Permissive Change Class 1 Description for additional antennas in conjunction with the WLAN access points identified by FCCID: U99BAT54C and IC Code: 4019A-BAT54C.

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Date:	02-September-2010
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The initial approval for U99BAT54C / 4019A-BAT54C was granted on 08th January 2009, and respectively on 13th January 2009. Antennas approved at that time are listed in the column “previously certified antennas” in table 1. Additionally added antennas that correspond to the previously certified antennas are listed in the column “additional antennas” in table 1.

This document is to show the differences between already certified antennas and newly added antennas.

	Gain in dBi per frequency band in MHz				Gain in dBi per frequency band in MHz			
Previously certified antennas (initial approval)	2400,0	5150-5350	5350-5875	Additional antennas	2400	5150-5350	5350-5875	Antenna Type
BAT-ANT-N-8G	8,0			**BAT-ANT-N-6G-IP65**	6,0			2,4GHz omnidirectional
BAT-ANT-N-14G	14,0			**BAT-ANT-N-14G-IP23**	14,0			2,4GHz directional
BAT-ANT-TNC-8b/g DS	8,5			**BAT-ANT-N-8G-DS-IP65**	8.0			2,4GHz diversity sector

Table 1: comparism chart of previously certified antennas and additional antennas.

According to the permissive change poliy “*178919 D01 Permissive Change Policy v04r04*” (see appendix of this document) equivalent antennas may be substitued and then marketet without a Class II permissive change. Equivalent antennas are defined to be of the same type, using equal or less gain then antennas previously authorized and must have similar in band and out of band characteristic. The following comparism of antenna data sheets shows that these requirements are met with the “additional antennas” (Table.1) of this report. Marketing without a Class II permissive change is permited.

Antenna Comparism Data

Previously approved Antenna

Omni-Directional Antenna for 2.4 GHz

BAT- ANT- 8G

Order Number: 943 903 401

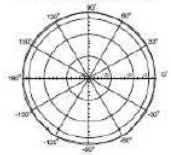
Electrical Specification

Frequency range	2400 MHz - 2500 MHz
Gain	8.0 dBi
VSWR	2.0 : 1 Max.
Polarization	Linear, vertical
HPBW /	horizontal 360°
HPBW /	vertical 15°
Down tilt	0°
Power handling	10 W (CW)
Impedance	50 Ω
Connector	N female

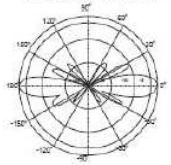
Environmental & Mechanical Characteristics

Survival wind speed	216 km/h
Temperature	– 40°C to +80°C
Humidity	95% @ 55° C
Lightning protection DC ground	
Radome color	Gray-white
Radome material	Fiber glass
Weight	0.34kg
Dimensions	78 x 80 520 mm
IP	IP65

H-plane Co-polarization Pattern



V-plane Co-polarization Pattern



Cable

1m with N connectors at both sides.

Attenuation at 2.4 GHz	0.7dB
Pigtail Reverse-SMA to N	0,5dB

Waterproof Tape

Usable system for BAT54M, BAT54 and BAT54-Rail.
For outdoor installation, BAT Surge Arrestor is required. This requires a second cable.
Please also refer to the Outdoor Antenna Installation Guide.

Corresponding Antenna

Omni-Directional Antenna for 2.4 GHz

BAT-ANT-N-6G-IP65

Order Number: 943 981-002

Electrical Specification

Frequency range	2400 MHz - 2500 MHz
Gain	6.0 dBi
VSWR	< 1,8
Polarization	Linear, vertical
HPBW /	horizontal 360°
Down tilt	0°
Max. Power	25 W
Impedance	50 Ω
Connector	N female
Lightning Protection	DC grounded

Environmental & Mechanical Characteristics

Temperature	– 40°C to +80°C
Lightning protection	DC ground
Radome color	Grey-white
Radome material	Fiber glass
Weight	0.34kg
Dimensions	Ø22 x 250 mm
IP	IP65

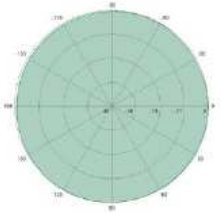
Cable, Accessories

1m with N male connectors at both ends.
Pigtail, R-SMA male to N female
Mounting material

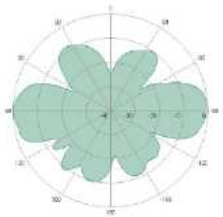
Purpose

To be placed in the middle of the illuminated area. Halls or outdoor areas.

Radiation Pattern



horizontal



vertical

Antenna Comparism Data

Previously approved Antenna

Directional Antenna linear for 2.4 GHz

BAT- ANT- N-14G

Order Number: 943 903 380

Electrical Properties

Frequency range	2300 - 2500 MHz
Impedance	50 Ω
VSWR	1.5
Polarization	vertical
Gain	14 dBi
3 dB beamwidth horizontal	35°
3 dB beamwidth vertical	30°
Downtilt	0°
Front to back ratio	20 dB
Max. power	75 W (CW) at 25°C
Connector	N female

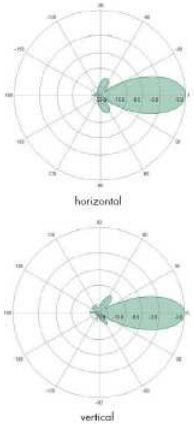
Environmental & Mechanical Characteristics

Cable

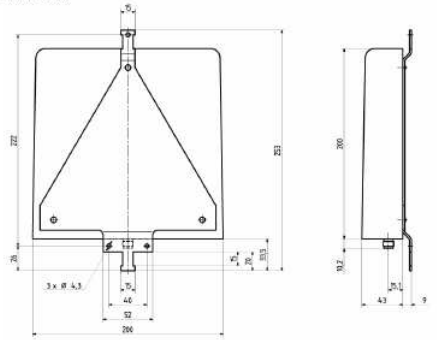
2m with N connectors and RPSMA-Plug.

Attenuation at 5.8 GHz	1dB
Pigtail Reverse-SMA to N	0,5dB

Radiation Pattern



Dimensions (mm)



Usable system for BAT54M, BAT54 and BAT54-Rail.
For outdoor installation, BAT Surge Arrestor is required. This requires a second cable.
Please also refer to the Outdoor Antenna Installation Guide.

Corresponding Antenna

Directional Antenna linear for 2.4 GHz

BAT- ANT- N-14G-IP23

Order Number: 943 981 005

Electrical Properties

Frequency range	2300 - 2500 MHz
Impedance	50 Ω
VSWR	1.5
Polarization	vertical
Gain	14 dBi
3 dB beamwidth horizontal	35°
3 dB beamwidth vertical	30°
Downtilt	0°
Front to back ratio	20 dB
Max. power	75 W (CW) at 25°C
Connector	N female

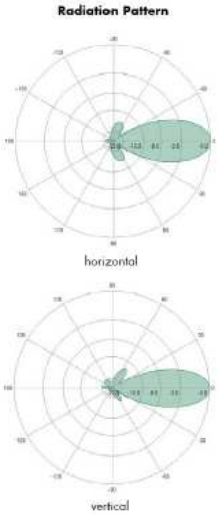
Mechanical Properties

Dimensions	101 x 80 x 35 mm
Weight	0.11 kg
Radome material	LEXAN EXL 9330
Radome color	RAL 7044 (silk gray)
Operating temperature range	- 40°C to + 80°C
Storage temperature range	- 40°C to + 80°C
Windload	15 N at 160km/h
IP	66 / 67

Cable, Accessories

1m with N male connectors at both ends.
Pigtail, R-SMA male to N female
Mounting material

Radiation Pattern



Antenna Comparism Data

Previously approved Antenna

Directional Diversity Antenna linear for 2.4 GHz

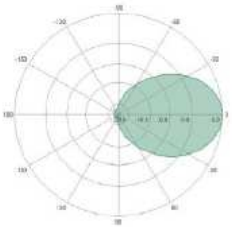
BAT- ANT- TNC- 8b/g DS

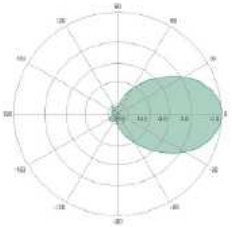
Order Number: 943 903 310

Electrical Properties

Frequency range	2300 - 2500 MHz
Impedance	50 Ω
VSWR	1.5
Polarization	dual linear, ± 45° slant
Gain	8.5 dBi
3 dB beamwidth horizontal	80°
3 dB beamwidth vertical	70°
Downtilt	0°
Isolation between ports	30 dB
Front to back ratio	18 dB
Max. power	75 W (CW) at 25°C
Connector	TNC female

Radiation Pattern





Mechanical Properties

Dimensions	101 x 95 x 32 mm (3.98" x 3.74" x 1.26")
Weight	0.11 kg (0.24 lbs.)
Housing material	ASA and aluminium
Radome material	ASA
Radome color	RAL 7035 (light grey)
Mounting bracket color	RAL 7042 (dark grey)
Operating temperature range	- 40°C to + 80°C
Storage temperature range	- 40°C to + 80°C
Windload	15 N at 160km/h (100mph)
IP	55

2 Cables

2m with TNC connectors and RPSMA-Plug.
Attenuation at 2.4 GHz 1 dB

Usable system for BAT54-Rail.
For outdoor installation, BAT Surge Arrestor is required. This requires a second cable.
Please also refer to the Outdoor Antenna Installation Guide.

Corresponding Antenna

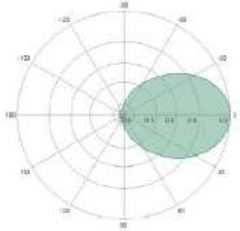
Diversity Sector Antenna for 2.4 GHz

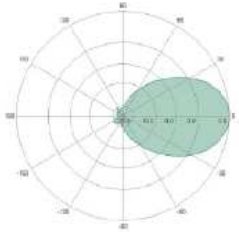
BAT-ANT-N-8G-DS-IP65

Order Number: 943 981-009

Electrical Properties

Frequency range	2400 - 2485 MHz
Impedance	50 Ω
VSWR	1.5
Polarization	dual linear, ± 45° slant
Gain	8 dBi
3 dB beamwidth horizontal	75°
3 dB beamwidth vertical	70°
Downtilt	0°
Isolation between ports	25 dB
Front to back ratio	14 dB
Max. power	10 W (CW) at 25°C
Connectors	2x N female





Mechanical Properties

Dimensions	101 x 80 x 35 mm
Weight	0.11 kg
Radome material	LEXAN EXL 9330
Radome color	RAL 7044 (silk gray)
Operating temperature range	- 40°C to + 80°C
Storage temperature range	- 40°C to + 80°C
Windload	15 N at 160km/h
IP	66 / 67

Cable, Accessories

2x 1m with N male connectors at both ends.
2x Pigtail, R-SMA male to N female
Mounting material

Very well usable with BAT300