


Figure 7: Conducted Spurious Emissions at Antenna Terminals, Uplink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink GSM 848.650 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

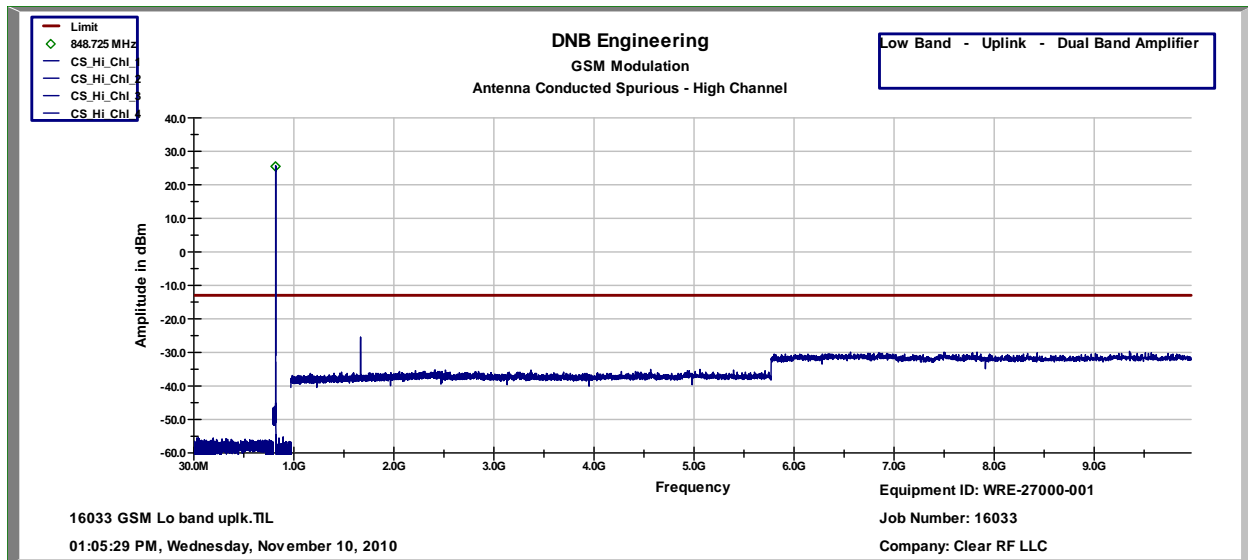



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Uplink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	Antenna Conducted Spurious	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink GSM 1850.350 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

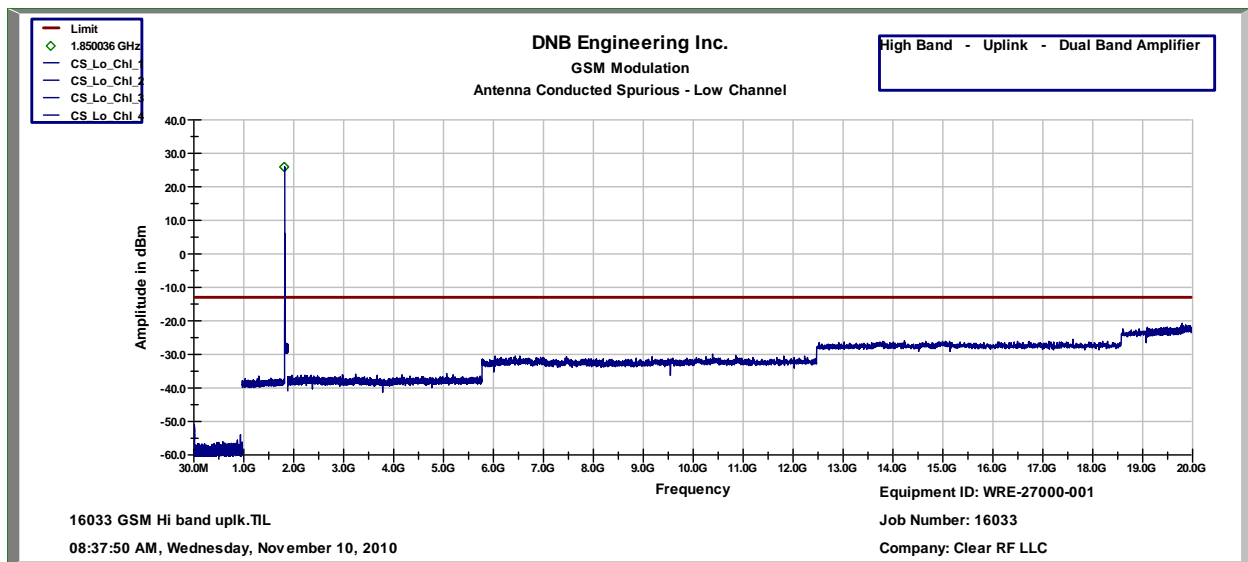



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Uplink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink GSM 1880.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

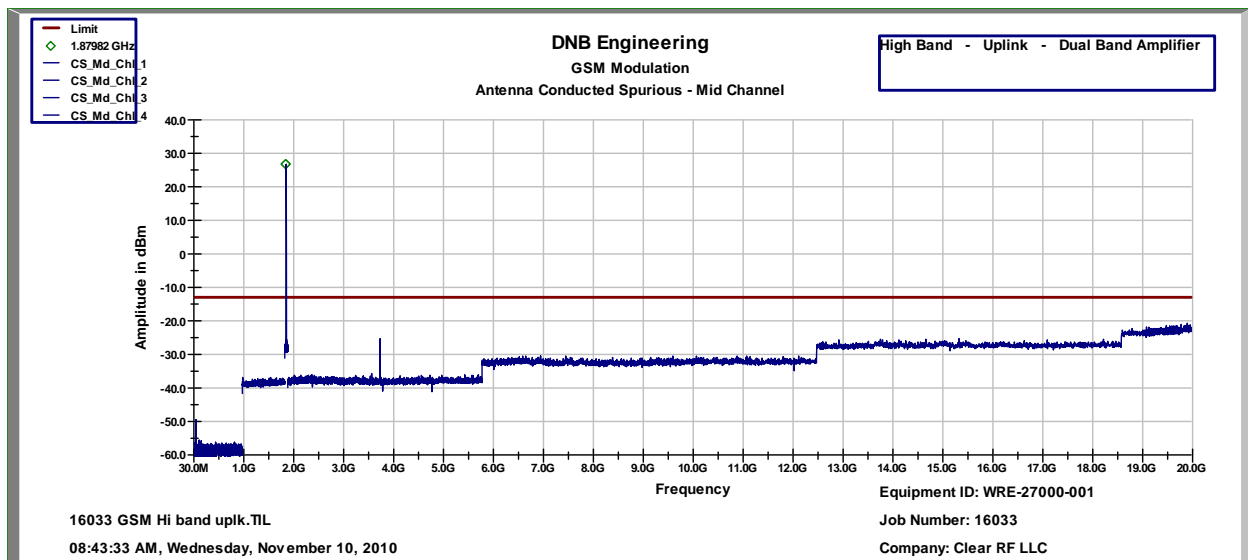



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	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink GSM 1909.650 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

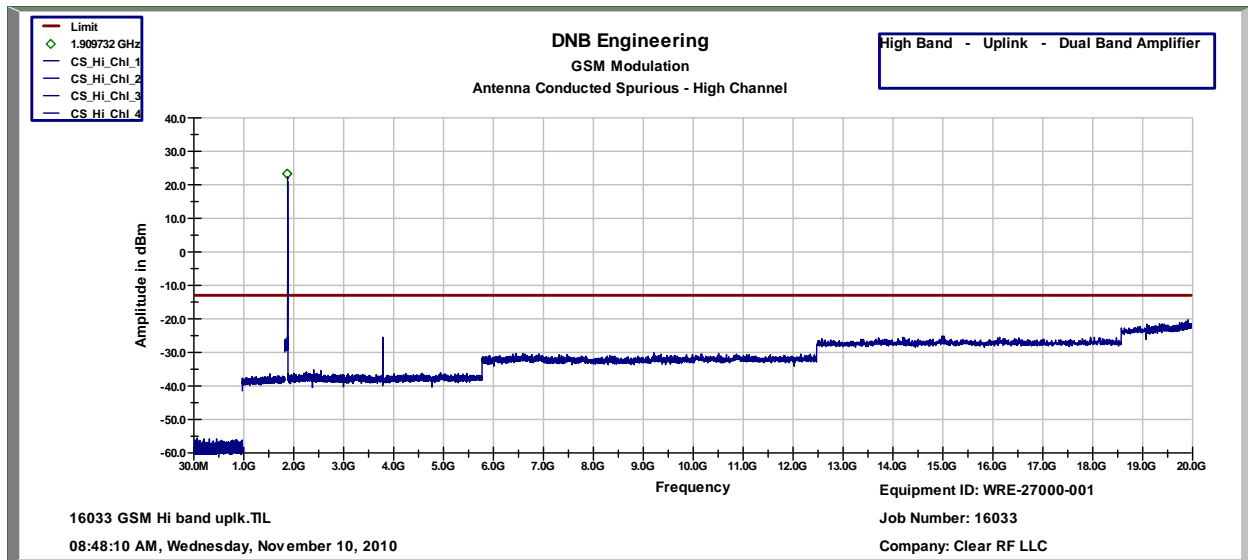



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Uplink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 17 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink TDMA 824.075 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

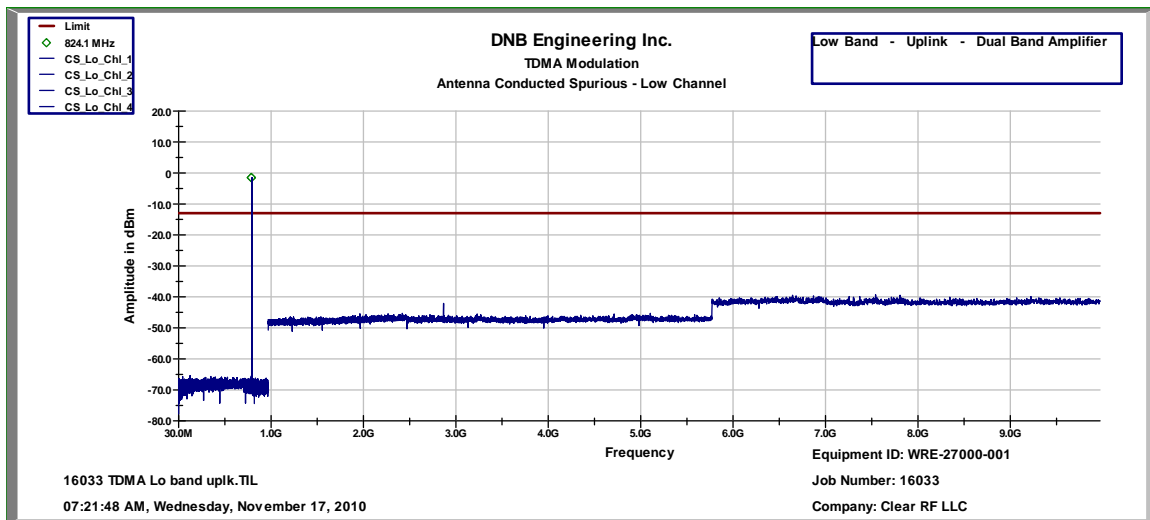



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Uplink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 17 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink TDMA 836.500 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

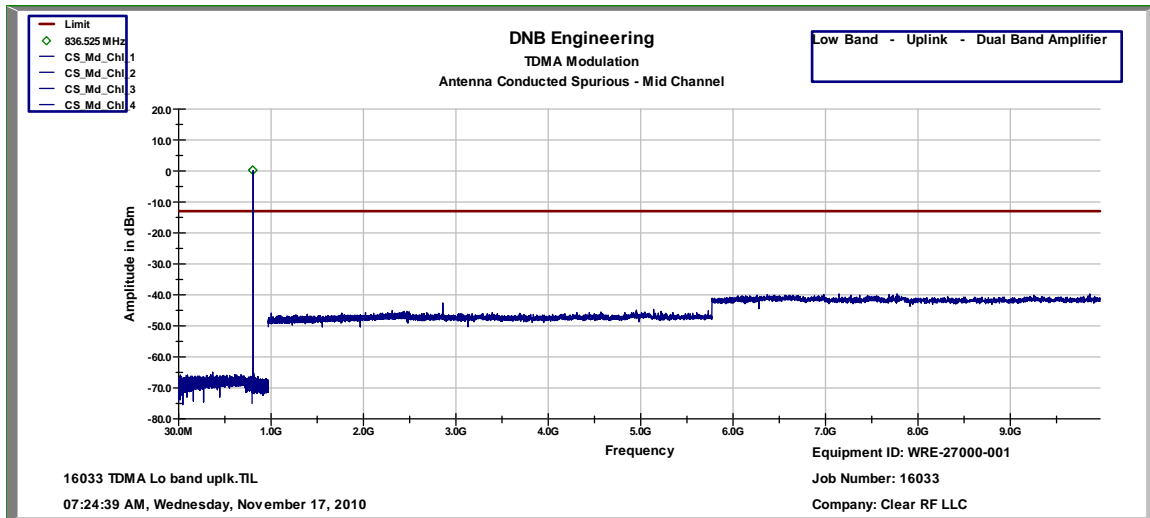



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	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 17 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink TDMA 848.925 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

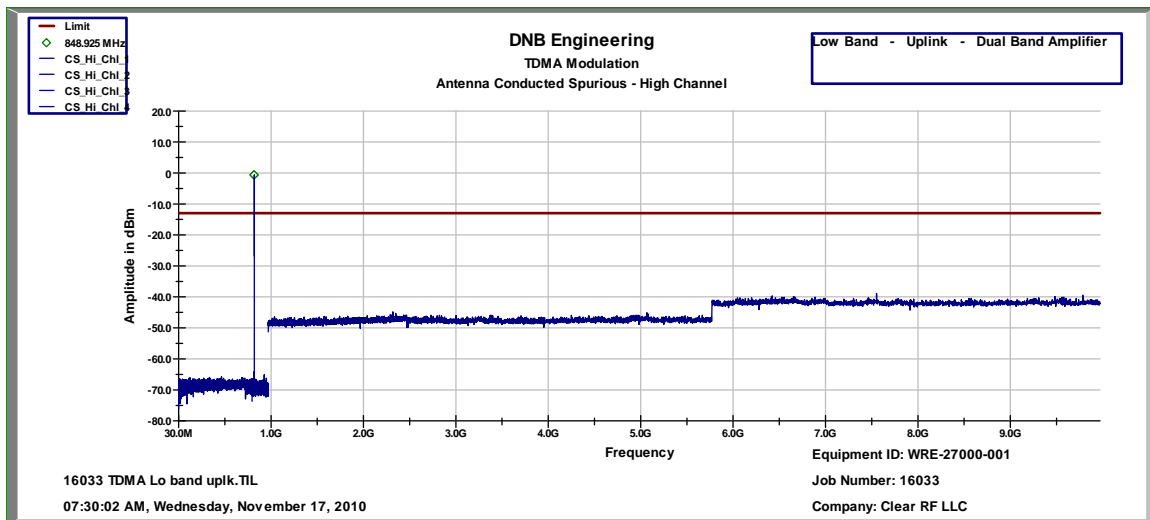



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	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 17 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink TDMA 1850.075 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

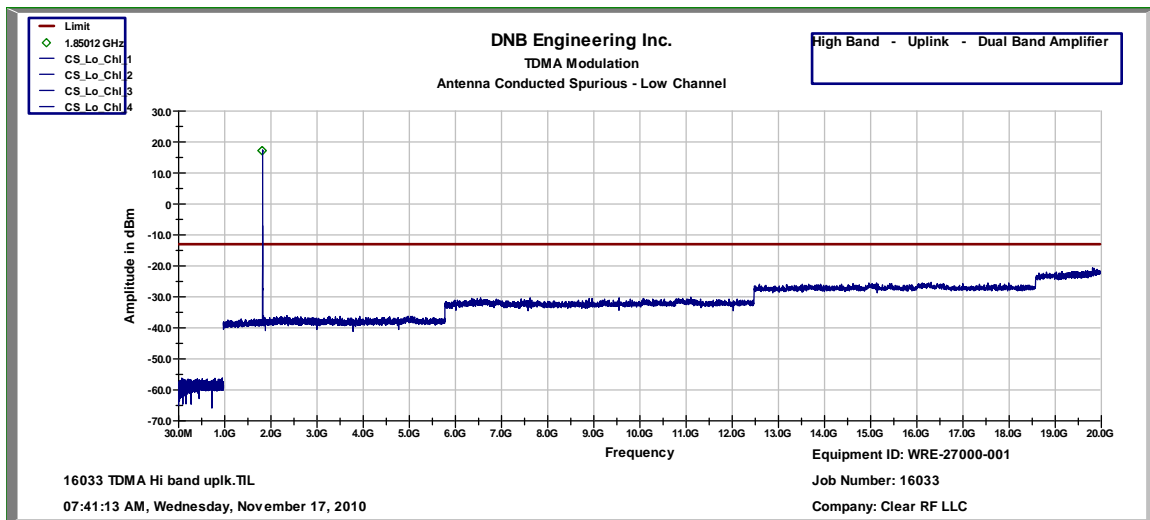





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	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 17 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink TDMA 1880.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

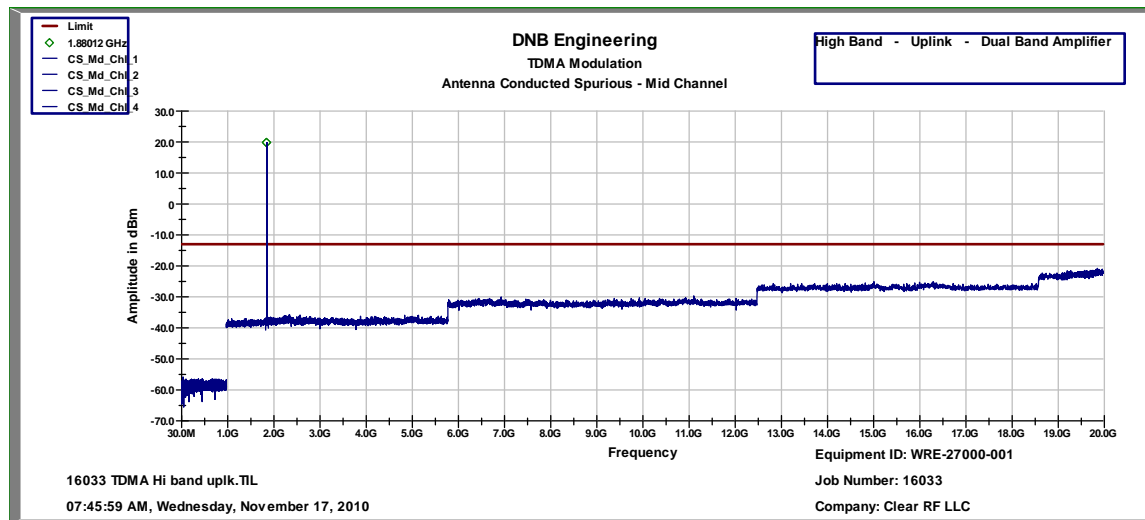



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	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 17 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink TDMA 1909.925 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

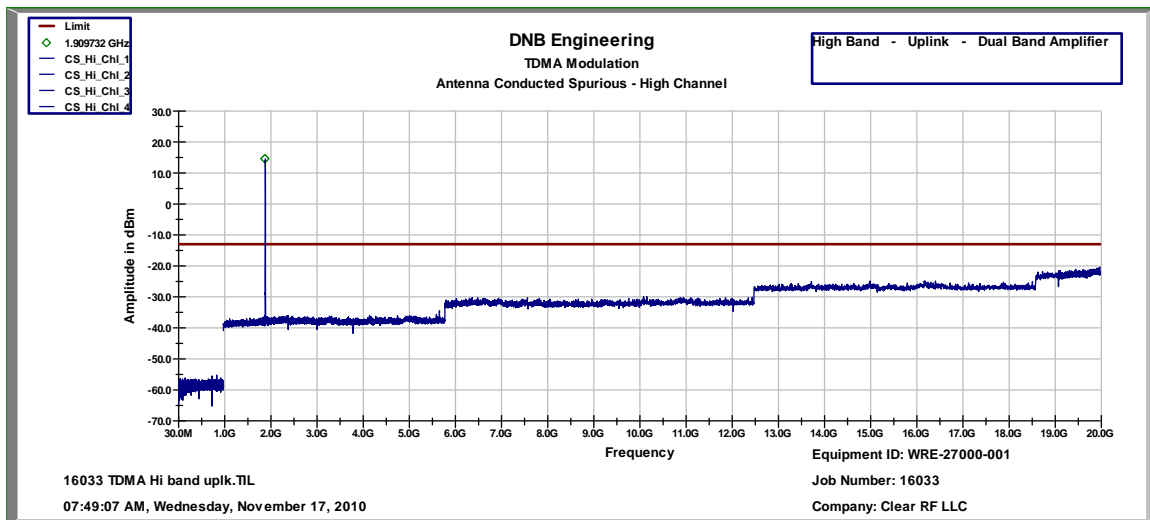



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	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink CDMA 825.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

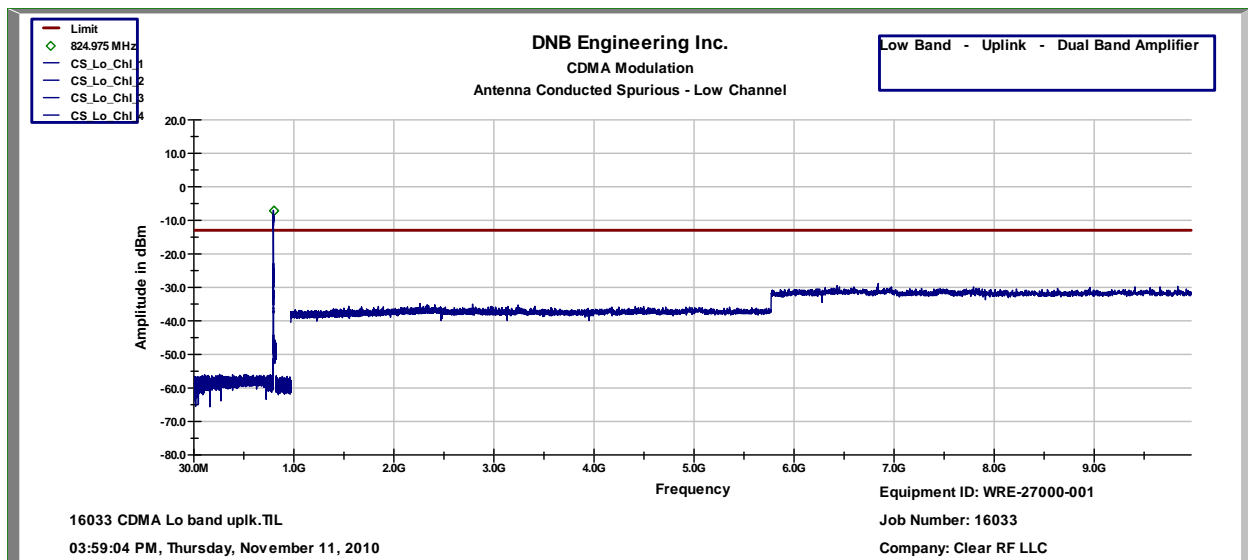



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	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink CDMA 836.500 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

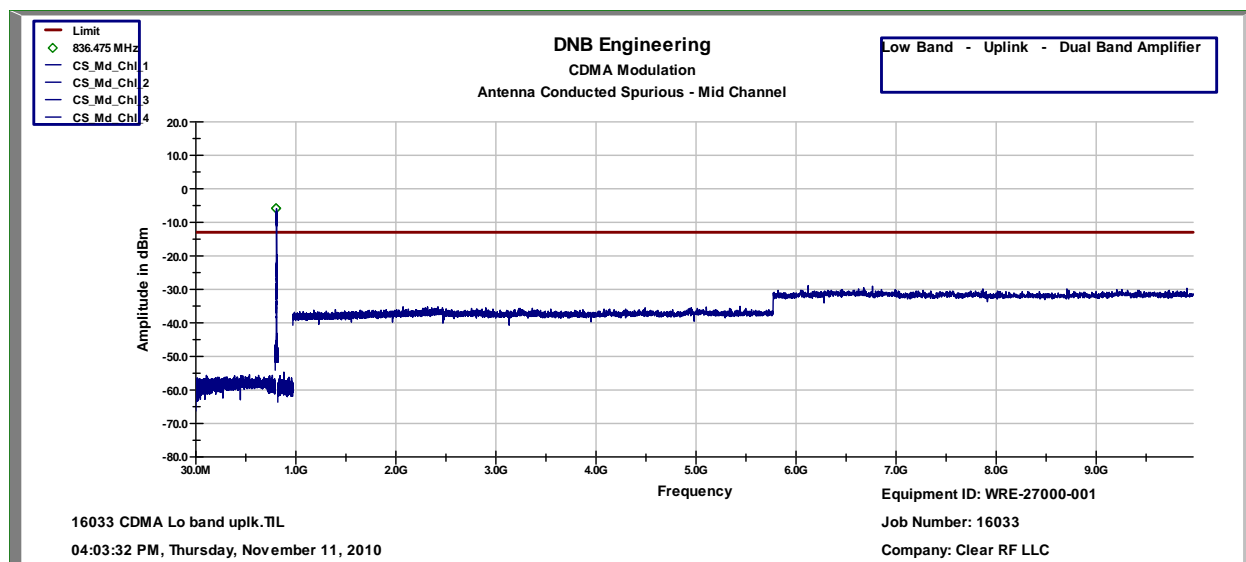



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	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink CDMA 848.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

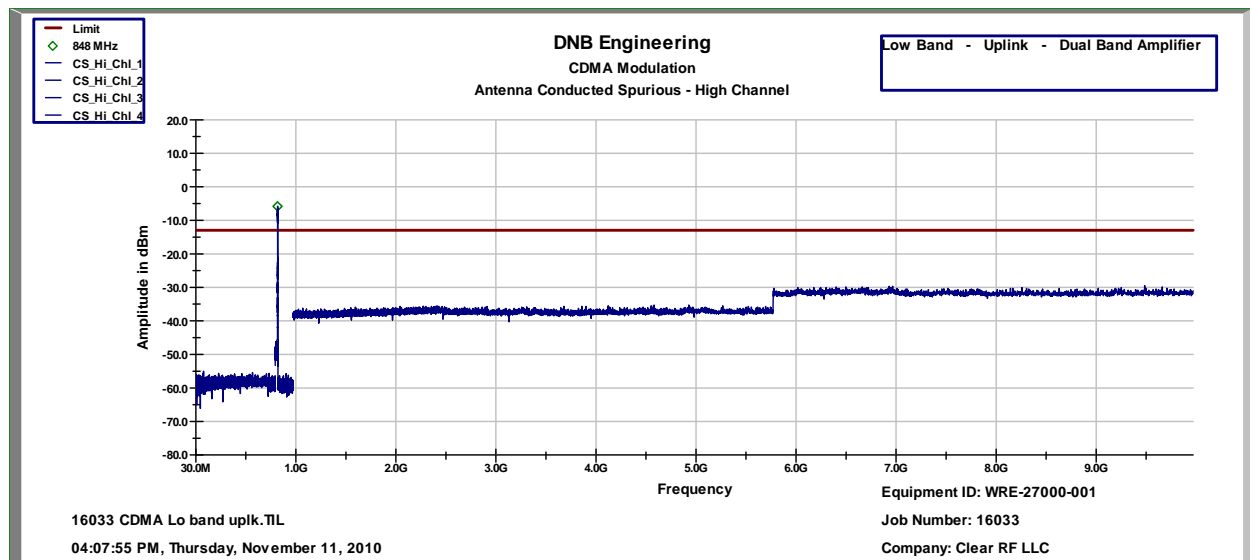



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	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	Antenna Conducted Spurious	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink CDMA 1851.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

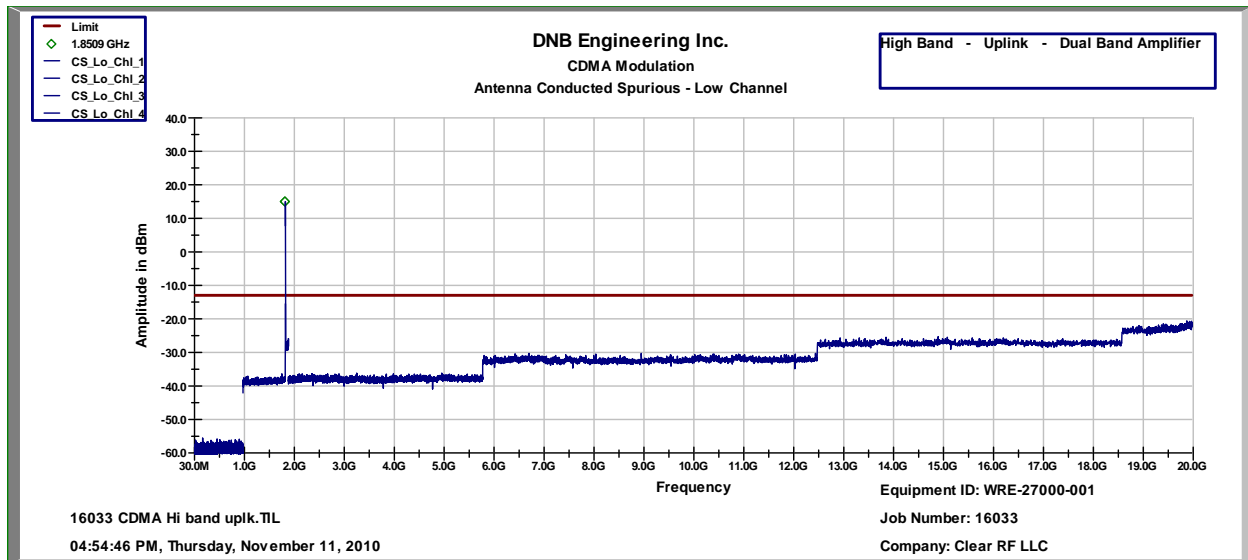



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Uplink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	Antenna Conducted Spurious	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink CDMA 1880.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

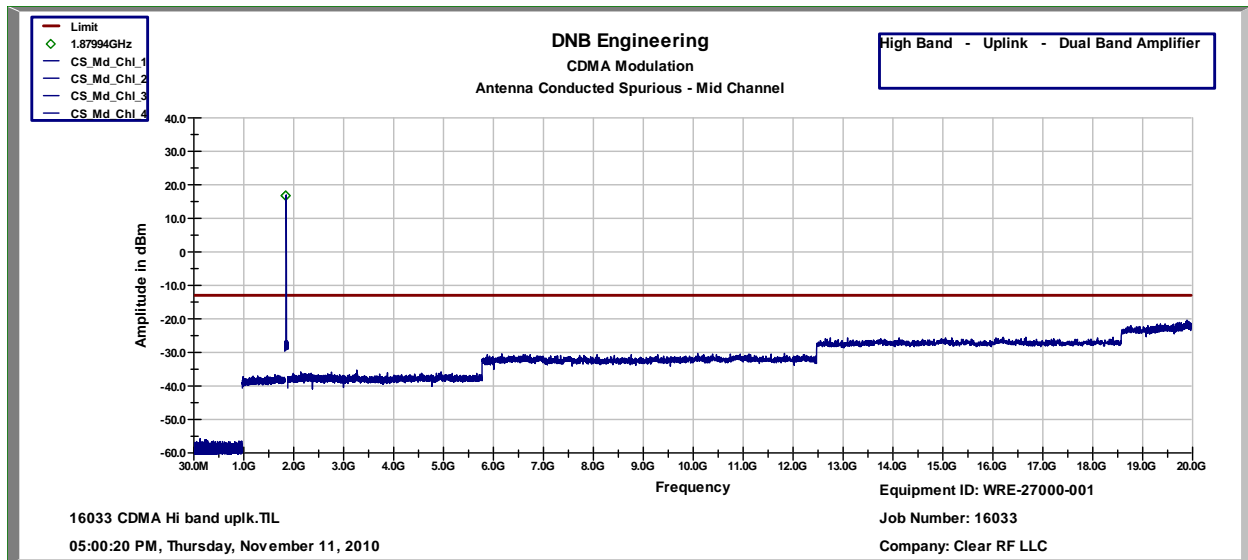



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Uplink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	Antenna Conducted Spurious	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink CDMA 1909.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

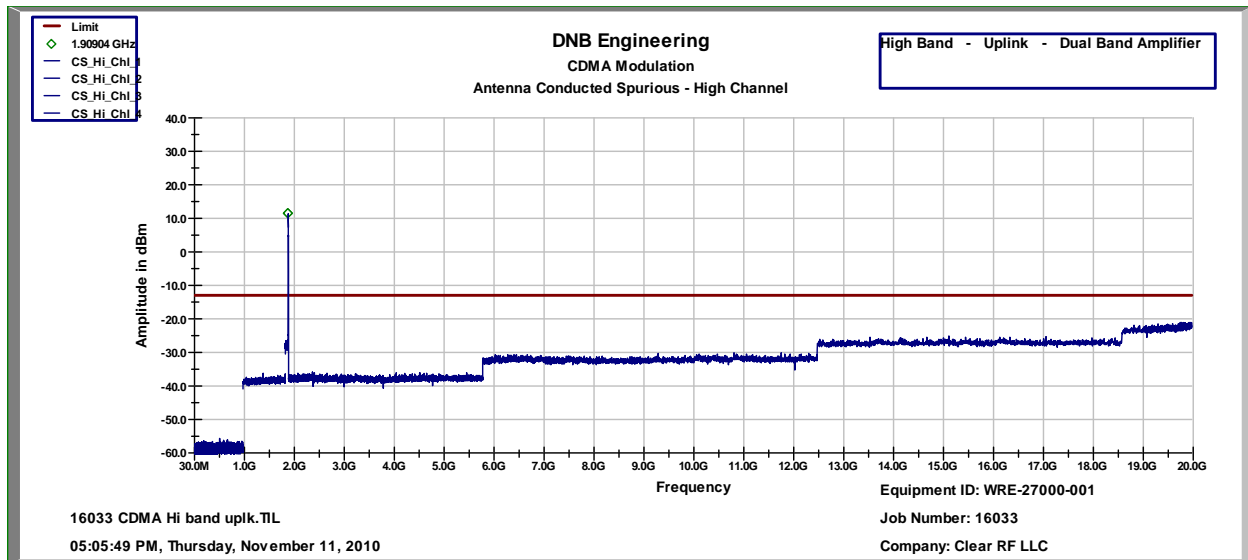





Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink GSM 869.350 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

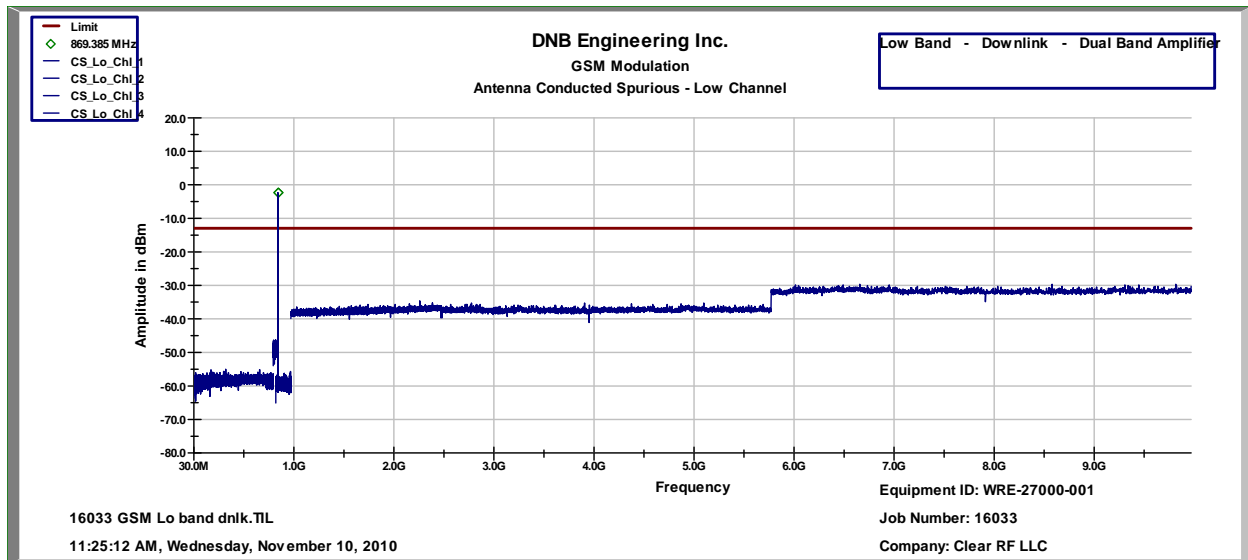



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink GSM 881.500 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

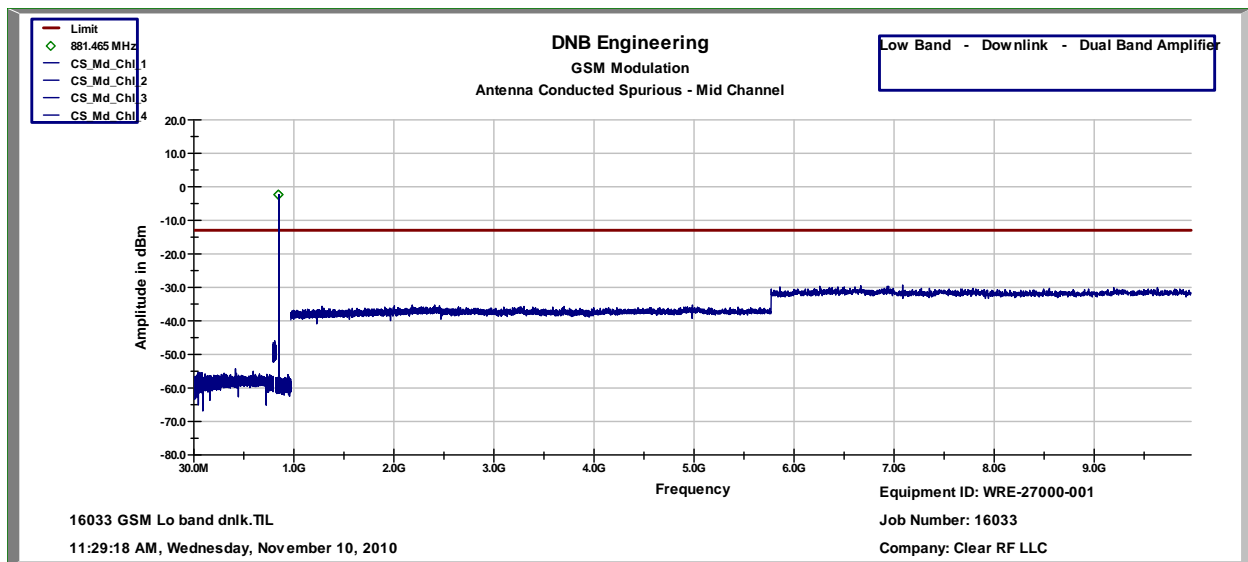



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink GSM 893.650 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

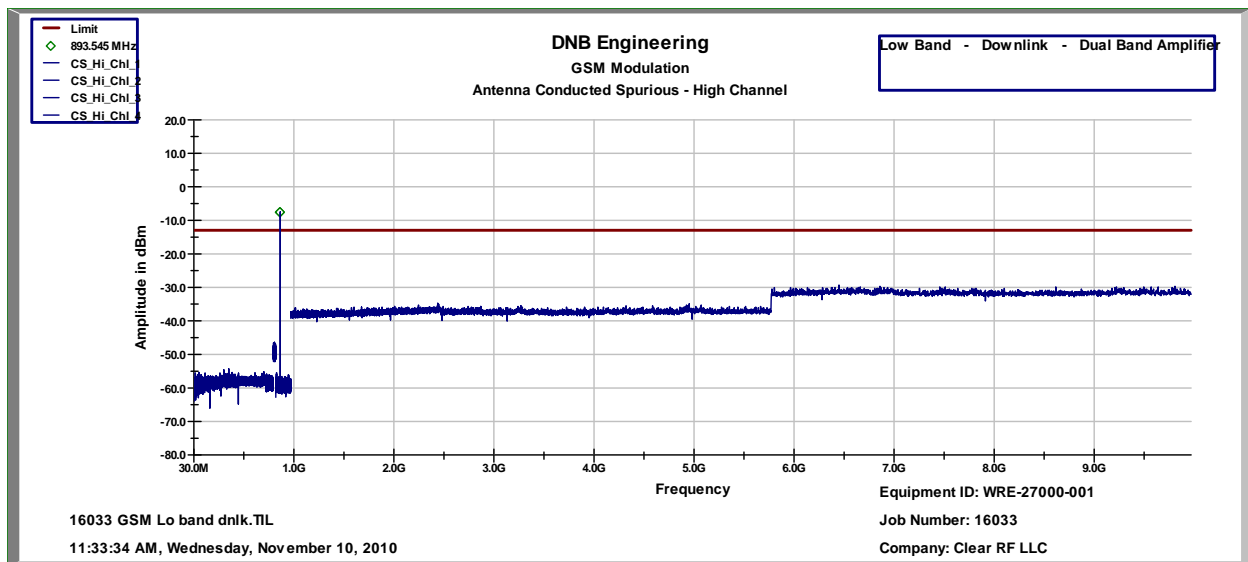



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	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink GSM 1930.350 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

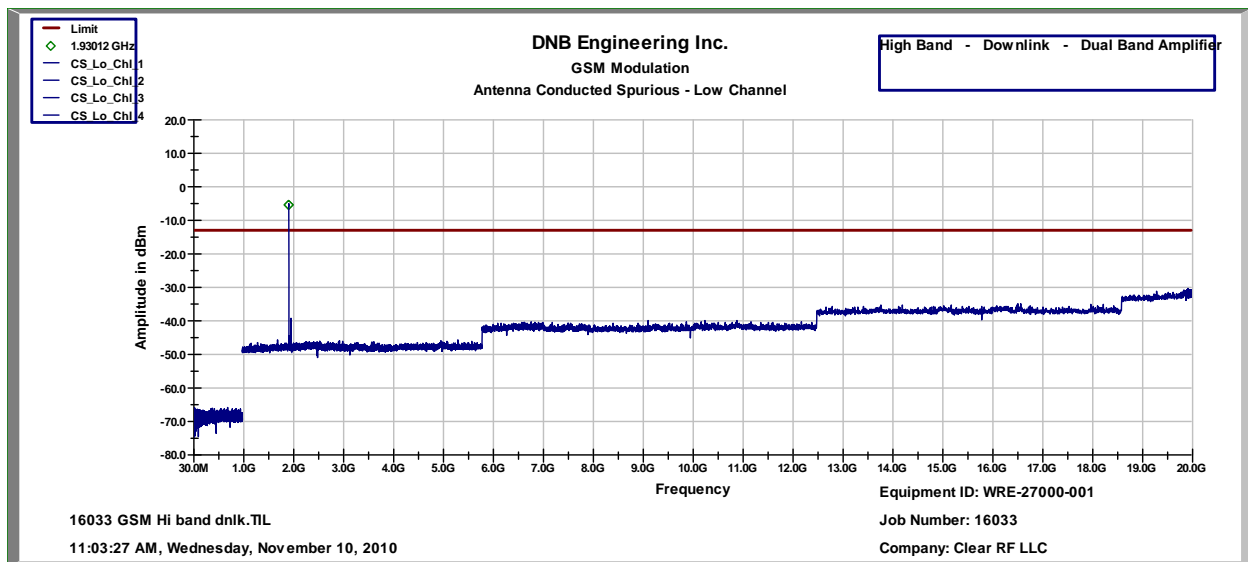



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	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink GSM 1960.00 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

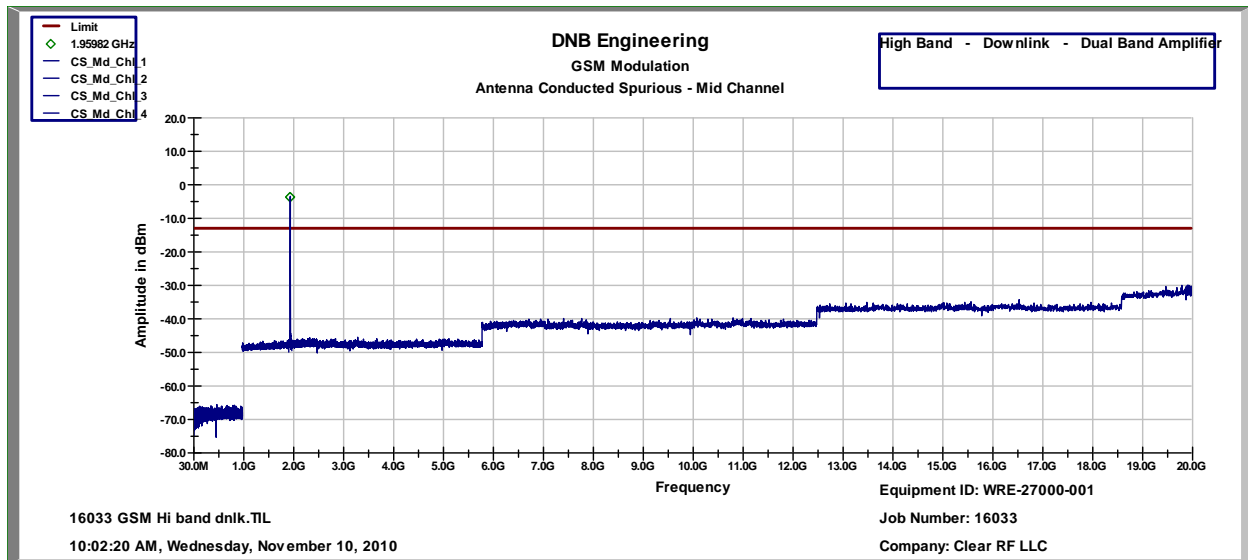



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink GSM 1989.650 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

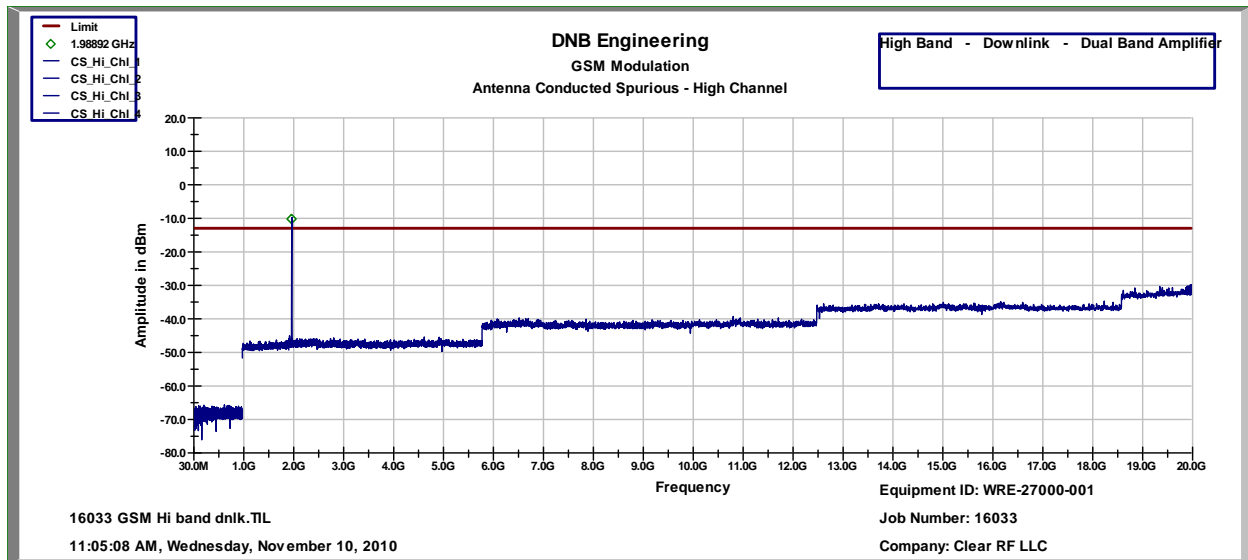



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 17 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink TDMA 869.075 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

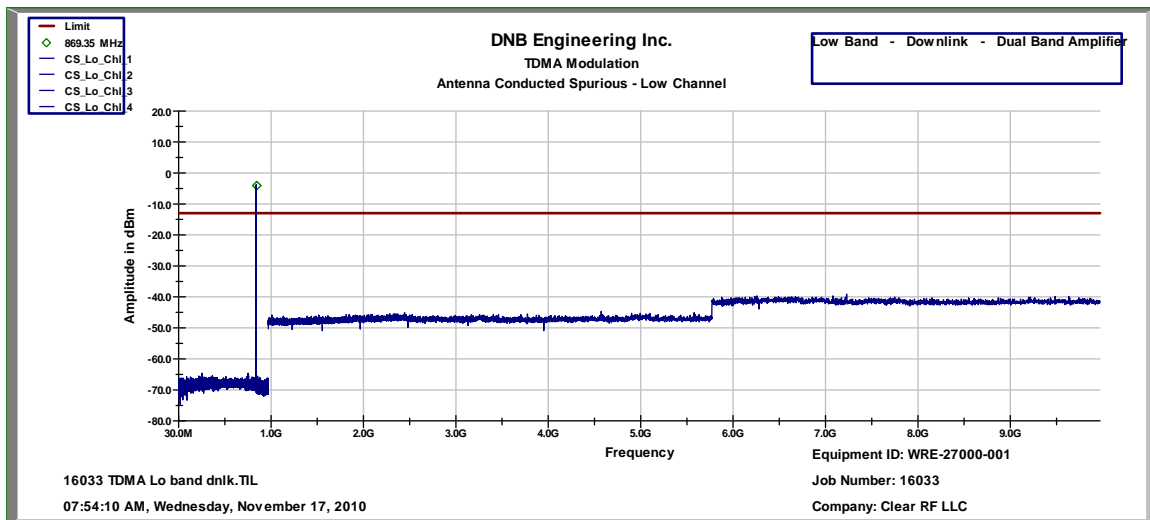



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 17 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink TDMA 881.500 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

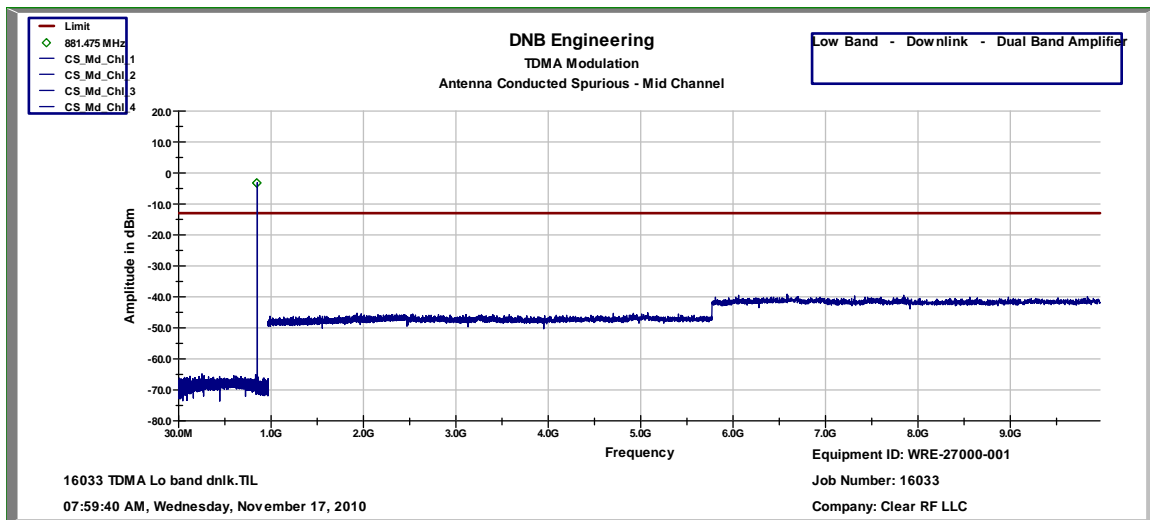





Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 17 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink TDMA 893.925 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

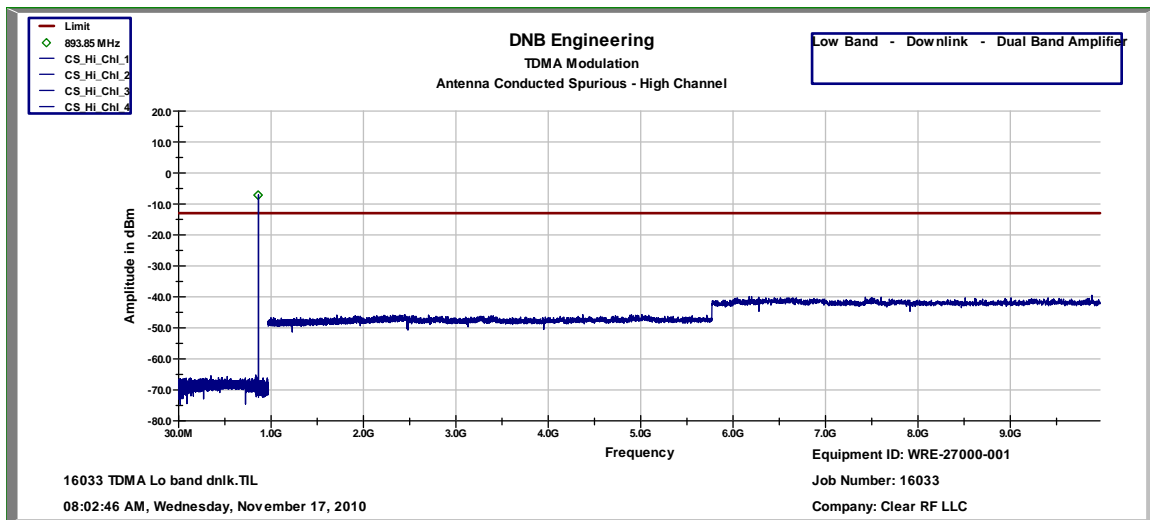



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink TDMA 1930.075 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

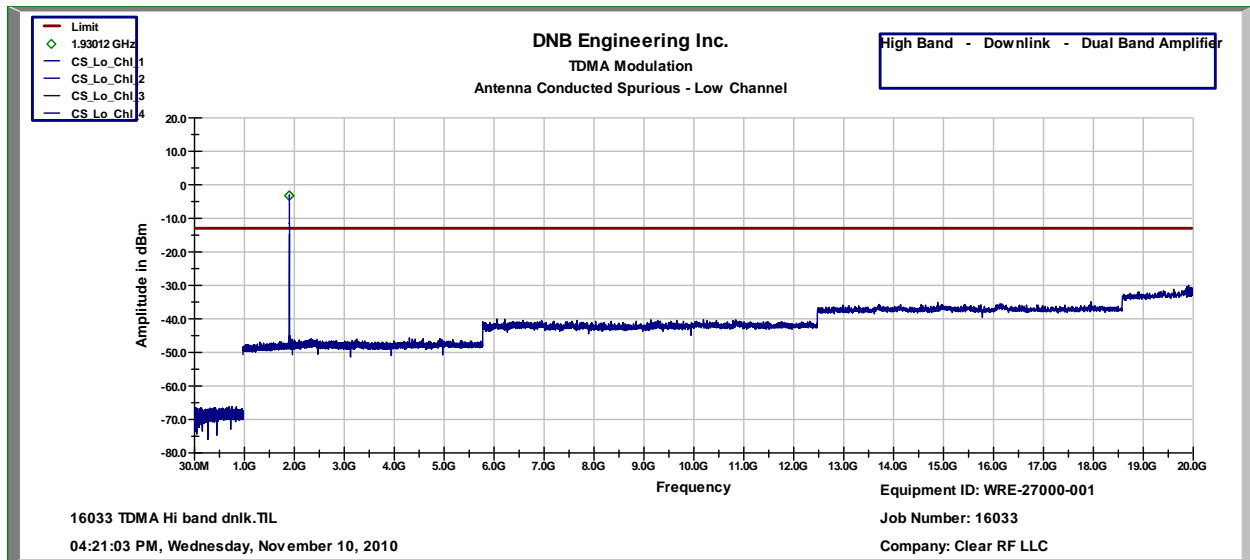



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink TDMA 1960.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

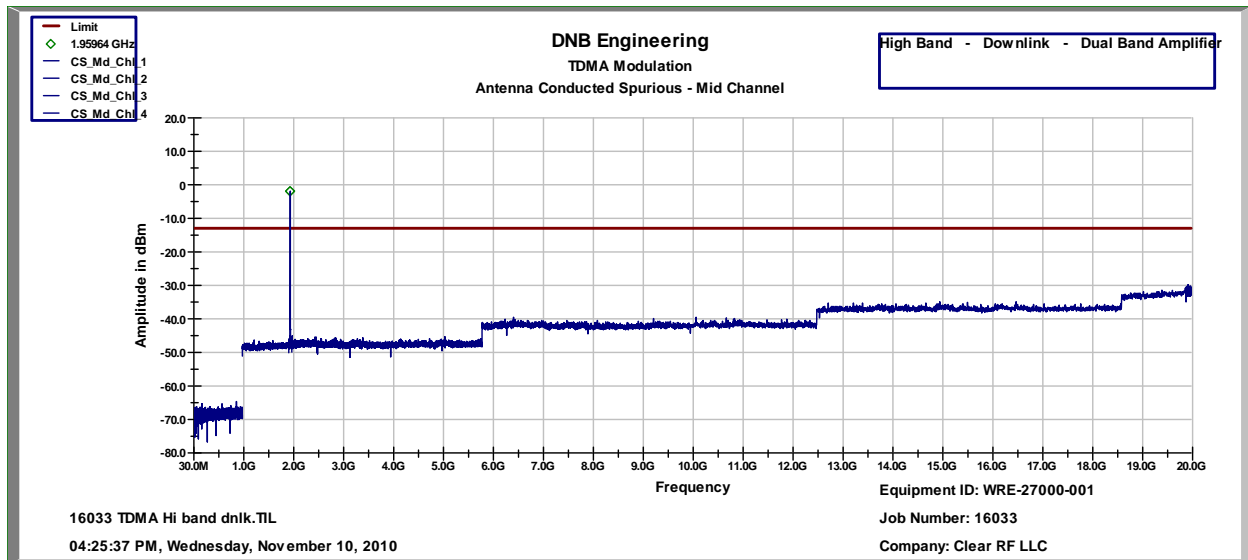



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 11 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink TDMA 1989.925 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

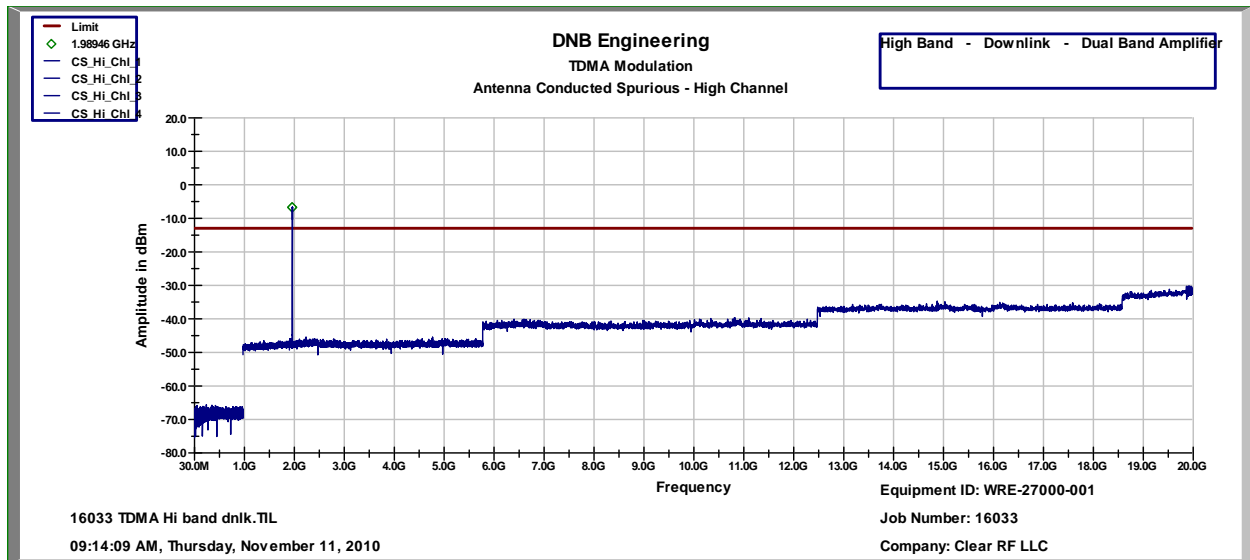



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink CDMA 870.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

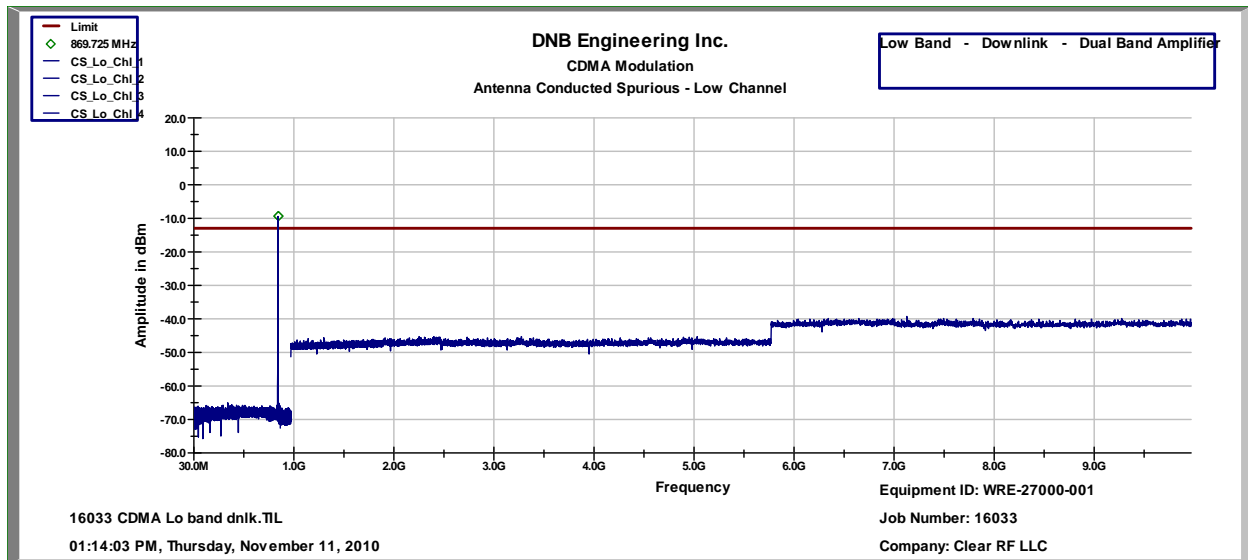



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink CDMA 881.500 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

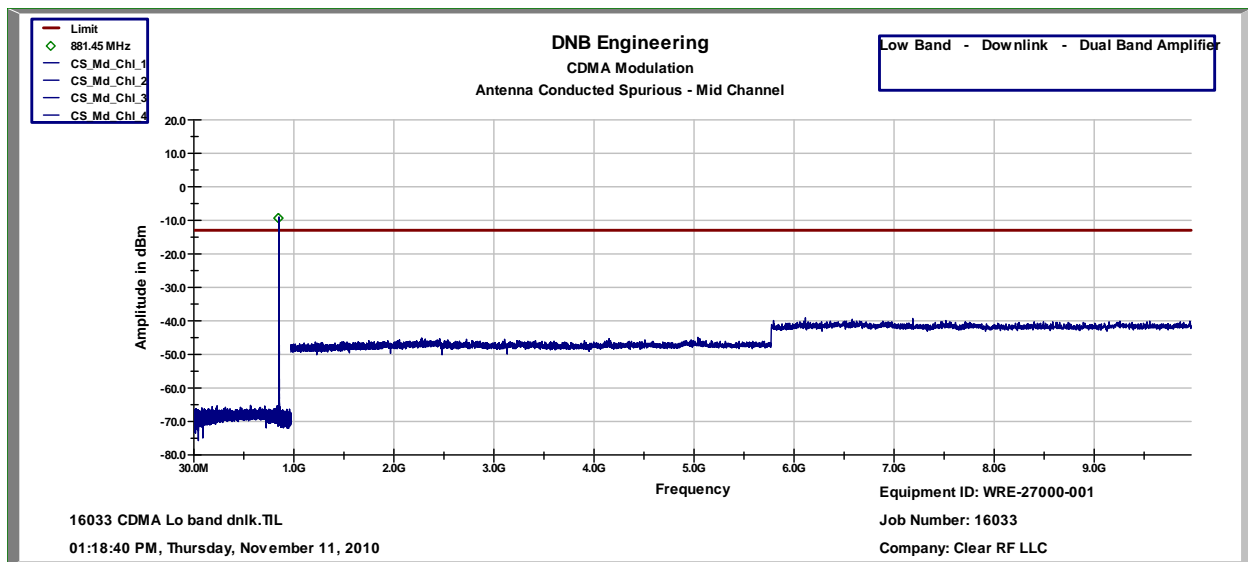



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink CDMA 893.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-10G

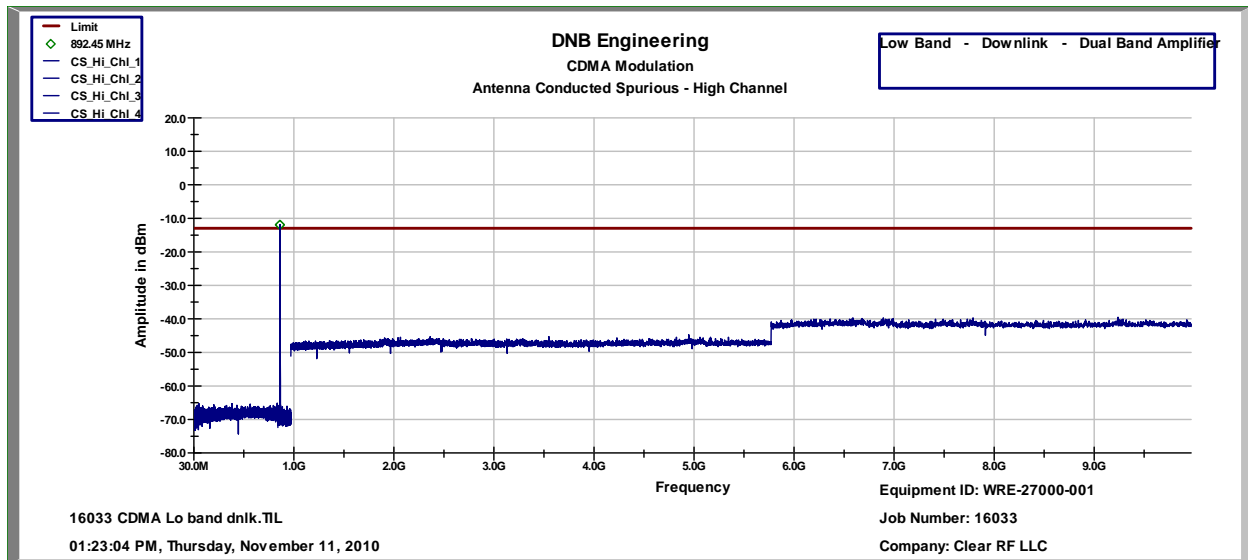



Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink CDMA 1931.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

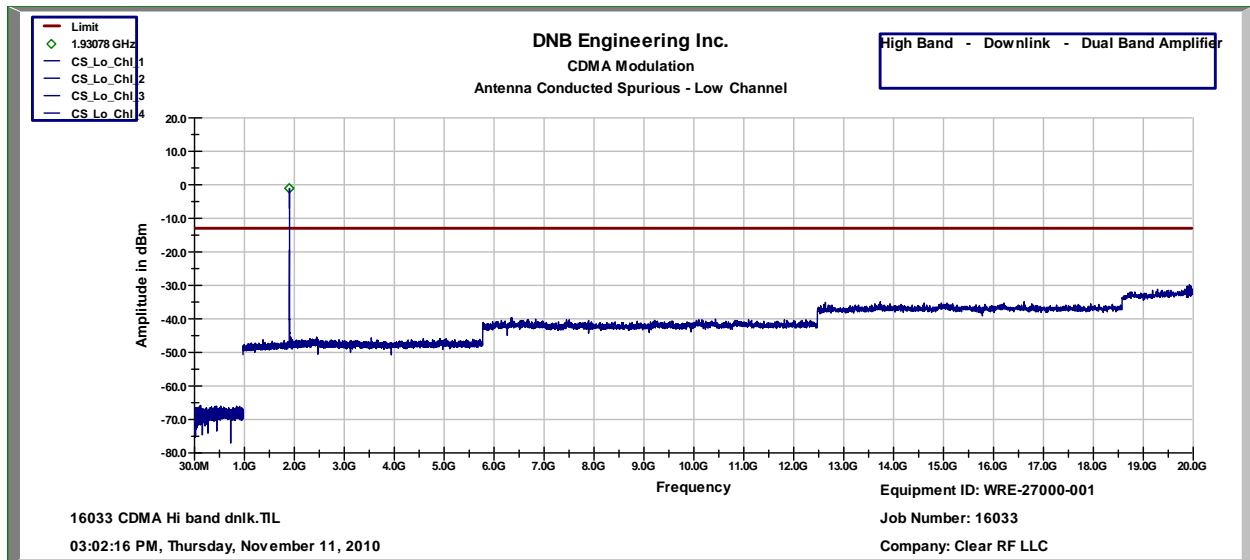





Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink CDMA 1960.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G

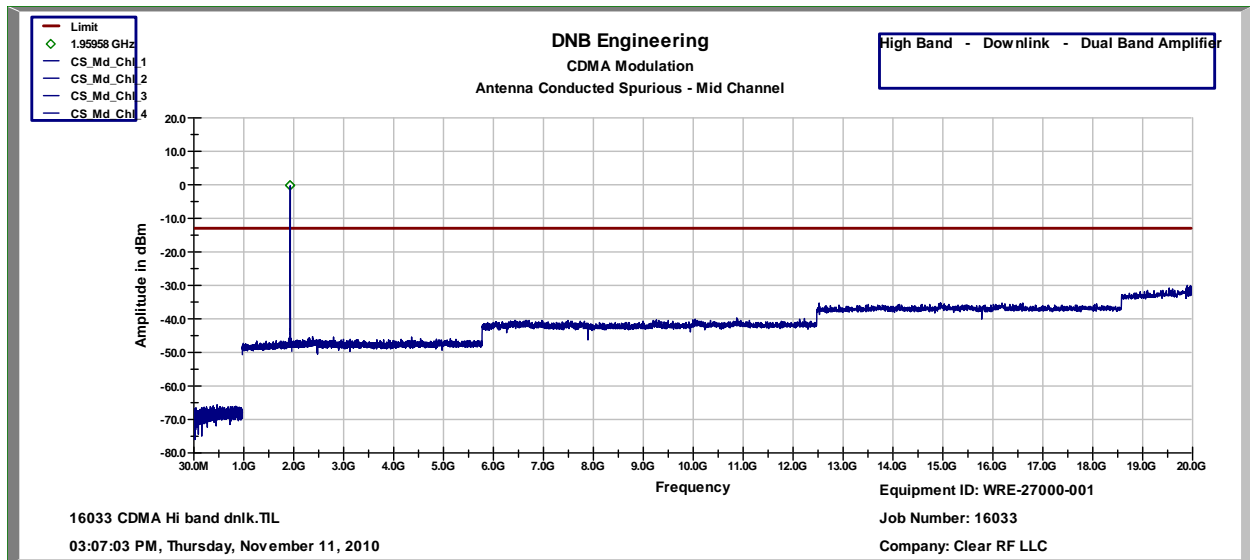

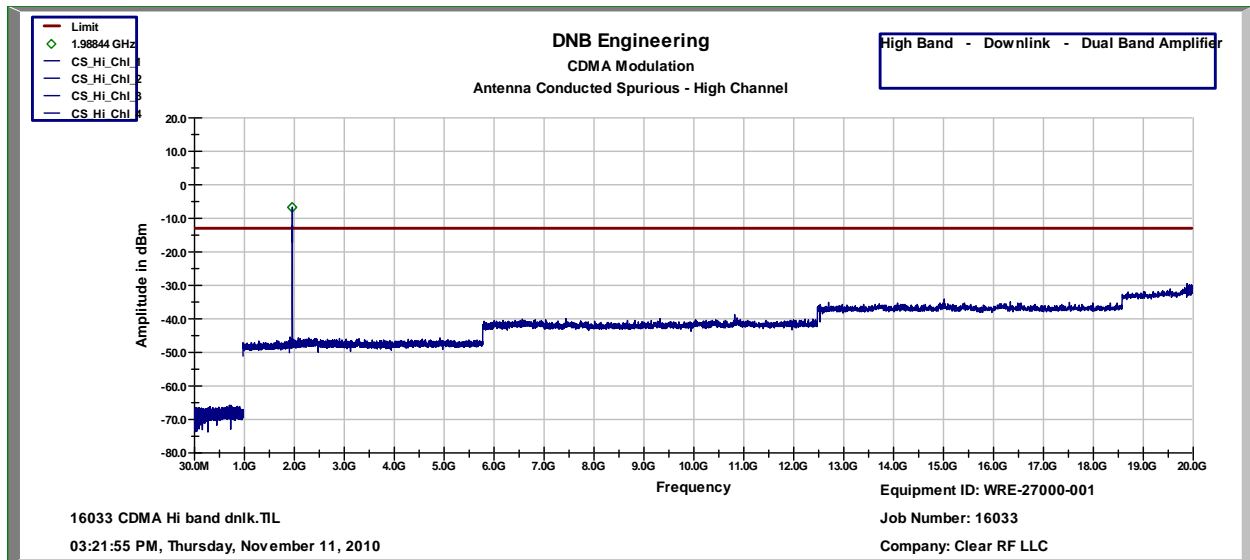


Figure 7: Conducted Spurious Emissions at Antenna Terminals, Downlink.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Antenna Conducted Spurious</b>	
DNB Job Number:	16033	Date: 10 Nov 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink CDMA 1989.000 MHz		

Spectrum Analyzer Settings					
Resolution BW	10K	Video BW	100K	Range	30M-1G
Resolution BW	1M	Video BW	3M	Range	1G-20G



## 2.1053 Field Strength of Spurious Radiation (IC RSS-131 Clause 4.4)

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### Definition:

Emissions from the equipment when connected into a non-radiating load on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communication desired. The reduction in the level of these spurious emissions will not affect the quality of the information being transmitted.

### Test Method: Per TIA /EIA 603.

Connect the equipment and follow the procedure described in paragraph 2.2.1.12. Measure the amplitude of each spurious radiated signal through the 10<sup>th</sup> harmonic. The spurious signals are then measured on the 3 meter range. First the EUT is measured using a tuned reference dipole below 1GHz and a double ridge guide Horn antenna above 1GHz. If the DRG antenna is used the appropriate gain factor for the antenna is added into the reading for the final measurement. Then a dipole to dipole (or drg to drg) measurement is conducted to determine the actual power at each harmonic being generated by the EUT. If no noticeable emission can be observed the ground floor is recorded in the data sheets.

Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:

$$P_d(\text{dBm}) = P_g(\text{dBm}) - \text{cable loss (dB)} + \text{antenna gain (dB)}$$

where:

$P_d$  is the dipole equivalent power (ERP) and

$P_g$  is the generator output power into the substitution antenna.

Or for EIRP use the following;


Calculate the equivalent isotropic radiated power (EIRP), in dBm, by correcting the measured levels by the loss of elements feeding the antenna and the isotropic gain of the antenna as follows:

$$EIRP (\text{dBm}) = \text{Level (dBm)} - \text{Loss (dB)} + \text{Antenna Gain (dBi)}$$

Test Results: All readings were below the required limits or at the ground floor.

All radiated spurious emissions are below the IC/FCC Specifications.


FIGURE 8: RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS, UPLINK.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Radiated Spurious</b>	
DNB Job Number:	16033	Date: 1 Oct 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink – Low Channel – Low Band		

Harm	Freq in MHz	Polarity	Sig Gen (dBm)	Cable Loss (dB)	Ant Gain(dBi)	Corrected to ERP (dBm)	Limit (dBm)	Delta (dBm)
2	824.350	H	-61.30	0.54	8.90	-52.94	-13.00	-39.94
3	1648.740	H	-60.30	0.75	8.02	-53.03	-13.00	-40.03
4 *	2473.000	H	-56.30	0.90	9.42	-47.78	-13.00	-34.78
5 *	3297.400	H	-57.60	1.01	10.26	-48.35	-13.00	-35.35
6 *	4121.750	H	-61.70	1.11	10.50	-52.31	-13.00	-39.31
7 *	4946.100	H	-59.30	1.19	10.58	-49.91	-13.00	-36.91
8 *	5770.450	H	-49.80	1.26	10.14	-40.92	-13.00	-27.92
9 *	6594.800	H	-54.20	1.32	10.37	-45.15	-13.00	-32.15
10 *	7419.150	H	-54.60	1.38	11.21	-44.77	-13.00	-31.77
2	824.350	V	-60.30	0.54	8.90	-51.94	-13.00	-38.94
3	1648.740	V	-69.30	0.75	8.02	-62.03	-13.00	-49.03
4 *	2473.000	V	-68.20	0.90	9.42	-59.68	-13.00	-46.68
5 *	3297.400	V	-67.10	1.01	10.26	-57.85	-13.00	-44.85
6 *	4121.750	V	-60.70	1.11	10.50	-51.31	-13.00	-38.31
7 *	4946.100	V	-59.20	1.19	10.58	-49.81	-13.00	-36.81
8 *	5770.450	V	-54.50	1.26	10.14	-45.62	-13.00	-32.62
9 *	6594.800	V	-52.90	1.32	10.37	-43.85	-13.00	-30.85
10 *	7419.150	V	-56.10	1.38	11.21	-46.27	-13.00	-33.27

\* Measurement made at instrument ground floor – no discernible reading


FIGURE 8: RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS, UPLINK.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Radiated Spurious</b>	
DNB Job Number:	16033	Date: 1 Oct 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink – Mid Channel – Low Band		

Harm	Freq in MHz	Polarity	Sig Gen (dBm)	Cable Loss (dB)	Ant Gain (dBi)	Corrected to ERP (dBm)	Limit (dBm)	Delta (dBm)
2	1673.000	H	-52.70	0.54	8.88	-44.36	-13.00	-31.36
3	2509.500	H	-66.70	0.76	8.10	-59.36	-13.00	-46.36
4 *	3346.000	H	-67.30	0.91	9.49	-58.72	-13.00	-45.72
5 *	4182.500	H	-66.60	1.02	10.28	-57.34	-13.00	-44.34
6 *	5019.000	H	-62.30	1.12	10.51	-52.91	-13.00	-39.91
7 *	5855.500	H	-61.90	1.20	10.59	-52.51	-13.00	-39.51
8 *	6692.000	H	-55.40	1.27	10.07	-46.60	-13.00	-33.60
9 *	7528.500	H	-54.00	1.33	10.50	-44.83	-13.00	-31.83
10 *	8365.000	H	-49.40	1.38	11.29	-39.49	-13.00	-26.49
2	1673.000	V	-58.20	0.54	8.88	-49.86	-13.00	-36.86
3	2509.500	V	-60.80	0.76	8.10	-53.46	-13.00	-40.46
4 *	3346.000	V	-53.10	0.91	9.49	-44.52	-13.00	-31.52
5 *	4182.500	V	-57.20	1.02	10.28	-47.94	-13.00	-34.94
6 *	5019.000	V	-62.60	1.12	10.51	-53.21	-13.00	-40.21
7 *	5855.500	V	-58.30	1.20	10.59	-48.91	-13.00	-35.91
8 *	6692.000	V	-56.40	1.27	10.07	-47.60	-13.00	-34.60
9 *	7528.500	V	-55.30	1.33	10.50	-46.13	-13.00	-33.13
10 *	8365.000	V	-48.90	1.38	11.29	-38.99	-13.00	-25.99

\* Measurement made at instrument ground floor – no discernible reading


FIGURE 8: RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS, UPLINK.

		1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Radiated Spurious</b>	
DNB Job Number:	16033	Date:	4 Oct 2010	<b>Conformance Standards</b>  [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC			
Model Number:	WRE2700			
Description:	RF amplifier			
	Uplink – High Channel - Low Band			

Harm	Freq in MHz	Polarity	Sig Gen (dBm)	Cable Loss (dB)	Ant Gain (dBi)	Corrected to ERP (dBm)	Limit (dBm)	Delta (dBm)
2	1697.300	H	-52.60	0.55	8.86	-44.29	-13.00	-31.29
3	2545.950	H	-68.60	0.76	8.18	-61.18	-13.00	-48.18
4 *	3394.600	H	-64.70	0.91	9.54	-56.07	-13.00	-43.07
5 *	4243.310	H	-64.80	1.03	10.30	-55.53	-13.00	-42.53
6 *	5091.900	H	-61.00	1.12	10.52	-51.60	-13.00	-38.60
7 *	5940.610	H	-104.60	1.20	10.59	-95.21	-13.00	-82.21
8 *	6789.260	H	-56.90	1.27	10.00	-48.17	-13.00	-35.17
9 *	7637.800	H	-54.50	1.34	10.63	-45.21	-13.00	-32.21
10 *	8486.460	H	-49.60	1.39	11.37	-39.62	-13.00	-26.62
2	1697.300	V	-55.10	0.55	8.86	-46.79	-13.00	-33.79
3	2545.950	V	-59.00	0.76	8.18	-51.58	-13.00	-38.58
4 *	3394.600	V	-53.40	0.91	9.54	-44.77	-13.00	-31.77
5 *	4243.310	V	-57.00	1.03	10.30	-47.73	-13.00	-34.73
6 *	5091.900	V	-61.20	1.12	10.52	-51.80	-13.00	-38.80
7 *	5940.610	V	-53.10	1.20	10.59	-43.71	-13.00	-30.71
8 *	6789.260	V	-55.70	1.27	10.00	-46.97	-13.00	-33.97
9 *	7637.800	V	-50.90	1.34	10.63	-41.61	-13.00	-28.61
10 *	8486.460	V	-47.60	1.39	11.37	-37.62	-13.00	-24.62

\* Measurement made at instrument ground floor – no discernible reading


FIGURE 8: RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS, UPLINK.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Radiated Spurious</b>	
DNB Job Number:	16033	Date: 4 Oct 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink – Low Channel – High Band		

Harm	Freq in MHz	Polarity	Sig Gen (dBm)	Cable Loss (dB)	Ant Gain (dBi)	Corrected to EIRP (dBm)	Limit (dBm)	Delta (dBm)
2	3700.700	H	-60.80	0.96	9.90	-51.86	-13.00	-38.86
3	5551.000	H	-66.00	1.17	10.56	-56.61	-13.00	-43.61
4 *	7401.280	H	-56.00	1.32	10.35	-46.97	-13.00	-33.97
5 *	9251.630	H	-46.50	1.44	11.83	-36.11	-13.00	-23.11
6 *	11102.100	H	-45.80	1.53	11.87	-35.46	-13.00	-22.46
7 *	12952.400	H	-40.30	1.61	11.02	-30.89	-13.00	-17.89
8 *	14802.680	H	-48.30	1.68	11.19	-38.79	-13.00	-25.79
9 *	16653.030	H	-38.30	1.74	13.14	-26.90	-13.00	-13.90
10 *	18503.380	H	-32.30	1.80	11.11	-22.99	-13.00	-9.99
2	3700.700	V	-43.40	0.96	9.90	-34.46	-13.00	-21.46
3	5551.000	V	-60.60	1.17	10.56	-51.21	-13.00	-38.21
4 *	7401.280	V	-51.30	1.32	10.35	-42.27	-13.00	-29.27
5 *	9251.630	V	-51.10	1.44	11.83	-40.71	-13.00	-27.71
6 *	11102.100	V	-42.80	1.53	11.87	-32.46	-13.00	-19.46
7 *	12952.400	V	-44.90	1.61	11.02	-35.49	-13.00	-22.49
8 *	14802.680	V	-40.90	1.68	11.19	-31.39	-13.00	-18.39
9 *	16653.030	V	-35.50	1.74	13.14	-24.10	-13.00	-11.10
10 *	18503.380	V	-38.80	1.80	11.11	-29.49	-13.00	-16.49

\* Measurement made at instrument ground floor – no discernible reading

FIGURE 8: RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS, UPLINK.


	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Radiated Spurious</b>	
DNB Job Number:	16033	Date: 4 Oct 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Uplink – Mid Channel – High Band		

Harm	Freq in MHz	Polarity	Sig Gen (dBm)	Cable Loss (dB)	Ant Gain (dBi)	Corrected to EIRP (dBm)	Limit (dBm)	Delta (dBm)
2	3760.000	H	-55.30	0.97	9.97	-46.30	-13.00	-33.30
3	5640.040	H	-62.10	1.18	10.57	-52.71	-13.00	-39.71
4 *	7520.000	H	-57.40	1.33	10.49	-48.24	-13.00	-35.24
5 *	9400.000	H	-51.60	1.44	11.91	-41.13	-13.00	-28.13
6 *	11280.000	H	-48.50	1.54	11.91	-38.13	-13.00	-25.13
7 *	13160.000	H	-39.00	1.62	11.19	-29.43	-13.00	-16.43
8 *	15040.000	H	-36.50	1.69	11.56	-26.63	-13.00	-13.63
9 *	16920.000	H	-37.40	1.75	12.61	-26.54	-13.00	-13.54
10 *	18800.000	H	-32.60	1.81	11.00	-23.41	-13.00	-10.41
2	3760.000	V	-50.70	0.97	9.97	-41.70	-13.00	-28.70
3	5640.040	V	-98.00	1.18	10.57	-88.61	-13.00	-75.61
4 *	7520.000	V	-40.10	1.33	10.49	-30.94	-13.00	-17.94
5 *	9400.000	V	-53.00	1.44	11.91	-42.53	-13.00	-29.53
6 *	11280.000	V	-45.20	1.54	11.91	-34.83	-13.00	-21.83
7 *	13160.000	V	-39.90	1.62	11.19	-30.33	-13.00	-17.33
8 *	15040.000	V	-40.40	1.69	11.56	-30.53	-13.00	-17.53
9 *	16920.000	V	-30.80	1.75	12.61	-19.94	-13.00	-6.94
10 *	18800.000	V	-33.50	1.81	11.00	-24.31	-13.00	-11.31

\* Measurement made at instrument ground floor – no discernible reading




FIGURE 8: RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS, UPLINK.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Radiated Spurious</b>		
DNB Job Number:	16033	Date:	4 Oct 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC			
Model Number:	WRE2700			
Description:	RF amplifier			
	Uplink – High Channel – High Band			

Harm	Freq in MHz	Polarity	Sig Gen (dBm)	Cable Loss (dB)	Ant Gain (dBi)	Corrected to EIRP (dBm)	Limit (dBm)	Delta (dBm)
2	3819.300	H	-51.50	0.97	10.03	-42.44	-13.00	-29.44
3	5728.900	H	-64.90	1.19	10.58	-55.51	-13.00	-42.51
4 *	7638.600	H	-56.50	1.34	10.63	-47.21	-13.00	-34.21
5 *	9548.200	H	-50.90	1.45	11.99	-40.36	-13.00	-27.36
6 *	11457.900	H	-47.60	1.55	11.95	-37.20	-13.00	-24.20
7 *	13367.500	H	-44.20	1.63	11.40	-34.43	-13.00	-21.43
8 *	15277.200	H	-38.70	1.70	12.29	-28.11	-13.00	-15.11
9 *	17186.800	H	-36.30	1.76	12.19	-25.87	-13.00	-12.87
10 *	19096.500	H	-27.20	1.81	10.59	-18.42	-13.00	-5.42
2	3819.300	V	-48.50	0.97	10.03	-39.44	-13.00	-26.44
3	5728.900	V	-64.20	1.19	10.58	-54.81	-13.00	-41.81
4 *	7638.600	V	-56.20	1.34	10.63	-46.91	-13.00	-33.91
5 *	9548.200	V	-49.00	1.45	11.99	-38.46	-13.00	-25.46
6 *	11457.900	V	-54.60	1.55	11.95	-44.20	-13.00	-31.20
7 *	13367.500	V	-42.30	1.63	11.40	-32.53	-13.00	-19.53
8 *	15277.200	V	-39.80	1.70	12.29	-29.21	-13.00	-16.21
9 *	17186.800	V	-33.20	1.76	12.19	-22.77	-13.00	-9.77
10 *	19096.500	V	-27.50	1.81	10.59	-18.72	-13.00	-5.72

\* Measurement made at instrument ground floor – no discernible reading


FIGURE 8: RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS, UPLINK.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Radiated Spurious</b>	
DNB Job Number:	16033	Date: 4 Oct 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink – Low Channel – Low Band		

Harm	Freq in MHz	Polarity	Sig Gen (dBm)	Cable Loss (dB)	Ant Gain (dBi)	Corrected to ERP (dBm)	Limit (dBm)	Delta (dBm)
2	1738.780	H	-61.70	0.56	8.90	-53.36	-13.00	-40.36
3	2608.000	H	-59.00	0.78	8.30	-51.48	-13.00	-38.48
4 *	3477.400	H	-63.40	0.93	9.64	-54.69	-13.00	-41.69
5 *	4346.700	H	-62.40	1.04	10.33	-53.11	-13.00	-40.11
6 *	5216.100	H	-56.00	1.14	10.53	-46.61	-13.00	-33.61
7 *	6085.400	H	-52.00	1.22	10.52	-42.70	-13.00	-29.70
8 *	6954.800	H	-49.50	1.29	9.88	-40.91	-13.00	-27.91
9 *	7824.100	H	-44.90	1.35	10.85	-35.40	-13.00	-22.40
10 *	8693.500	H	-45.80	1.40	11.50	-35.70	-13.00	-22.70
2	1738.780	V	-58.00	0.56	8.90	-49.66	-13.00	-36.66
3	2608.000	V	-53.00	0.78	8.30	-45.48	-13.00	-32.48
4 *	3477.400	V	-48.00	0.93	9.64	-39.29	-13.00	-26.29
5 *	4346.700	V	-58.80	1.04	10.33	-49.51	-13.00	-36.51
6 *	5216.100	V	-57.10	1.14	10.53	-47.71	-13.00	-34.71
7 *	6085.400	V	-48.80	1.22	10.52	-39.50	-13.00	-26.50
8 *	6954.800	V	-95.00	1.29	9.88	-86.41	-13.00	-73.41
9 *	7824.100	V	-38.70	1.35	10.85	-29.20	-13.00	-16.20
10 *	8693.500	V	-44.50	1.40	11.50	-34.40	-13.00	-21.40

\* Measurement made at instrument ground floor – no discernible reading


FIGURE 8: RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS, UPLINK.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Radiated Spurious</b>	
DNB Job Number:	16033	Date: 4 Oct 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink – Mid Channel – Low Band		

Harm	Freq in MHz	Polarity	Sig Gen (dBm)	Cable Loss (dB)	Ant Gain (dBi)	Corrected to ERP (dBm)	Limit (dBm)	Delta (dBm)
2	1763.000	H	-66.00	0.57	8.93	-57.64	-13.00	-44.64
3	2644.500	H	-62.00	0.78	8.37	-54.41	-13.00	-41.41
4 *	3526.000	H	-63.60	0.93	9.70	-54.83	-13.00	-41.83
5 *	4407.500	H	-62.00	1.05	10.35	-52.70	-13.00	-39.70
6 *	5289.000	H	-58.40	1.14	10.54	-49.00	-13.00	-36.00
7 *	6170.500	H	-51.50	1.22	10.46	-42.26	-13.00	-29.26
8 *	7052.000	H	-46.20	1.29	9.92	-37.57	-13.00	-24.57
9 *	7933.500	H	-44.90	1.36	10.97	-35.29	-13.00	-22.29
10 *	8815.000	H	-43.70	1.41	11.58	-33.53	-13.00	-20.53
2	1763.000	V	-63.10	0.57	8.93	-54.74	-13.00	-41.74
3	2644.500	V	-55.20	0.78	8.37	-47.61	-13.00	-34.61
4 *	3526.000	V	-47.50	0.93	9.70	-38.73	-13.00	-25.73
5 *	4407.500	V	-57.80	1.05	10.35	-48.50	-13.00	-35.50
6 *	5289.000	V	-56.80	1.14	10.54	-47.40	-13.00	-34.40
7 *	6170.500	V	-52.80	1.22	10.46	-43.56	-13.00	-30.56
8 *	7052.000	V	-47.00	1.29	9.92	-38.37	-13.00	-25.37
9 *	7933.500	V	-40.40	1.36	10.97	-30.79	-13.00	-17.79
10 *	8815.000	V	-42.60	1.41	11.58	-32.43	-13.00	-19.43

\* Measurement made at instrument ground floor – no discernible reading


FIGURE 8: RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS, UPLINK.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Radiated Spurious</b>	
DNB Job Number:	16033	Date: 4 Oct 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink – High Channel – Low Band		

Harm	Freq in MHz	Polarity	Sig Gen (dBm)	Cable Loss (dB)	Ant Gain (dBi)	Corrected to ERP (dBm)	Limit (dBm)	Delta (dBm)
2	1787.300	H	-56.20	0.58	8.95	-47.83	-13.00	-34.83
3	2680.900	H	-59.60	0.79	8.45	-51.94	-13.00	-38.94
4 *	3574.600	H	-62.30	0.94	9.76	-53.48	-13.00	-40.48
5 *	4468.200	H	-60.90	1.06	10.37	-51.59	-13.00	-38.59
6 *	5361.900	H	-58.80	1.15	10.55	-49.40	-13.00	-36.40
7 *	6255.500	H	-53.30	1.23	10.40	-44.13	-13.00	-31.13
8 *	7149.200	H	-47.00	1.30	10.04	-38.26	-13.00	-25.26
9 *	8042.800	H	-45.40	1.36	11.07	-35.69	-13.00	-22.69
10 *	8936.500	H	-42.10	1.42	11.66	-31.86	-13.00	-18.86
2	1787.300	V	-62.90	0.58	8.95	-54.53	-13.00	-41.53
3	2680.900	V	-52.00	0.79	8.45	-44.34	-13.00	-31.34
4 *	3574.600	V	-43.40	0.94	9.76	-34.58	-13.00	-21.58
5 *	4468.200	V	-56.50	1.06	10.37	-47.19	-13.00	-34.19
6 *	5361.900	V	-57.40	1.15	10.55	-48.00	-13.00	-35.00
7 *	6255.500	V	-48.40	1.23	10.40	-39.23	-13.00	-26.23
8 *	7149.200	V	-45.70	1.30	10.04	-36.96	-13.00	-23.96
9 *	8042.800	V	-102.50	1.36	11.07	-92.79	-13.00	-79.79
10 *	8936.500	V	-41.40	1.42	11.66	-31.16	-13.00	-18.16

\* Measurement made at instrument ground floor – no discernible reading


FIGURE 8: RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS, UPLINK.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Radiated Spurious</b>	
DNB Job Number:	16033	Date: 4 Oct 2010	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink – Low Channel – High Band		

Harm	Freq in MHz	Polarity	Sig Gen (dBm)	Cable Loss (dB)	Ant Gain (dBi)	Corrected to EIRP (dBm)	Limit (dBm)	Delta (dBm)
2	3860.700	H	-62.80	0.98	10.18	-53.60	-13.00	-40.60
3	5791.000	H	-63.90	1.19	10.58	-54.51	-13.00	-41.51
4 *	7721.400	H	-58.00	1.34	10.73	-48.61	-13.00	-35.61
5 *	9651.700	H	-53.70	1.46	12.00	-43.16	-13.00	-30.16
6 *	11582.100	H	-42.50	1.55	11.97	-32.08	-13.00	-19.08
7 *	13512.400	H	-41.50	1.63	11.55	-31.58	-13.00	-18.58
8 *	15442.800	H	-37.30	1.70	12.80	-26.20	-13.00	-13.20
9 *	17373.100	H	-36.80	1.76	11.94	-26.62	-13.00	-13.62
10 *	19303.500	H	-25.60	1.82	10.26	-17.16	-13.00	-4.16
2	3860.700	V	-50.50	0.98	10.18	-41.30	-13.00	-28.30
3	5791.000	V	-59.00	1.19	10.58	-49.61	-13.00	-36.61
4 *	7721.400	V	-57.20	1.34	10.73	-47.81	-13.00	-34.81
5 *	9651.700	V	-51.30	1.46	12.00	-40.76	-13.00	-27.76
6 *	11582.100	V	-50.30	1.55	11.97	-39.88	-13.00	-26.88
7 *	13512.400	V	-46.00	1.63	11.55	-36.08	-13.00	-23.08
8 *	15442.800	V	-38.20	1.70	12.80	-27.10	-13.00	-14.10
9 *	17373.100	V	-31.50	1.76	11.94	-21.32	-13.00	-8.32
10 *	19303.500	V	-28.10	1.82	10.26	-19.66	-13.00	-6.66

\* Measurement made at instrument ground floor – no discernible reading


FIGURE 8: RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS, UPLINK.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Radiated Spurious</b>	
DNB Job Number:	16033	Date:	10 Nov 2010
Customer:	Clear RF, LLC	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24	
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink – Mid Channel – High Band		

Harm	Freq in MHz	Polarity	Sig Gen (dBm)	Cable Loss (dB)	Ant Gain (dBi)	Corrected to EIRP (dBm)	Limit (dBm)	Delta (dBm)
2	3920.000	H	-68.00	0.99	10.14	-58.85	-13.00	-45.85
3	5880.000	H	-62.70	1.20	10.59	-53.31	-13.00	-40.31
4 *	7840.000	H	-53.10	1.35	10.86	-43.59	-13.00	-30.59
5 *	9800.000	H	-52.30	1.47	12.13	-41.64	-13.00	-28.64
6 *	11760.000	H	-42.40	1.56	12.01	-31.95	-13.00	-18.95
7 *	13720.000	H	-38.80	1.64	11.75	-28.69	-13.00	-15.69
8 *	15680.000	H	-40.70	1.71	13.52	-28.89	-13.00	-15.89
9 *	17640.000	H	-31.70	1.77	11.58	-21.89	-13.00	-8.89
10 *	19600.000	H	-25.10	1.83	10.01	-16.92	-13.00	-3.92
2	3920.000	V	-55.50	0.99	10.14	-46.35	-13.00	-33.35
3	5880.000	V	-58.70	1.20	10.59	-49.31	-13.00	-36.31
4 *	7840.000	V	-53.70	1.35	10.86	-44.19	-13.00	-31.19
5 *	9800.000	V	-51.10	1.47	12.13	-40.44	-13.00	-27.44
6 *	11760.000	V	-52.70	1.56	12.01	-42.25	-13.00	-29.25
7 *	13720.000	V	-45.30	1.64	11.75	-35.19	-13.00	-22.19
8 *	15680.000	V	-39.30	1.71	13.52	-27.49	-13.00	-14.49
9 *	17640.000	V	-36.60	1.77	11.58	-26.79	-13.00	-13.79
10 *	19600.000	V	-29.60	1.83	10.01	-21.42	-13.00	-8.42

\* Measurement made at instrument ground floor – no discernible reading

FIGURE 8: RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS, UPLINK.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Radiated Spurious</b>	
DNB Job Number:	16033	Date:	10 Nov 2010
Customer:	Clear RF, LLC	<b>Conformance Standards</b> [X] IC RSS-131 [X] FCC Part 22 [X] FCC Part 24	
Model Number:	WRE2700		
Description:	RF amplifier		
	Downlink – High Channel – High Band		

Harm	Freq in MHz	Polarity	Sig Gen (dBm)	Cable Loss (dB)	Ant Gain (dBi)	Corrected to EIRP (dBm)	Limit (dBm)	Delta (dBm)
2	3979.300	H	-72.40	1.00	10.20	-63.20	-13.00	-50.20
3	5968.900	H	-68.10	1.21	10.60	-58.71	-13.00	-45.71
4 *	7958.600	H	-62.80	1.36	11.00	-53.16	-13.00	-40.16
5 *	9948.200	H	-60.90	1.47	12.20	-50.17	-13.00	-37.17
6 *	11937.900	H	-47.00	1.57	12.05	-36.52	-13.00	-23.52
7 *	13927.500	H	-50.50	1.65	11.95	-40.20	-13.00	-27.20
8 *	15917.200	H	-45.00	1.72	14.22	-32.50	-13.00	-19.50
9 *	17906.800	H	-40.90	1.78	11.23	-31.45	-13.00	-18.45
10 *	19896.500	H	-35.40	1.83	9.58	-27.65	-13.00	-14.65
2	3979.300	V	-58.10	1.00	10.20	-48.90	-13.00	-35.90
3	5968.900	V	-69.20	1.21	10.60	-59.81	-13.00	-46.81
4 *	7958.600	V	-58.10	1.36	11.00	-48.46	-13.00	-35.46
5 *	9948.200	V	-54.30	1.47	12.20	-43.57	-13.00	-30.57
6 *	11937.900	V	-57.30	1.57	12.05	-46.82	-13.00	-33.82
7 *	13927.500	V	-52.40	1.65	11.95	-42.10	-13.00	-29.10
8 *	15917.200	V	-44.00	1.72	14.22	-31.50	-13.00	-18.50
9 *	17906.800	V	-44.80	1.78	11.23	-35.35	-13.00	-22.35
10 *	19896.500	V	-35.30	1.83	9.58	-27.55	-13.00	-14.55

\* Measurement made at instrument ground floor – no discernible reading

## RADIATED EMISSIONS

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Definition:

Emissions which emanate from the EUT.

Test Method: FCC Part 15 Class B (CISPR 22)


To measure radiated emissions, the EUT was set up on the 3 meter open air test site. The EUT is placed on a wooden Table, which rests upon a wooden turntable. The top of the table is one meter above the ground, and the turntable can be rotated 360 degrees. For each frequency measured, the antenna is raised and lowered for both horizontal and vertical polarities to obtain the maximum reading on the analyzer. The turntable is also rotated throughout the 360 degrees in azimuth to determine the position of the maximum emissions. The applicable frequency range is searched using the antennas listed below. The respective antenna and preamplifier were connected to an HP 8568B Spectrum Analyzer. Preamplifiers were used for all ranges to achieve the needed dynamic range.

Test Results:

All readings were below the expectable limit.



FIGURE 9: RADIATED EMISSIONS.

		1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436							Radiated Emissions								
DNB Job Number:		16033							Date: 7 Oct 2010					Conformance Standards  [X] FCC Part 15			
Customer:		Clear RF, LLC															
Model Number:		WRE2700															
Description:		RF amplifier															
FREQ	METER	Correction Factors					in dBuV/m			in uV/m			Positions				
		Bcn	Log	Cbl	Amp	Dis	Corr	Lim	Delta	Corr	Lim	Delta	Typ	Tbl	Pl	Hgt	
97.900	42.0	9.4	0.0	1.9	26.4	0.0	26.9	40.0	-13.1	22	100	-78	QP	114	H	4.00	
101.684	45.4	10.0	0.0	1.9	26.4	0.0	30.9	40.0	-9.1	35	100	-65	QP	129	H	4.00	
104.020	46.8	10.4	0.0	1.9	26.4	0.0	32.7	40.0	-7.3	43	100	-57	QP	110	H	4.00	
105.175	47.0	10.6	0.0	2.0	26.4	0.0	33.2	40.0	-6.8	46	100	-54	QP	114	H	4.00	
127.125	39.7	13.4	0.0	2.2	26.3	0.0	29.0	40.0	-11.0	28	100	-72	QP	130	H	4.00	
192.870	40.0	17.3	0.0	2.8	25.8	0.0	34.3	40.0	-5.7	52	100	-48	QP	220	H	3.32	
194.650	40.5	17.5	0.0	2.8	25.8	0.0	35.0	40.0	-5.0	56	100	-44	QP	218	H	3.30	
229.600	40.0	16.6	0.0	2.9	26.0	0.0	33.5	40.0	-6.5	47	100	-53	QP	112	H	1.78	
230.270	40.2	16.6	0.0	2.9	26.0	0.0	33.7	47.0	-13.3	48	100	-52	QP	112	H	1.78	
307.904	43.1	0.0	16.9	3.8	25.9	0.0	37.9	47.0	-9.1	79	100	-21	QP	0	H	3.26	
48.107	45.0	11.3	0.0	1.4	26.5	0.0	31.2	40.0	-8.8	36	100	-64	QP	269	V	1.00	
48.704	46.6	11.1	0.0	1.4	26.5	0.0	32.6	40.0	-7.4	43	100	-57	QP	279	V	1.00	
49.300	45.4	10.9	0.0	1.4	26.5	0.0	31.2	40.0	-8.8	36	100	-64	QP	260	V	1.00	
94.496	43.3	8.9	0.0	1.8	26.4	0.0	27.6	40.0	-12.4	24	100	-76	QP	160	V	1.00	
98.622	51.0	9.6	0.0	1.9	26.4	0.0	36.1	40.0	-3.9	64	100	-36	QP	180	V	1.00	
99.215	51.2	9.7	0.0	1.9	26.4	0.0	36.4	40.0	-3.6	66	100	-34	QP	180	V	1.00	
100.400	51.7	9.9	0.0	1.9	26.4	0.0	37.1	40.0	-2.9	72	100	-28	QP	180	V	1.00	
102.175	52.5	10.1	0.0	1.9	26.4	0.0	38.1	40.0	-1.9	80	100	-20	QP	170	V	1.00	
103.950	52.1	10.4	0.0	1.9	26.4	0.0	38.0	40.0	-2.0	79	100	-21	QP	180	V	1.00	
104.540	51.5	10.5	0.0	1.9	26.4	0.0	37.5	40.0	-2.5	75	100	-25	QP	180	V	1.00	
106.312	49.2	10.7	0.0	2.0	26.4	0.0	35.5	40.0	-4.5	60	100	-40	QP	180	V	1.00	
127.087	41.8	13.4	0.0	2.2	26.3	0.0	31.1	40.0	-8.9	36	100	-64	QP	270	V	1.00	
184.690	38.3	16.5	0.0	2.8	26.0	0.0	31.6	40.0	-8.4	38	100	-62	QP	0	V	1.00	
235.220	40.0	16.6	0.0	2.9	26.0	0.0	33.5	47.0	-13.5	47	224	-177	QP	68	V	1.00	
236.465	38.2	16.6	0.0	2.9	26.0	0.0	31.7	47.0	-15.3	38	224	-186	QP	49	V	1.00	
237.000	38.1	16.6	0.0	2.9	26.0	0.0	31.6	47.0	-15.4	38	224	-186	QP	65	V	1.00	
265.435	36.4	17.3	0.0	3.5	25.8	0.0	31.4	47.0	-15.6	37	224	-187	QP	0	V	1.00	
307.904	42.6	0.0	16.9	3.8	25.9	0.0	37.4	47.0	-9.6	74	224	-150	QP	0	V	1.00	
97.900	42.0	9.4	0.0	1.9	26.4	0.0	26.9	40.0	-13.1	22	100	-78	QP	114	H	4.00	

## CONDUCTED EMISSIONS

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Definition:

Emissions which emanate from AC Mains of the EUT.


Test Method: FCC Part 15 Class B (CISPR 22)

To measure conducted emissions, the EUT was set upon a wooden table in the shielded enclosure. AC power was fed into the EUT from the Artificial Mains Network. With the Artificial Mains Network connected to an HP 8568B Spectrum Analyzer, and using the HP 9825 Computer/Controller and the HP 85864B EMI Measurement Software, the spectrum was searched from 0.15 - 30 MHz for emissions emanating from the EUT.

Test Results:

All readings were below the expectable limit.

FIGURE 10: CONDUCTED EMISSIONS.

	1100 E Chalk Creek Road Coalville, UT 84017 (435) 336-4433 FAX (435) 336-4436	<b>Conducted Emissions</b>	
DNB Job Number:	16033	Date: 7 Oct 2010	<b>Conformance Standards</b>  [X] FCC Part 15 Class B
Customer:	Clear RF, LLC		
Model Number:	WRE2700		
Description:	RF amplifier		

Freq	Meter	LISN	Cable	Corrected	Limit	Delta	Limit	Line	Type	Comments
0.185	51.7	0.4	0.2	52.3	66.0	-13.7	AVE	L1	QP	Run 1 - 120Vac 60Hz
0.185	51.9	0.1	0.2	52.2	66.0	-13.8	AVE	L2	QP	Run 1 - 120Vac 60Hz
0.200	51.8	0.1	0.2	52.1	66.0	-13.9	AVE	L2	QP	Run 1 - 120Vac 60Hz
0.166	51.4	0.4	0.2	52.0	66.0	-14.0	AVE	L1	QP	Run 1 - 120Vac 60Hz
0.200	51.4	0.4	0.2	52.0	66.0	-14.0	AVE	L1	QP	Run 1 - 120Vac 60Hz
0.166	51.6	0.1	0.2	51.9	66.0	-14.1	AVE	L2	QP	Run 1 - 120Vac 60Hz
0.150	50.5	0.5	0.2	51.2	66.0	-14.8	AVE	L1	QP	Run 1 - 120Vac 60Hz
0.150	50.8	0.1	0.2	51.1	66.0	-14.9	AVE	L2	QP	Run 1 - 120Vac 60Hz
26.715	43.0	0.6	0.8	44.4	60.0	-15.6	AVE	L1	QP	Run 1 - 120Vac 60Hz
28.494	41.2	0.6	0.8	42.6	60.0	-17.4	AVE	L1	QP	Run 1 - 120Vac 60Hz
26.715	39.3	0.6	0.8	40.7	60.0	-19.3	AVE	L2	QP	Run 1 - 120Vac 60Hz
28.494	38.1	0.6	0.8	39.5	60.0	-20.5	AVE	L2	QP	Run 1 - 120Vac 60Hz

**2.1055 Measurement of Frequency Stability (IC RSS-131)**

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The EUT is a power amplifier and contains no circuitry for generating or stabilizing the RF signal. The driver will be responsible for this task.

**2.1057 Frequency Spectrum to be Investigated**

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The Frequency was searched from the lowest radio frequency generated in the equipment through the 10<sup>th</sup> harmonic of the carrier frequency.

**RF Exposure**

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The WRE2700 (800 / 1900 MHz) dual band RF Compensator is operated as a signal booster as defined in 2.1091(b) based on its design and installation. The compensator is installed in such a way that it is physically secured and is generally located more than 20 cm from the end-user. This information is included in the user manual. It is suggested that the antenna be installed such that there is at least 20 cm of separation between user and the antenna.

## RF Exposure – MPE Calculations

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### Input

Transmitter Power:	1222 mW	@ 824-849MHz	(Uplink)
	4.5 mW	@ 869-894MHz	(Downlink)
	564 mW	@ 1850-1910MHz	(Uplink)
	1.8 mW	@ 1930-1990MHz	(Downlink)

Antenna Gain: 3 dBi all cases

Cable loss: 2.0 dB @ 824–849 MHz and 869-894MHz  
4.0 dB @ 1850–1910 MHz and 1930-1990MHz

Frequency range:	824-849MHz and 1850-1910MHz	(Uplink)
	869-894MHz and 1930-1990MHz	(Downlink)

### Assumptions

1. A single ¼ wavelength radiating antenna is assumed.
2. Closest exposure distance is assumed to be 20 cm
3. Using the formula  $\text{Level 1}/\text{Limit1} + \text{Level2}/\text{Limit2}$  to show predicted total RF exposure if both bands are operating simultaneously, result must be less than 1.

Where: Limit 1 is the limit in the uplink band  
Limit 2 is the limit in the downlink band  
Level 1 is the calculated maximum RF exposure in the uplink band  
Level 2 is the calculated maximum RF exposure in the downlink band

#### 824-894 Band (Uplink and Downlink)

Combined Worst Case Exposure = 0.6465961 is less than 1 = compliant

#### 1850-1990 Band (Uplink and Downlink)

Combined Worst Case Exposure = 0.0022254 is less than 1 = compliant

**RF Exposure – MPE Calculations**

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Calculations for Uplink

The following results shall be assumed to be accurate for the far-field only. These predictions will over-estimate power density in the near-field. Based on the use of a ¼ wavelength radiator, a distance of 20 cm is considered to be in the far-field for all cases.

$$S = PG/4*\pi*R^2$$

@ 824 – 849 MHz

P is 1222 mW

G is 1.0 dBi (Antenna gain – loss) or  $10^{(1.0/10)}$  or 1.259 Numerical

R is 20 cm

$$\underline{\underline{S = 0.306212\text{mW/cm}^2}}$$

For Occupational/Controlled Exposure

From 300 to 1500 MHz, power density limit is  $f/300 \text{ mW/cm}^2$

@ 824 MHz, power density limit is **2.747 mW/cm<sup>2</sup> for 6 minutes.**

For General Population/Uncontrolled Exposure

From 300 to 1500 MHz, power density limit is  $f/1500 \text{ mW/cm}^2$

@ 824 MHz, Power density limit is **0.549 mW/cm<sup>2</sup> for 30 minutes.**

Conclusion: Meets MPE limits

@ 1850 – 1910 MHz

P is 564 mW

G is -1.0 dBi (Antenna gain – loss) or  $10^{(-1.0/10)}$  or 0.794 Numerical

R is 20 cm

$$\underline{\underline{S = 0.089172\text{mW/cm}^2}}$$

For Occupational/Controlled Exposure

From 1,500 to 100,000 MHz, power density limit is **5 mW/cm<sup>2</sup> for 6 minutes.**

For General Population/Uncontrolled Exposure

From 1,500 to 100,000 MHz, power density limit is **1 mW/cm<sup>2</sup> for 30 minutes.**

Conclusion: Meets MPE limits



**RF Exposure – MPE Calculations**

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Calculations for Downlink

The following results shall be assumed to be accurate for the far-field only. These predictions will over-estimate power density in the near-field. Based on the use of a ¼ wavelength radiator, a distance of 20 cm is considered to be in the far-field for all cases.

$$S = PG/4\pi R^2$$

@ 869 – 894 MHz

P is 4.5 mW

G is 1.0 dBi (Antenna gain – loss) or  $10^{(1.05/10)}$  or 1.259 Numerical

R is 20 cm

$$\underline{\underline{S = 0.001127\text{mW/cm}^2}}$$

For Occupational/Controlled Exposure

From 300 to 1500 MHz, power density limit is  $f/300 \text{ mW/cm}^2$

@ 869 MHz, power density limit is **2.897 mW/cm<sup>2</sup> for 6 minutes.**

For General Population/Uncontrolled Exposure

From 300 to 1500 MHz, power density limit is  $f/1500 \text{ mW/cm}^2$

@ 869 MHz, Power density limit is **0.579 mW/cm<sup>2</sup> for 30 minutes.**

Conclusion: Meets MPE limits

@ 1930 – 1990 MHz

P is 1.8 mW

G is -1.0 dBi (Antenna gain – loss) or  $10^{(-1.0/10)}$  or 0.794 Numerical

R is 20 cm

$$\underline{\underline{S = 0.000280\text{mW/cm}^2}}$$

For Occupational/Controlled Exposure

From 1,500 to 100,000 MHz, power density limit is **5 mW/cm<sup>2</sup> for 6 minutes.**

For General Population/Uncontrolled Exposure

From 1,500 to 100,000 MHz, power density limit is **1 mW/cm<sup>2</sup> for 30 minutes.**

Conclusion: Meets MPE limits

**Appendix A**

**Photographs**

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## PHOTOS: RADIATED EMISSIONS: BICON

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Notes: (Same set up for Log Periodic)



## PHOTOS: RADIATED EMISSIONS: DRG

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Notes:



## PHOTOS: CONDUCTED EMISSIONS

Notes:



**PHOTO: RF POWER OUTPUT, EMISSIONS LIMITATIONS  
GSM/TDMA, OCCUPIED BANDWIDTH  
GSM/TDMA, CONDUCTED SPURIOUS  
EMISSIONS AT ANTENNA TERMINALS**

Notes: Spectrum Analyzer

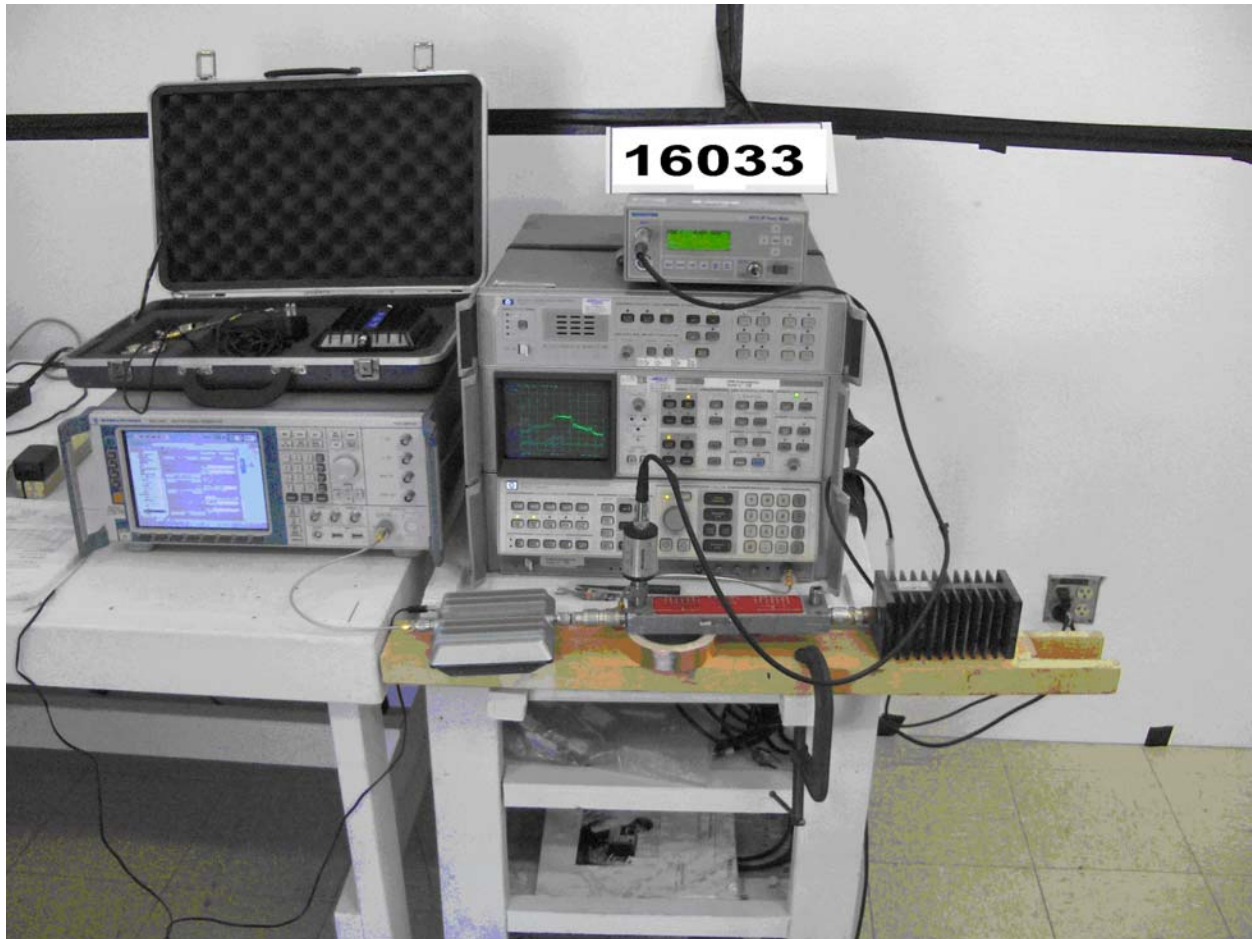




**PHOTO: RF POWER OUTPUT, EMISSIONS LIMITATIONS  
GSM/TDMA, OCCUPIED BANDWIDTH GSM/TDMA,  
CONDUCTED SPURIOUS EMISSIONS AT ANTENNA TERMINALS**

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Notes: Power Meter



End of Report