Exhibit 13 (Amended version 2)

RF Exposure

13.1 Determination of Need for Routine Environmental Evaluation for RF Exposure per §2.1091(c)

It is the view of MCC that the MCC-61201001 is not subject to routine environmental evaluation for RF exposure. While it is intended for use in Part 90 applications, it is not designed for use in the Specialized Mobile Radio Service.

13.2 RF Exposure Environment

Per OET Bulletin 65, there are two environments relevant to RF exposure analysis:

Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/ controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

As the MCC-6120 can be deployed in a mobile/vehicular installation, it is possible for both environments to apply. The radio operator may be considered to be in an occupational/controlled exposure environment if she or he is properly trained to be aware of exposures and to control emissions. Vehicle passengers and bystanders are generally considered to be in a general population/uncontrolled exposure environment. This being the case, vehicular antenna installation must take into account both environments, or, at the least, the more restrictive requirement, that being the general population/uncontrolled environment.

The occupational/controlled exposure limits generally apply to base station applications.

13.3 RF Exposure Limit Calculations

The MCC-61201001 transmitter operates in three (3) frequency bands: 39-50 MHz, 151-162 MHz, and 2412-2462 MHz. Per Table 1 of OET Bulletin 65, Appendix A, the FCC limits for Maximum Permitted Exposure (MPE) in terms of power density, S, are shown below.

For an Occupational/Controlled Exposure environment:

$S = 1.0 mW/cm^2$ for the frequency range of 30-300 MHz,

$S = f/300\ mW/cm^2$ for the frequency range of 300-1500 MHz,

S = 5.0mW/cm^2 for the frequency range of 1500-3000 MHz,

For a General Population/Uncontrolled Exposure environment:
S = 0.2mW/cm^2 for the frequency range of 30-300 MHz,
S = f/1500 mW/cm^2 for the frequency range of 300-1500 MHz,
S = 1.0mW/cm^2 for the frequency range of 1500-3000 MHz,

where f is expressed in MHz.

The FCC power density limits for each of the environments and subject transmit bands are expressed below.

Frequency Band (MHz)	Occupational/ Controlled Exposure MPE Power Density Limit (mW/cm^2)	General Population/ Uncontrolled MPE Power Density Limit (mW/cm^2)
39 - 50	1.0	0.20
151 - 162	1.0	0.20
896 - 901	3.0	0.60
935 - 940	3.1	0.62
2412 - 2462	5.0	1.00

Note: A discussion of this subject as pertains to 896-901MHz and 935-940MHz is included here as the *RF Exposure Information* page from the Operators Manual will be common to all MCC-6100 variants as some versions of the 6100 family include these bands.

The minimum separation required between a human and an antenna connected to an active antenna can be determined by use of the power density expression:

$$S = \frac{PG}{4\pi R}$$

Where: S = power density in mW/cm^2
P = RF power into the antenna in mW
G = antenna gain (unitless, linear)
R = separation/distance between antenna and point of interest in cm

Solved for R, the formula becomes:

$$R = \sqrt{\frac{PG}{4\pi S}}$$

The charts below shows the maximum transmit power levels, duty cycles, maximum power densities and R, the calculated minimum human separation for each band. Several

example antenna types are shown. Antenna gains shown are relative to an isotropic radiator.

All calculations consider the allowed 20% power maximum over nominal power, per 47CFR§90.205(r)).

Application		Mobile		Base			
Environment		General Population		Occupational		Occupational	
For 39-50MHz		with 1/4wave dipole mounted to roof or trunk lid of automobile		5-element yagi mounted to top of fixed antenna tower		half wave dipole mounted to fixed antenna tower leg	
		mW	dBm	mW	dBm	mW	dBm
Transmitter power		100000	50	100000	50	100000	50
120% of peak transmit power		120000		120000		120000	
max duty cycle		10.00%		10.00%		10.00%	
Time averaged max peak power	P	12000		12000		12000	
antenna gain (lin/dB)	G	1.64	2.15	10.00	10	3.31	5.2
max power density, mW/cm2, limit per Figure 1 App A OET65	S	0.20		1.00		1.00	
R=sqrt(P*G/4*pi*S), cm		88.51		97.72		56.23	
Minimum separation between humans and transmit antenna		88.5 cm		97.7 cm		56.2 cm	
		34.8 in.		38.5 in.		22.1 in.	

Application		Mobile		Base			
Environment		General Population		Occupational		Occupational	
For 151-162 MHz		with 1/4wave dipole mounted to roof or trunk lid of automobile		5-element yagi mounted to top of antenna tower		half wave dipole mounted on antenna tower leg	
		mW	dBm	mW	dBm	mW	dBm
Transmitter power		33000	45.2	33000	45.2	33000	45.2
120% of peak transmit power		39600		39600		39600	
max duty cycle		50%		50%		50%	
Time averged max peak power	P	19800		19800		19800	
antenna gain (lin/dB)	G	1.64	2.15	13.65	11.35	2.85	4.55
max power density, mW/cm2, limit per Table 1 App A OET65	S	0.20		1.00		1.00	
R=sqrt(P*G/4*pi*S), cm		113.69		146.63		67.02	
Minimum separation between humans and transmit antenna		113.7 cm		146.6 cm		67.0 cm	
		44.8 in.		57.7 in.		26.4 in.	

Application		Mobile				Base	
Environment		General Population				Occupational	
For 896-901 MHz		1/4wave dipole mounted to roof or trunk of automobile		5/8wave over a 1/4wave colinear mounted to roof or trunk of automobile		6-element yagi mounted to top of antenna tower	
		mW	dBm	mW	dBm	mW	dBm
Transmitter power		30000	44.8	30000	44.8	30000	44.8
120% of peak transmit power		36000		36000		36000	
max duty cycle		50%		50%		50%	
Time averged max peak power	P	18000		18000		18000	
antenna gain (lin/dB)	G	1.64	2.15	3.27	5.15	26.00	14.15
max power density, mW/cm2, limit per Table 1 App A OET65		0.60		0.60		3.00	
R=sqrt(P*G/4*pi*S), cm		62.58		88.40		111.42	
Minimum separation between humans and transmit antenna		62.6	cm	88.4	cm	111.4	cm
		24.6	in.	34.8	in.	43.9	in.

Application		Mobile				Base	
Environment		General Population				Occupational	
For 935 - 940 MHz		1/4wave dipole mounted to roof or fender of automobile		5/8wave over a 1/4wave colinear mounted to roof or trunk of automobile		6-element yagi mounted to top of antenna tower	
		mW	dBm	mW	dBm	mW	dBm
Transmitter power		20000	43.0	20000	43.0	20000	43.0
120% of peak transmit power		24000		24000		24000	
max duty cycle		50%		50%		50%	
Time averged max peak power	P	12000		12000		12000	
antenna gain (lin/dB)	G	1.64	2.15	3.27	5.15	26.00	14.15
max power density, mW/cm2, limit per Table 1 App A OET65		0.62		0.62		3.12	
R=sqrt(P*G/4*pi*S), cm		50.27		71.01		89.26	
Minimum separation between humans and transmit antenna		50.3	cm	71.0	cm	89.3	cm
		19.8	in.	28.0	in.	35.1	in.

Application		Mobile or Base	
Environment		General Population	
For 2412-2462 MHz		3dBi omni antenna	
		mW	dBm
Transmitter power		32.66	15.1
120% of peak transmit power		39	
max duty cycle		100%	
Time averged max peak power	P	39	
antenna gain (lin/dB)	G	1.64	2.15
max power density, mW/cm2, limit per Table 1 App A OET65	S	1.00	
R=sqrt(P*G/4*pi*S), cm		2.26	
Minimum separation between humans and transmit antenna		2.3 cm	
		0.9 in.	

13.4 Calculated Limits Applied to Mobile Installations

The calculated separation distances for mobile installations are summarized below.

Frequency Band Antenna	Antenna type	maximum duty cycle	Minimum Separation Distance	
			cm	in
39 - 50 MHz	1/4 wave dipole mounted to roof or trunk lid of vehicle	10.00%	88.8	35.0
151 - 162 MHz	1/4 wave dipole mounted to roof or trunk lid of vehicle	50.00%	114.3	45.0
896-901MHz/935-940 MHz	1/4 wave dipole mounted to roof or trunk lid of vehicle	50.00%	63.5	25.0
896-901MHz/935-940 MHz	5/8 wave over 1/4 wave colinear mounted to roof or trunk lid of vehicle	50.00%	88.9	35.0
2412 - 2462 MHz	3 dBi ominidirectional	100.00%	20	7.9

13.5 Summary and Discussion

The above calculations result in values of separation that are incorporated into the ***MCC RF Energy Exposure Guide***, which will be shipped with each unit**.**

Note the 896-901MHz and 935-940MHz bands share a single antenna (Note: unused on MCC-61201001). Since the band 896-901 MHz operates at a higher power, calculations for that band result in more restrictive separations and therefore its figures will be used in the Manual.

For 2412-2462 MHz, the EUT will only be used with a separation of **20cm** or greater between the antenna and any nearby persons and can therefore be considered a mobile transmitter per 47CFR§2.1091(b).