MTFComm

Data Sheet: MTF IOT Systems

Description	DownLink	UpLink
Tx Power	12dBm	12dBm
Bit Rate	0.52Mbps/User	0.52Mbps/User
# of Users	128 Users	128 Users
Tx Antenna Gain	3dBi	3dBi
Tx Antenna Type	2π Lobe	2π Lobe
Rx Antenna Gain	3dBi	3dBi
Rx Antenna Type	2π Lobe	2π Lobe
Obstructions	20dB	20dB
Range	160m	160m
Modulation	MTF™	MTF™
Coding Gain	0dB	0dB
Tx/Rx H/W	Integrated	Integrated
Carrier Frequency	2.4GHz	2.4GHz
BW	2.5MHz	2.5MHz
Sampling Type	IF	IF
ADC	Dual: 100MHz @ 8bit/sample	Dual: 100MHz @ 8bit/sample
PAPR	6dB	6dB
MAC	MTFMA™	
Multiple Access	Multipoint-to-Multipoint	Multipoint-to-Multipoint

MTFComm

Data Sheet: Existing IOT Systems

Description	DownLink	UpLink
Tx Power	12dBm	12dBm
Bit Rate	0.52Mbps/User	0.52Mbps/User
# of Users	128 Users	128 Users
Tx Antenna Gain	3dBi	3dBi
Tx Antenna Type	2π Lobe	2π Lobe
Rx Antenna Gain	3dBi	3dBi
Rx Antenna Type	2π Lobe	2π Lobe
Obstructions	20dB	20dB
Range	15m	15m
Modulation	1024QAM	1024QAM
Coding Gain	9dB	9dB
Tx/Rx H/W	Integrated	Integrated
Carrier Frequency	2.4GHz	2.4GHz
BW	20MHz	20MHz
Sampling Type	IF	IF
A/D	Dual: 20MHz @ 8bit/sample	Dual: 20MHz @ 8bit/sample
PAPR	12dB	12dB
MAC	Mesh	
Multiple Access	Multipoint-to-Multipoint	Multipoint-to-Multipoint

MTFComm

Comparison: MTF IOT Systems Versus Existing IOT Systems

For a fixed Tx power, bit rate, antenna gain and types, MTF IOT systems offer 3 types of advantages compared to existing IOT systems:

1. The bandwidth is reduced from for existing IOT systems to for MTF IOT systems.
2. The range is increased from for existing IOT systems to for MTF IOT systems.
3. The complexity for existing IOT systems is substantially reduced for MTF IOT systems as shown below:
   a. The # of Up-Converters/Down-Converters is reduced for MTF IOT systems.
   b. Forward Error Correction (FEC) Encoders are not required for MTF IOT systems.
   c. The resolution of the ADC is smaller for MTF IOT systems.

Assumptions:
1. The IOT devices are designed to be in a Non-LOS environment.
2. Each array element in both Tx and Rx antennas has a steradian lobe.