17.4 Test Data:

RF Exposure Requirements - MPE

Project #:	**G101239952**	Test Area:	Intertek Louisville
Test Method:	FCC CFR47 Part 1.1310	Test Date:	July 11, 2013
EUT Model #:	ID:071		
EUT Serial #:	R1886469654		
Manufacturer:	Echostar Technologies, LLC		
EUT Description:	Set-Top Box with 2.4 GHz Transceiver		
Notes:	Antenna gain = 0dBi as declared by the manufacturer		

The following limit is from table 1 (B) Limits for General Population/Uncontrolled Exposure in FCC part 1.1310:

1 mW/cm²

The following calculation was used to determine compliance to the above limit. The calculation is from FCC OET bulletin 65.

Power Density(S) $=PG/4\pi R^2$ or $S=EIRP/4\pi R^2$

Where:
S = power density (in appropriate units, e.g. mW/cm²)
P = power input to the antenna (mW).
G = numeric power gain of the antenna in the direction of interest relative to an isotropic radiator.
R = distance to the center of radiation of the antenna (cm)

In this case, 20cm will be used.
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RF4CE Radio: 2.4GHz

Maximum measured radiated field strength at 3-meters = 101.80 dBuV/m

Maximum typical gain declared by the manufacture = 0 dBi = 1.0 (numeric gain)

Production Tolerance declared = +/- 5.0dB

Calculated power input to the antenna = Measured Field Strength – Antenna Gain + Production Tolerance

101.80 dBuV/m – (0dBi) + 5.0dB = 106.80 dBuV/m = 14.359 mW

Power Density

Power (mW)	Gain (dbi)	Gain numeric	Distance (cm)	Power Density (mW/cm²)
14.359	0	1.0	20	0.00286

Therefore: Power Density Margin (Δ Limit) = 0.00286 – 1.0 = -0.99714 mW/cm^2

Result: The product complies with the requirements for Maximum Permissible Exposure