

L-band power calculation per FCC rule

		GPS	
From (source):		test equipment feeding into space	
To (target):		FCC defined target location	
f	Frequency:	MHz	1575 L5
λ	Wavelength $\lambda=c/f$:	m	0.190
Source power:		dBm	-5 network analyzer
Loss to amplifier:		dB	0 no amplifier
Amplifier model:		n/a	no amplifier
Amplifier gain:		dB	0 no amplifier
Test coupler		dB	-30 flight test coupler coup
Loss to antenna:		dB	-0.5 on-board loss from tes
Source antenna model:		TBD	Assume same array as
Source antenna gain:		dB	34 Peak (boresight) gain o
Isotropic power at source antenna:		dBm	-1.5
		W	0.09
d	Distance from antenna to target	m	30 per FCC instructions
Spreading Loss = $10 \log (1/4\pi d^2)$		dB/m2	-40.53
Flux at target		dBm/m2	-42.03
Flux at target		dBW/m2	-72.03
Flux at target		W/m2	0.0000
Field at target $V=\sqrt{\text{Power} * \text{Freespace R}}$		V/m	0.005
Isotropic Area = $10 \log (\lambda^2/4\pi)$		dBm2	-25.40
Power at target antenna:		dBm	-67.44
Target antenna gain:		dB	0 isotropic antenna per F
Target loss from antenna to test equipment		dB	0 not applicable in this ca
Power at target:		dBm	-67.44
Spreading bandwidth		MHz	24.00 per FCC instructions
Spreading bandwidth convert to dB		dB-Hz	73.80
Spread power at target		dBm/24 MHz	-141.24
Maximum allowed		dBm/24 MHz	-140 per FCC instructions
margin dB			1.24

craft antenna via test coupler

pling value. Spec is TBD right now for L-band coupler, assume 30 dB.
t coupler to antenna. Estimate
GCCS program. Built by RYMSA.
if RYMSA array for L5 transmit frequency

CC instructions
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