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January 13, 2012

VIA ELECTRONIC FILING

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W., Room TW-B204
Washington, DC 20554

Re: Notice of Oral *Ex Parte* Communication:

WT Docket No. 07-293
IB Docket No. 95-91
General Docket No. 90-357
RM No. 8610

Dear Madam Secretary:

In accordance with Section 1.1206 of the Commission's rules, 47 C.F.R. Section 1.1206, we hereby provide you with notice of an *ex parte* presentation by Gogo, Inc. ("Gogo") in connection with the above-referenced proceedings. The presentation occurred on January 11, 2012 in a meeting with Roger Noel, Linda Chang, Ronald Repasi (by phone), Patrick Forster and Moslem Sawez.

Attending the meeting on behalf of Gogo were Charles Townsend, Director, Anand Charles and Yong Liu, both engineering executives with Gogo and Tom Gutierrez, counsel.

Also attending the meeting was Monica Desai, counsel for NextWave Wireless, Inc.

At the meeting, Gogo provided the attached written materials. (The map depicting Gogo's sites is an upgraded version of that which was distributed at the meeting.) Gogo explained to the staff that Gogo could efficiently utilize WCS spectrum to provide broadband services; that such service could be provided without interfering with adjacent licensees; that Gogo's use of the spectrum at issue would be prompt and very substantial and should therefore comply with buildout requirements; that certain modifications of uplink and downlink spectrum may be required; that Gogo may seek a waiver of the Section 27.50 power limitation and that the broadband services to be provided by Gogo are fully consistent with services currently permissible for the WCS and those contemplated generally by the Commission's National Broadband Plan.

Sincerely,

/s/ Thomas Gutierrez

Enclosure

cc: Roger Noel
Linda Chang, Esq.
Ronald Repasi
Patrick Forster
Moslem Sawez

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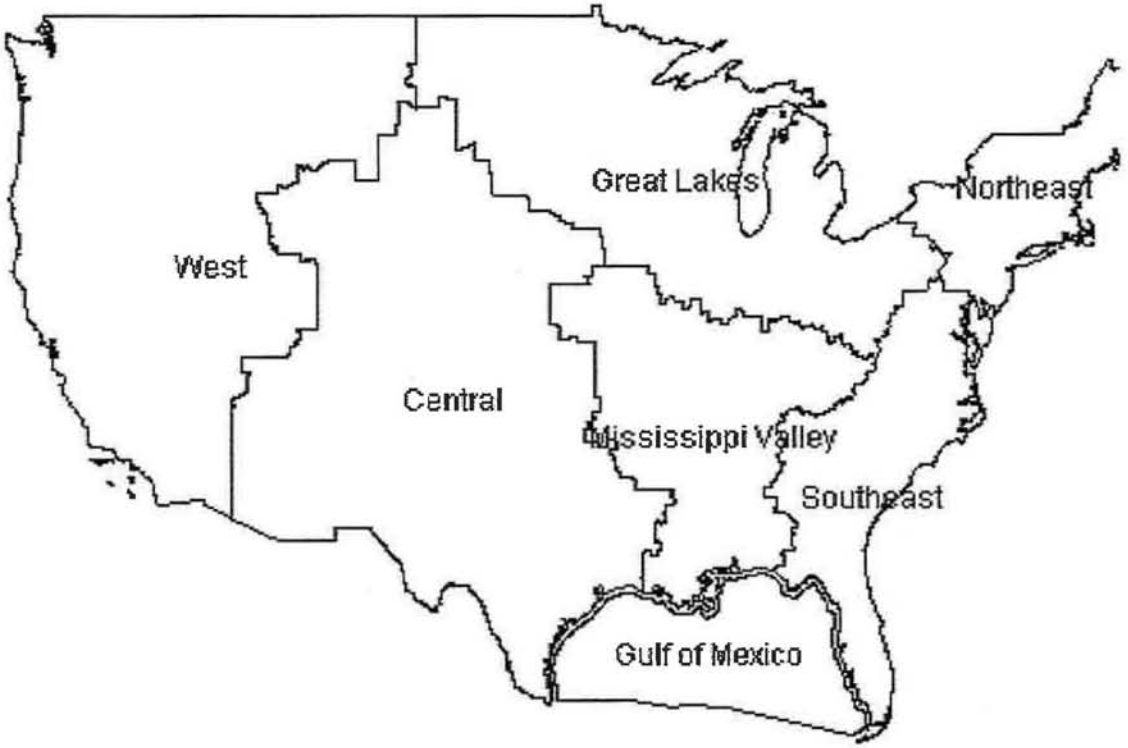
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Alaska


Great Lakes
Northeast
West
Central
Mississippi Valley
Southeast
Gulf of Mexico

WCS for Ground to Air Use

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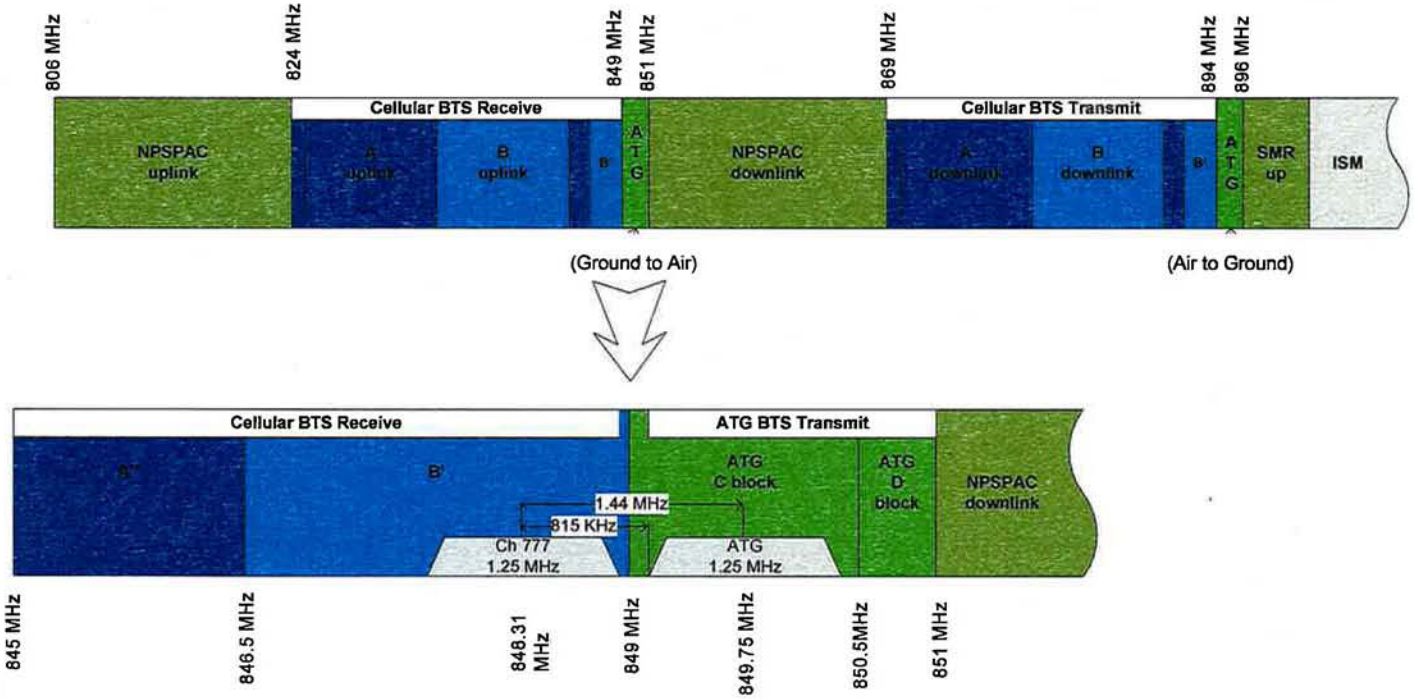
Gogo Use of 800 MHz Spectrum

- Gogo has successfully deployed nationwide in-flight broadband service using a narrow slice of 800 MHz spectrum
- The Air to Ground spectrum of 849-851 and 894-896 MHz is an effective buffer between Cellular and Public Safety / Specialized Mobile Radio services
  - 849-851 MHz buffers Public Safety downlink transmit and Cellular uplink receive
  - 894-896 MHz buffers Cellular downlink transmit and SMR uplink receive
- Gogo and Cellular operators have effectively mitigated adjacent band mutual interference through use of RF filters, antenna placement, and site collocation



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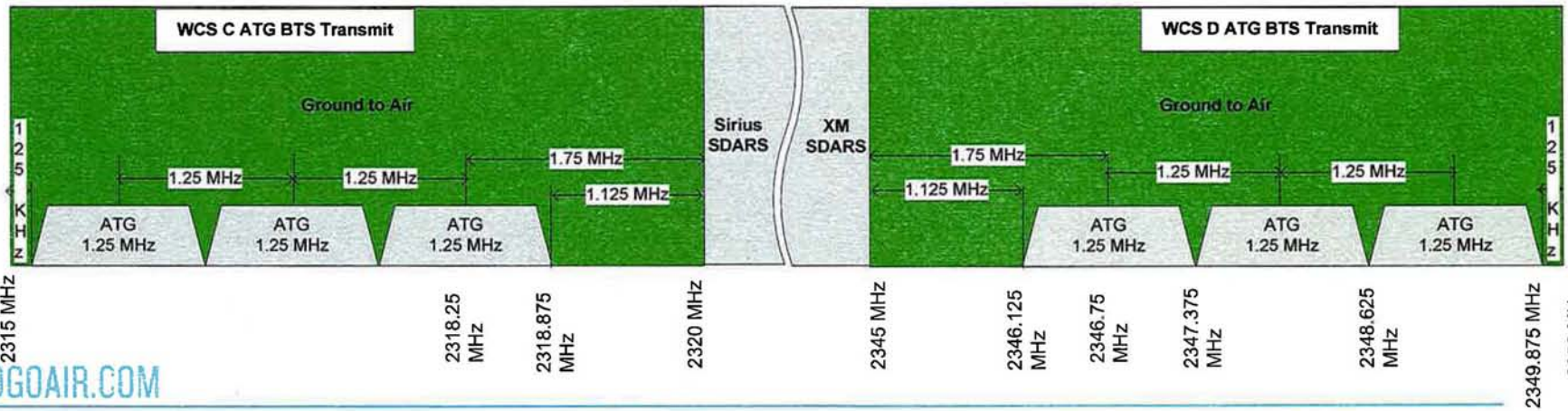
Gogo Proposed Use of WCS Spectrum

- WCS C and D blocks are buffers between SDARS and WCS A and B blocks similar to how 800 MHz ATG spectrum is a buffer between Cellular and Public Safety / SMR services
- Gogo's service can effectively utilize WCS spectrum without causing interference to SDARS receivers or WCS service
- Gogo proposes to operated 3 x 1.25 MHz CDMA2000 carriers in WCS C block and 3 x 1.25 MHz CDMA2000 carriers in WCS D block
- All six carriers would be used for ground station to aircraft transmissions; return link from aircraft would use existing 800 MHz ATG frequency
- To protect satellite radio receivers, the carriers will have 1.125 MHz guard band to SDARS band edge
- There would be 125 KHz guard bands to WCS B and A band edges
- Gogo believes the current 800 MHz ATG OOBE, RF filter, and antenna specs can be duplicated in WCS band



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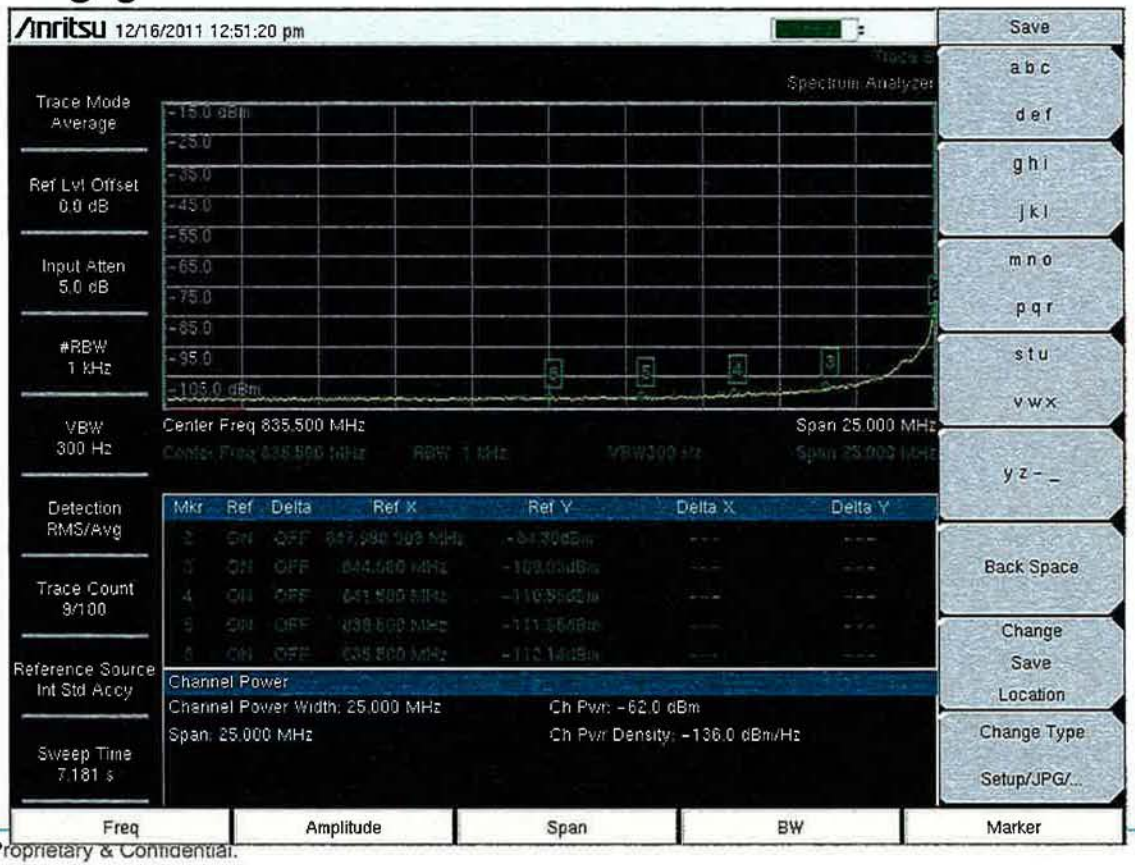
ATG Base Station OOBE Performance

- Gogo base stations transmits 47 dBm 1.25 MHz CDMA carrier centered at 849.75 MHz
- With 1.125 MHz guard band and translating 849.75 MHz to 2346.75 MHz, the spectral mask of 823 – 848 MHz would fall into SDARS band
- Gogo base station has OOBE of -62 dBm / 25 MHz in 823-848 MHz band; meeting §27.53 limit of <-45 dBm / 1 MHz



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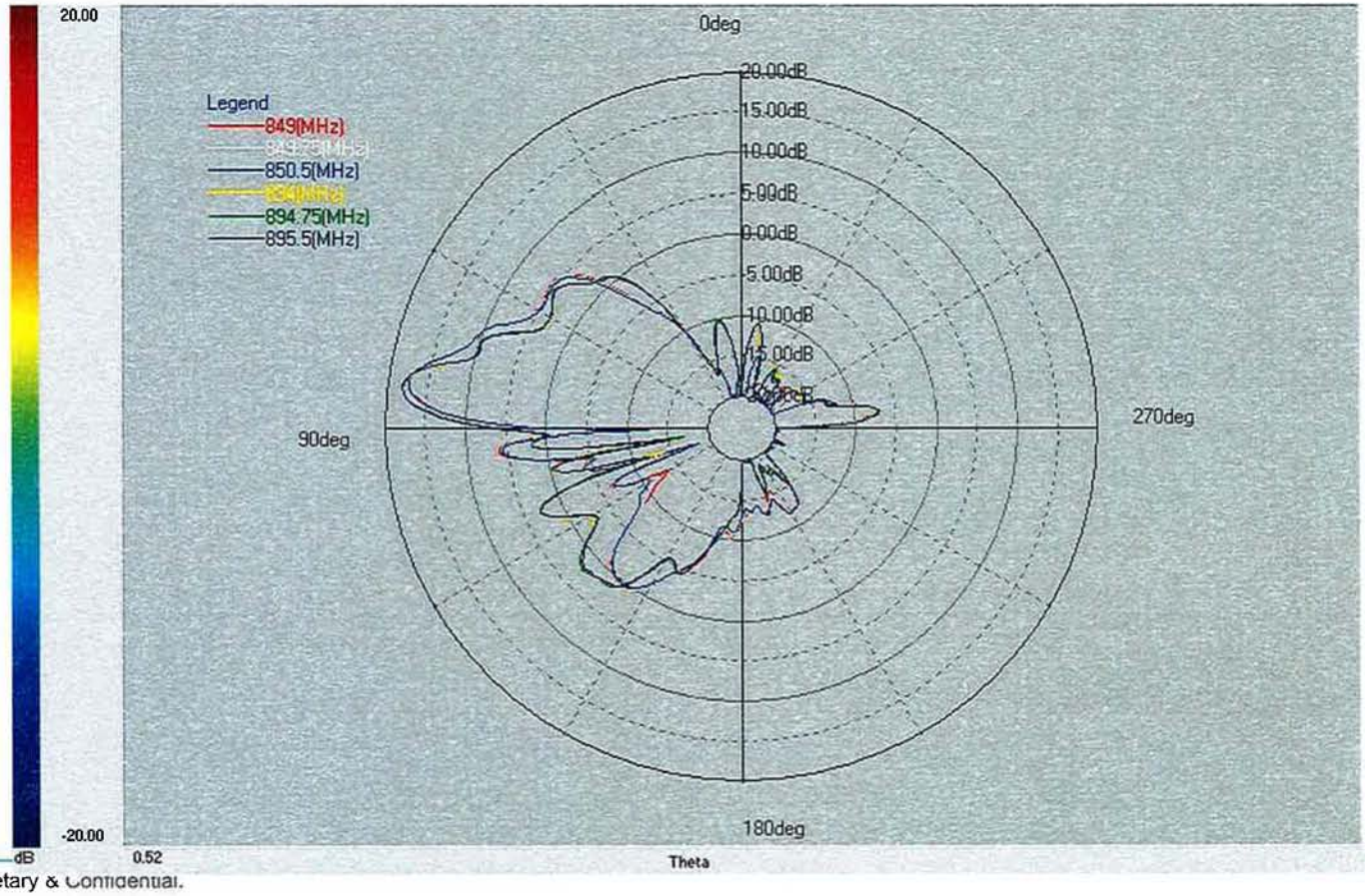
ATG Ground Station Antenna Pattern

- Gogo ground station antennas have the main antenna beam pointed a few degrees above horizon
- The antenna gain towards a satellite radio receiver on the ground is limited



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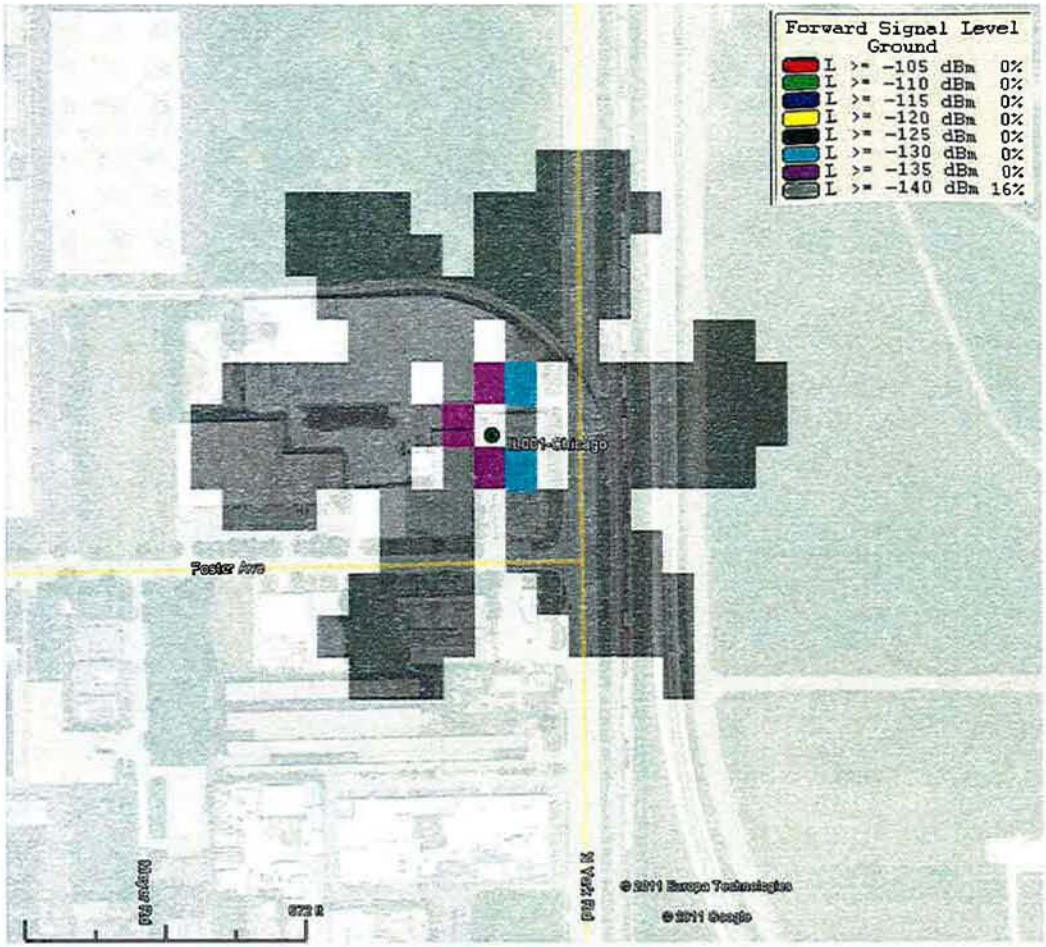
ATG Ground Station RSSI in SDARS band

- With -62 dBm base station transmission in SDARS band, free space pathloss and antenna pattern in previous slide, RSSI for a SDARS receiver 5ft above ground would be less than -125 dBm

Thermal noise floor for 25 MHz bandwidth is -100 dBm



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SDARS Repeater Interference to ATG Base Station

- Per FCC order 10-82, SDARS repeater has OOBE attenuation factor of 90 + 10 log (P) dB. This is equivalent to -60 dBm / 1 MHz out of band emissions limit.
- From experience with cellular B band interference mitigation, 56 dBs of free-space path loss is required between SDARS repeater at -60 dBm/1MHz emissions and ATG base station antenna (including antenna gain patterns)
- 56 dB of freespace pathloss at 2345 MHz is equivalent to 21 feet of separation between SDARS repeater antenna and ATG antenna

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Discussion on Base Station EIRP Limit

- 800 MHz ATG base station has an average ERP 500 Watts; this is for a single 1.25 MHz carrier
- With 3x 1.25 MHz carriers, the ERP would increase to 1500 watts average or equivalent to 2461 Watts EIRP
- CDMA2000 has peak to average ratio of little less than 4 dB
- 2461 Watts average EIRP would translate to 6180 watts peak EIRP
  - This is 5 dBs higher than the 2000 Watt Peak EIRP limit specified in §27.50
  - Given the ATG ground station antenna does not have main beam towards the ground, the likelihood of SDARS receiver overload near ATG ground station is small
  - Signal levels greater than -40 dBm is limited to within 0.3 miles of an ATG ground station

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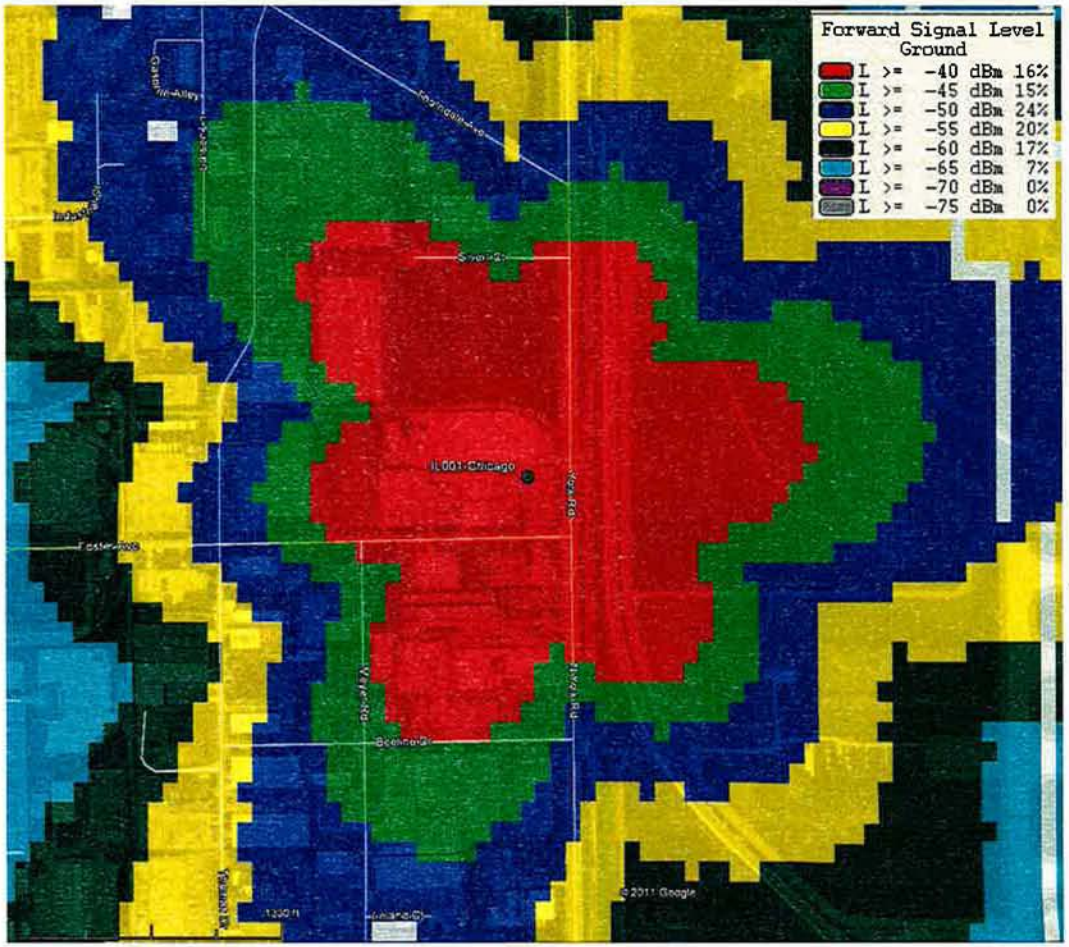
ATG Ground Station RSSI in WCS D Block

- With Peak EIRP 68 dBm base station transmission in WCS D block, free space pathloss and ATG antenna pattern, in band RSSI for a receiver 5ft above ground



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Summary Of Key FCC Rules for WCS

	WCS A (paired)	WCS B (paired)	WCS C (unpaired)		SDARS	WCS D (unpaired)		WCS A (paired)	WCS B (paired)
From (MHz):	2305	2310	2315	2317.5	2320	2345	2347.5	2350	2355
To (MHz):	2310	2315	2317.5	2320	2345	2347.5	2350	2355	2360

Base and fixed Stations

Base EIRP <=2000 W, <= 400W/MHz, average power with PAPR <=13 dB	Base EIRP <=2000W peak power
Base permitted only for TDD	

Base EIRP <=2000W peak power	Base EIRP <=2000 W, <= 400W/MHz, average power with PAPR <=13 dB
Base permitted for TDD or FDD	

Fixed CPE equipment

Fixed CPE: EIRP <=20 W peak, APC required Outdoor antennas not permited for units with EIRP <=2W Duty cycle <=38% if TDD	
Duty cycle <=25% if FDD	Duty cycle <= 12.5% if FDD

Fixed CPE: EIRP <=20 W peak, APC required Outdoor antennas not permited for units with EIRP <=2W Duty cycle <=38% if TDD

Mobiles and Portables

Mobile/Portable: EIRP <=250 mW average, EIRP <= 50 mW/MHz average Duty cycle <=38% if TDD		not allowed
Duty cycle <= 25% if FDD	Duty cycle <= 12.5% if FDD	
No external vehicle mounted antennas permitted		

not allowed	Mobile/Portable: EIRP <=250 mW average, EIRP <= 50 mW/MHz average Duty cycle <=38% if TDD
	No external vehicle mounted antennas permitted

Out Of Band Emissions - Base and fixed Stations and Fixed Customer Premises Equipment operating at > 2 Watts/5 MHz

-43 dBW for WCS band outside of licensed band -75 dBW for DARS band
<= -43 dBW for 2305 MHz <= -70 dBW 2300 MHz <= -72 dBW at 2287.5 MHz <= -75 dBW at 2285 MHz

-43 dBW for WCS band outside of licensed band -75 dBW for DARS band
<= -43 dBW at 2360 MHz <= -55 dBW at 2362.5 MHz <= -70 dBW at 2365 MHz <= -72 dBW at 2367.5 MHz <= -75 dBW above 2370 MHz

Out Of Band Emissions - Mobiles, Portables and Fixed Customer Premises Equipment operating at <= 2 Watts/5 MHz

<=-43 dBW for 2305 - 2317.5 and 2347.5-2360 MHz, outside licensed band <= -55 dBW for 2320- 2324 and 2341-2345 MHz <= -61 dBW for 2324-2328 and 2337-2341 MHz <= -67 dBW for 2328- 2337 MHz
<= -43 dBW at 2305 and 2360 MHz <= -55 dBW at 2300 MHz <= -61 dBW at 2296 MHz <= -67 dBW at 2292 MHz <= -70 dBW below 2288 MHz and above 2365 MHz

<=-43 dBW for 2305 - 2317.5 and 2347.5-2360 MHz, outside licensed band <= -55 dBW for 2320- 2324 and 2341-2345 MHz <= -61 dBW for 2324-2328 and 2337-2341 MHz <= -67 dBW for 2328- 2337 MHz
<= -43 dBW at 2305 and 2360 MHz <= -55 dBW at 2300 MHz <= -61 dBW at 2296 MHz <= -67 dBW at 2292 MHz <= -70 dBW below 2288 MHz and above 2365 MHz

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