22.917(H) and 24.238(a) of the Code was applied to these tests. Based upon the criterion given in Section 22.917(H) and 24.238(a) of the Code the required out of band emission limit is equal to-13 dBm. The -13 dBm limit holds for all signals when measured with the specified 1 MHz resolution bandwidth. The measurements of the spurious signals on the attached charts in this section were made using a resolution bandwidth of 1 MHz. The carrier signal shown on these plots is the sum of measurements at resolution Bandwidths of 1 MHz, and 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.

Exhibit 15:continued

The applied signal met the recommended characteristics per IS-97 and	ANSI J-STD-008	section 3.1.4 as
defined below.		

Туре	Number of	Fraction of	Fraction of	Comments	
	Channels	Power (Linear)	Power (dB)		
Pilot	1	0.1490	-8.3	Walsh 0	
				Walsh 32, always 1/8	
Sync	1	0.015/p	-18.3	rate	
	1		10.7	Walsh 1, full rate	
Paging	I	0.054	-12.7	only	
				Variable Walsh	
	6	0.13	-8.8	Assignments, full	
Traffic		each	each	rate only	

TABLE 15.1 Base Station Test Model, Nominal

Test Results Summary:

Measurements were performed while transmitting at the upper and lower channels in each Cellular band tested. The attached spectral plots document the typical performance and shows that there are no emissions above the applicable limit of -13 dBm for harmonics and spurious. The attached data also document the integrated results for the BCR with a Lucent Technologies FCC Product Certified PCS Transmitter. The data plots integrated performance of the BCR with the CTU/ FCC ID: AS5CMP-23

Note on Receiver Conducted Spurious

Conducted Spurious tests on the Receiver antenna terminal of the PCS Minicell demonstrated compliance with the 2 nW requirement of 47CFR Part 15 section 15.111.

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Exhibit 15:continued

<u>Equipment</u>	Description
PCS Mini Cell:	Fully Populated PCS Mini Cell
RFTGu:	Reference Frequency Timing Generator RFTGu or RFTGm
BCR:	CDMA Baseband Radio (FCC ID: AS5CMP-24)
Transmit Filter:	Cellular Transmit Filter appropriate for the investigated Band
Directional Coupler:	HP 778D and 772D Dual Directional Coupler
Power Meter:	HP E4419A Power Meter with EPC-E18A Power Head
Test Cables:	W.L. Gore; Low loss test cables custom mfg. for Lucent FCC Laboratory
Plotter:	HP Model 7470A Plotter
Printer:	HP Model 4500DN Printer
Attenuator, Variable	HP 8494B and 8495B DC-18 GHz digital attenuators
Attenuator, Fixed	Weinschel Corp DC-18 GHz, various values
Band Pass Filters:	Trialithic, 0.8-20 GHz, Custom manufactured for Lucent FCC Laboratory
Spectrum Analyzer:	Rohde & Schwarz ESMI EMI Test Receiver
Computer Controller:	EG Technology, Custom Mfg for FCC Laboratory Intel [™] Pentium II& III, 450
	and 550 MHz controllers with TILE [™] software

Exhibit 15 continued

