

Written by S.O.KANG

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Subject : USHR-700L

Booster Uplink Gain limit

1. UL max gain

max UL gain < - 34dB – RSSI + MSCL

[“FCC 20.21 (i) technical requirement,(C) Booster gain limit”p78]

2. RSSI value

RSSI = DL output power – DL gain

3. MSCL value

Distance between service antenna and mobile phone was assumed 1 meter.

CCIR model was applied to coupling loss calculation.

$$\begin{aligned}
 L_{fs} &= 32.45 + 20\log_{10}(d\text{km}) + 20\log_{10}(f\text{MHz}) \quad [\text{free space path loss model : CCIR}] \\
 &= 32.45 + 20\log_{10}(0.001\text{km}=1\text{m}) + 20\log_{10}(698\text{MHz}) \\
 &= 32.45 + (-60) + 56.85 \\
 &= 29.3
 \end{aligned}$$

4. UL gain

■ Band 12

DL input(RSSI)[dBm]	DL Gain[dB]	MSCL[dB]	UL Gain[dB]	UL Atten Value[dB]	DL-UL Gain[dB]	비고
-44	OFF	-	OFF	-	-	3 dB is applied for margin.
-45	47	-29 (-29.3@698MHz)	37	23	10	
-50	52		42	18	10	
-59	61		51	9	10	
-60	61		52	8	9	
-68	61		60	0	1	
-80	61		60	0	0	
-90	61		60	0	0	
-100	61		60	0	0	

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■ Band 13

DL input(RSSI)[dBm]	DL Gain[dB]	MSCL[dB]	UL Gain[dB]	UL Atten Value[dB]	DL-UL Gain[dB]	비고
-44	OFF	-	OFF	-	-	3 dB is applied for margin.
-45	47	-29 (-30.3@776MHz)	37	23	10	
-50	52		42	18	10	
-59	61		51	9	10	
-60	61		52	8	9	
-68	61		60	0	1	
-80	61		60	0	0	
-90	61		60	0	0	
-100	61		60	0	0	