

Directional Antennas
Antenna Specifications

Exhibit 2
The Blue Zone Utah
Draper, UT

The following antennas will be deployed in the proposed system tests:

Base Station: MTI MT-404007 (60° beam width): The base station will utilize a single sector antenna. Polarities, down tilts, and azimuths will be determined as part of the system tests.

Remote/CPE: MTI MT-30093: (8° beam width): Each CPE will utilize a very directional narrow beam width antenna.

The following are the specifications provided by the manufacturer for each of the above listed antennas.

MT-404007
3.3-3.8 GHz 17dBi Base Station Antenna
Specifications

FREQUENCY RANGE	3.3 – 3.8GHz			
GAIN	15dBi (min) @ 3.3-3.4GHz 17 dBi ± 0.5dBi (min) @ 3.4-3.7GHz 16 dBi (min) @ 3.7-3.8GHz			
VSWR	1.5:1 (typ) 1.7 : 1 (max)			
AZIMUTH BEAMWIDTH @ 13dBi (3.3-3.7GHz)	60° ± 4°			
AZIMUTH BEAMWIDTH @ 12dBi (3.7-3.8GHz)	60° ± 4°			
POLARIZATION	Linear Vertical			
ELEVATION BEAMWIDTH	10° (typ)			
SIDELOBES LEVEL – AZ	ETSI EN 302 085 V1.1.2 CS3			
EL	ETSI EN 302 085 V1.1.2 CS3 @ 3.3-3.7GHz			
CROSS POLARIZATION	ETSI EN 302 085 V1.1.2 CS3 -20dB (max)			
F/B RATIO	-40 dB @ 3.3-3.4GHz -43 dB @ 3.4-3.8GHz			
INPUT IMPEDANCE	50 (ohm)			
INPUT POWER	6W (max)			
LIGHTNING PROTECTION	DC Grounded			
DIMENSIONS (LxWxD)	500x200X30mm (max)			
WEIGHT	1.5 Kg (max)			
CONNECTOR	N-Type Female			
RADOME	Plastic			
BASE PLATE	Aluminum with chemical conversion coating			
OUTLINE DRAWING	See below			
MOUNTING KIT	MT-120019			
TEST	STANDARD	DURATION	TEMPERATURE	NOTES
LOW TEMPERATURE	IEC 68-2-1	72 h	-45°C	-
HIGH TEMPERATURE	IEC 68-2-2	72 h	+70°C	-
TEMP. CYCLING	IEC 68-2-14	1 h	-45°C +70°C	3 Cycles

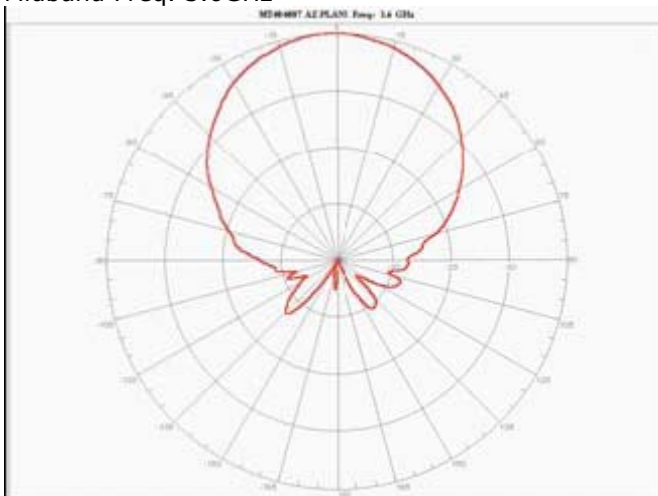
VIBRATION	IEC 60721-3-4	30 min/axis	-	Random4M3
SHOCK MECHANICAL	IEC 60721-3-4	-	-	4M3
HUMIDITY	ETSI EN300-2-4 T4.1E	144 h	-	95%
WATER TIGHTNESS	IEC 529	-	-	IP67
SOLAR RADIATION	ASTM G53	1000 h	-	-
FLAMMABILITY	UL 94	-	-	Class HB
SALT SPRAY	IEC 68-2-11 Ka	500 h	-	-
ICE AND SNOW	-	-	-	25mm Radial
WIND SPEED	SURVIVAL	-	-	220Km/h
	OPERATION	-	-	160Km/h

MT-404007

3.3-3.8 GHz 17dBi Base Station Antenna

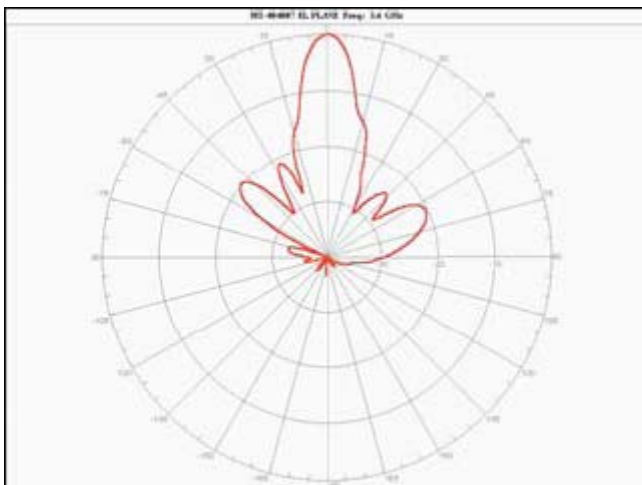
Azimuth Radiation Pattern

Midband Freq. 3.6GHz

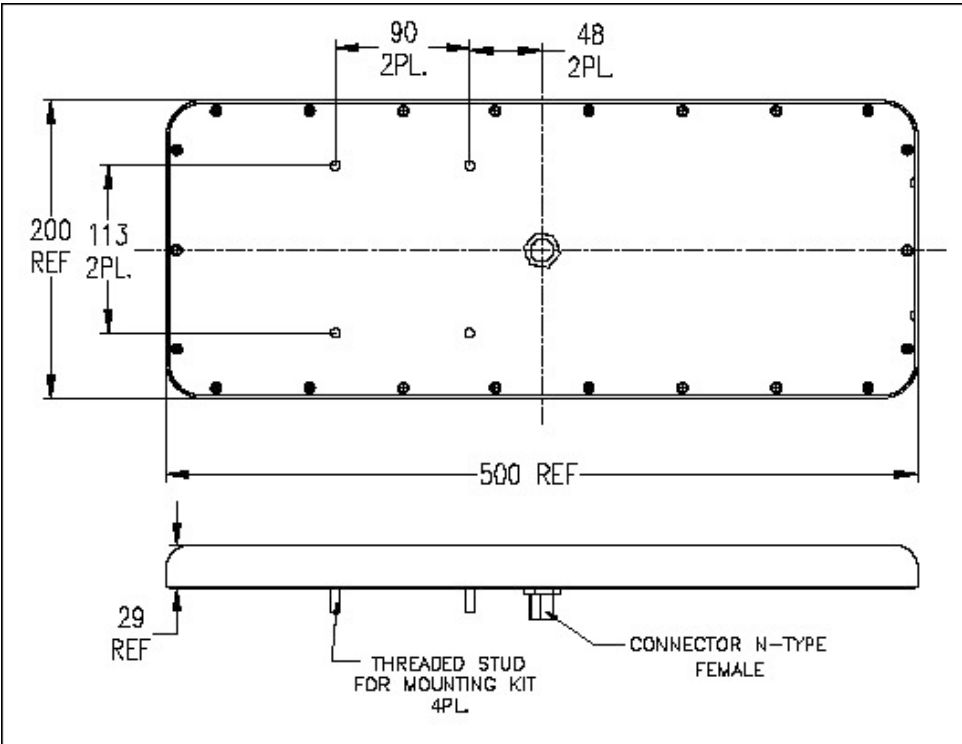


Elevation Radiation Pattern

Midband Freq. 3.6GHz



Dimensions [mm]



MT-30093
3.3-3.8 GHz 24dBi Subscriber Antenna

Specifications

FREQUENCY RANGE	3.3 – 3.8GHz
GAIN	24 dBi (min)
VSWR	1.9 : 1 @ 3.3-3.7 GHz
	2 : 1 @ 3.7-3.8 GHz
3 dB BEAMWIDTH	8° (typ)
POLARIZATION	Linear (Vertical or Horizontal)
SIDELOBES LEVEL	ETSI EN 302 085 V.1.1.2 TS1-TS5
CROSS POLARIZATION	ETSI EN 302 085 V.1.1.2 TS1-TS5
F/B RATIO	ETSI EN 302 085 V.1.1.2 TS1-TS5
INPUT IMPEDANCE	50 (ohm)
INPUT POWER	6W (max)
LIGHTNING PROTECTION	DC Grounded
DIMENSIONS (LxWxD)	600x600X52mm (max)
WEIGHT	5 Kg (max)
CONNECTOR	N-Type Female
RADOME	Plastic
BASE PLATE	Aluminum w/chemical conversion coating
OUTLINE DRAWING	See below
MOUNTING KIT	MT-120019

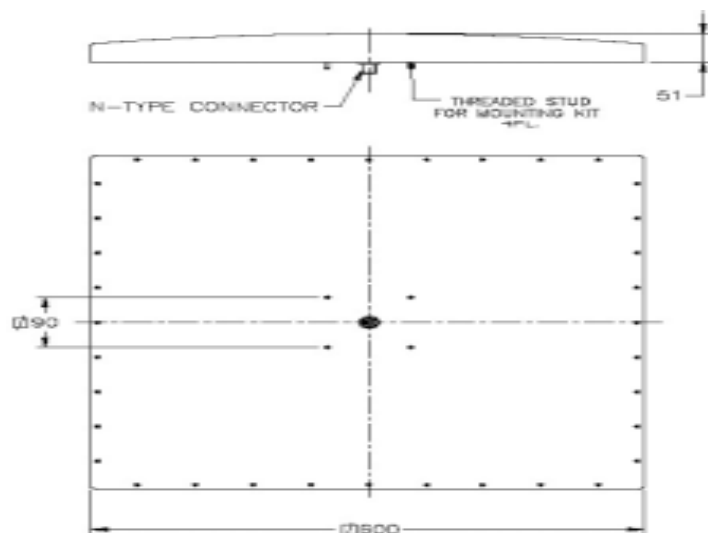
TEST	STANDARD	DURATION	TEMPERTURE	NOTES
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LOW TEMPERATURE	IEC 68-2-1	72 h	-45°C	-
HIGH TEMPERATURE	IEC 68-2-2	72 h	+70°C	-
TEMP. CYCLING	IEC 68-2-14	1 h	-45°C +70°C	3 Cycles
VIBRATION	IEC 60721-3-4	30 min/axis	-	Random4M3
SHOCK MECHANICAL	IEC 60721-3-4	-	-	4M3
HUMIDITY	EN300-2-4 T4.1E	144 h	-	95%
WATER TIGHTNESS	IEC 529	-	-	IP67
SOLAR RADIATION	ASTM G53	1000 h	-	-
FLAMMABILITY	UL 94	-	-	Class HB
SALT SPRAY	IEC 68-2-11 Ka	500 h	-	-
ICE AND SNOW	-	-	-	25mm Radial
WIND SPEED	SURVIVAL	-	-	220 Km/h
	OPERATION	-	-	160 Km/h

MT-30093

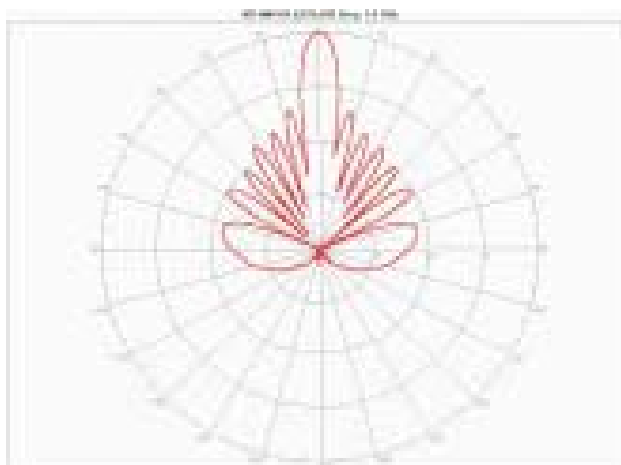
3.3-3.8 GHz 24dBi Subscriber Antenna

Dimensions [mm]



Azimuth Radiation Pattern

Midband Freq. 3.5 GHz



Elevation Radiation Pattern

Midband Freq. 3.5 GHz

