



Assessment of Compliance

with

**Respect to FCC Rules and Regulations Part 15.247, 15.205, and
15.207: Direct Sequence Spread Spectrum System**

Access Point 300 Model S-AP-300

FleetMind Solutions



June 2005

APREL Project No.: FMSB-Access Point-5164

51 Spectrum Way Nepean ON K2R 1E6
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Engineering Report

Subject: Assessment of Compliance in accordance with the
FCC Rules & Regulations Part 15.247, 15.205, 15.207
15.209: Direct Sequence Spread Spectrum System

FCC ID: QVJSAP300

Equipment: Access Point 300

Model: S-AP-300

Client: FleetMind Solutions
455 Fenelon, Suite 110
Dorval, Quebec, H9S 5T8

Project #: FMSB-Access Point-3944

Prepared By: APREL Laboratories,
Regulatory Compliance Division
51 Spectrum Way
Nepean, Ontario

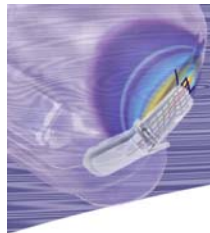
K2R 1E6

Author: Jay Sarkar Date: June 27, 2005
Jay Sarkar
Director, Standards & Certification

Approved by: Jay Sarkar Date: Jun 27, 2005
Jay Sarkar
Director, Standards & Certification

Released by: J.J. Wojcik Date: June 27/05
Dr. J.J. Wojcik, P.Eng.





Introduction

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

CERTIFICATE OF COMPLIANCE

<u>Applicant name and address</u>	<u>Date and Location of Testing</u>
FleetMind Solutions 455 Fenelon, Suite 110 Dorval, Quebec, H9S 5T8	Date: June 2005 Project No. : FMSB-ACCESS POINT-3944 Test Location: APREL Laboratories, Nepean, ON CANADA

FCC ID: QVJSAP300

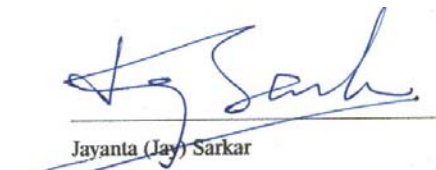
APPLICANT: FleetMind Solutions

Class II Permissive Change

Equipment Type:	Access Point 300, Wireless Modem
Model(s):	S-AP-300
FCC Rule Parts:	§ 15.247; 15.205, 15.207, 15.209
Classification:	Spread Spectrum Transceiver (DSS)
Method/System:	Direct Sequence Spread Spectrum System (DSSSS)
Max. Peak OutputRF Power:	115 mW 20.6 dBm (Conducted)
RF Band:	902-928 MHz conducted

This equipment has been shown to be capable of compliance with applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C-63-4.

I attest to the accuracy of the data. All measurements reported were carried out under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the compliance of these measurements and vouch for the qualifications of the persons taking them. This relates only to the sample tested.


Jayanta (Jay) Sarkar
Technical Director, Standards & Certification

FMSB-Access Point-5164

Introduction

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

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Test Results, Power Lines (Receive Mode) Conducted Emissions: Appendix B

Introduction

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Standard: FCC Rules and Regulations Parts 15.247, 15.205, 15.207, 15.209

ENGINEERING SUMMARY

This report contains the measurement results of the engineering evaluation performed on a **FleetMind Access Point 300, henceforth referred to as the Device Under Investigation (DUI)**. The measurements were carried out in accordance with the FCC Rules and Regulations Parts 15.247, 15.205, 15.207, 15.209. The product was evaluated when it was set at the maximum power.

The DUI was evaluated for Class II Permissive Change

The FleetMind Access Point 300 is a Direct Sequence Spread Spectrum System operating at 902-928 MHz band. The unit was tested at frequencies 906 MHz (L), 915 MHz (M), 924 MHz (H) and continuous mode.

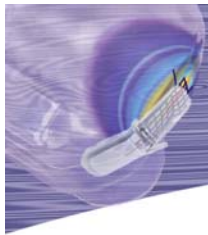
Two different antennas were tested with the DUI for Restricted Bands. Test data for each antenna is presented in this report.

The DUI was evaluated and the measurement results are presented in this report.

The results presented in this report relate only to the sample tested.

Compliance Summary

Test Description	Section	Compliance Summary Pass/Fail
Power lines Conducted Emissions Ref Paragraph FCC Part 15.207	A	Pass
Maximum Peak Output Power Ref Paragraph FCC Part 15.247 (b)	C	Pass
Antenna Requirements Ref Paragraph FCC Part 15.247(d)	E	Pass
Radiated Emissions Spurious Ref Paragraph FCC Part 15.247	F	Pass
Restricted Bands Ref Paragraph FCC Part 15.205	F	Pass



Introduction

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

INTRODUCTION

General

This report describes the results of the Compliance test under FCC Part 15.247, 15.205, 15.207, 15.209 conducted on a FleetMind Access Point Wireless Modem, Model S-AP-300.

Measurement Facility

The evaluation for compliance was performed for FleetMind. by APREL Laboratories at APREL's EMI facility located in Nepean, Ontario, Canada. The laboratory operates an (3m and 10m) Open Area Test Site (OATS). The measurement facility is calibrated in accordance with ANSI C63.4-1992.

A description of the measurement facility in accordance with the radiated and AC line conducted test site criteria per ANSI C63.4-1992 is on file with the Federal Communications Commission and is in compliance with the requirements of Section 2.948 of the Commissions rules and regulations. **APREL's registration number is: 90416**

APREL is accredited by Standard Council of Canada ISO 17025..

Standard

The evaluation and analysis were conducted in accordance with FCC Rules and Regulations Parts 15.247, 15.205, 15.207, 15.209.

Report: This report was written by Jay Sarkar, Technical Director, Standards and Certification. Tests were performed by J. Lokaj.

Test Equipment

The test equipment used during the evaluation is listed in Appendix A with calibration due dates.

Environmental Conditions

- Temperature: 25 °C ± 2
- Relative Humidity: 30 - 50 %
- Air Pressure: 101 kPa ± 3

Introduction

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Product Information

Equipment Description

The Device Under Investigation (DUI) is the FleetMind Access Point, Wireless Modem, Direct Sequence Spread Spectrum System.

Frequency Range: 902 MHz - 928 MHz

Channels: 4 full channels (7 half channels)

Channel Separation: 3 MHz

Spread Spectrum Method: Direct Sequence

Max RF Peak Power Output: conducted 115 mW(20.6 dBm) (Highest ERP 21.7 dBm)

Antennas: Centurion, Dualband MicroBlade, MAF 90007
880-960 MHz, Peak Gain (Max) 3.2 dBi

Sinclair, Ground Plane Omni antenna SG401-SF2SNM
890-960 MHz, Gain 2.1 dBi

Ports/Connector(s): N/A

Frequencies evaluated 906 MHz (Low)
915 MHz (Median)
924 MHz (High)

Introduction

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

FCC SUBMISSION INFORMATION

FCC ID: QVJSAP300

Equipment, (Type): **Access Point 300(Direct Sequence Spread Spectrum System) 902 MHz - 928 MHz RF Band**
As marketed

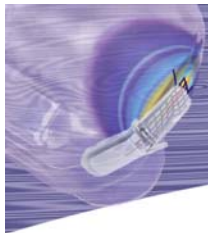
Model: **S-AP-300**

For: **Class II Permissive Change**

Complies to: **FCC Rules Part 15.247, 15.205, 15.207, 15.209, 15.109, 15.107**

Applicant: **FleetMind Solutions
455 Fenelon, Suite 110
Dorval, Quebec, H9S 5T8**

Evaluated by: **APREL Laboratories
51 Spectrum Way
Nepean, Ontario
Canada K2R 1E6**



Introduction

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

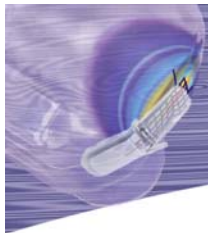
Test Description

And

Measurement Results

Access Point 300, S-AP-300

FLEETMIND



Introduction

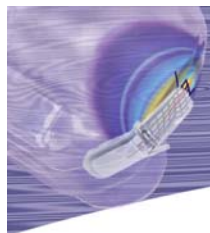
FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Section A

Test: Power Lines (Transmitter AC Wireline) Conducted Emissions



Test: Power Lines (Transmitter AC Wireline) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Reference: FCC Part 15.207/Industry Canada RSS 210, 6.6 (a)

Criteria: For an intentional radiator, which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits shown in the following table. Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

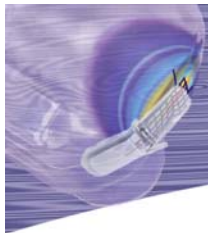
Condition: Conducted Test

Set-up: Test setup from Figure a1 was used.

Equipment: See Appendix A

Methodology: See page 3

Frequency of Emissions (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the Frequency		



Test: Power Lines (Transmitter AC Wireline) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

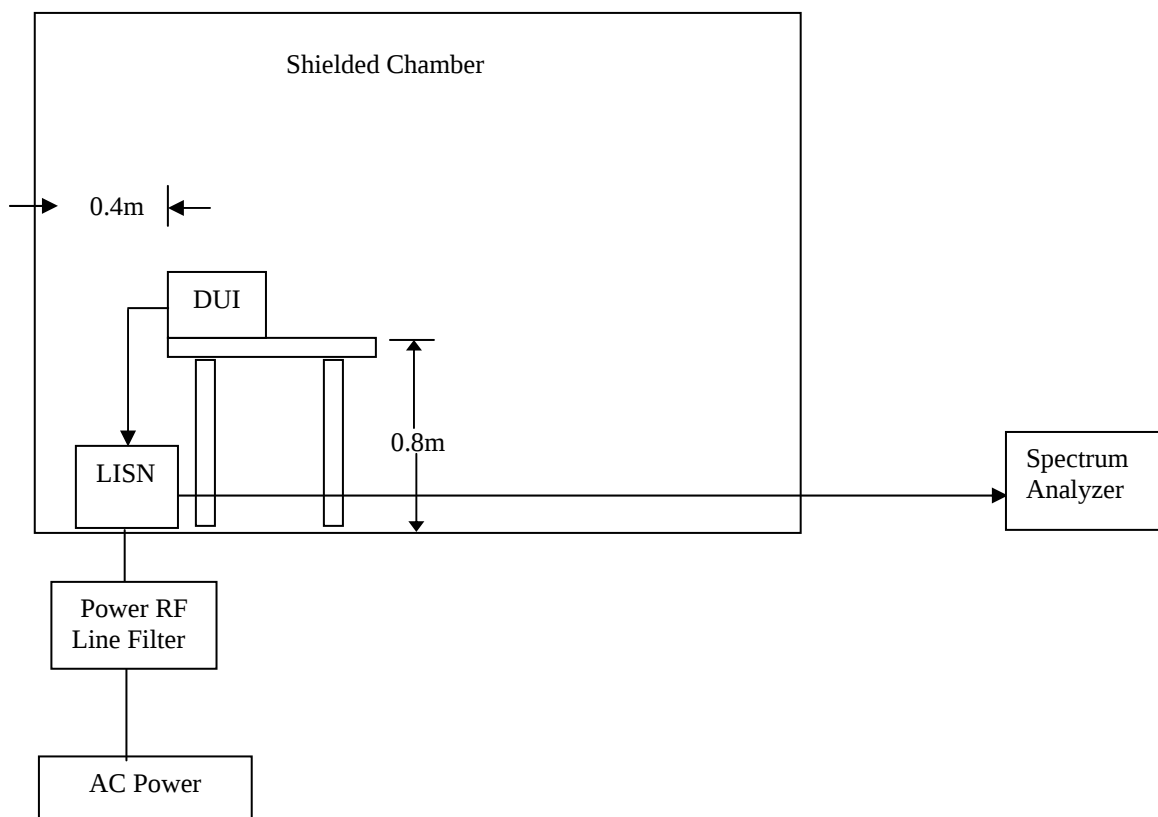
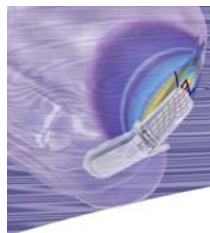


Figure a1: Conducted Emissions on Power Lines - Testing Setup



Test: Power Lines (Transmitter AC Wireline) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Methodology:

Measurement of conducted emissions was carried out according to the description of ANSI C63.4-1992 paragraph 7.2, TableTop Equipment, Sec. 6.2.1.

Conducted power-line measurements were made over the frequency range from 150 kHz to 30 MHz, to determine the line-to-ground radio noise voltage that is conducted from the unit power line-input terminals that are directly (or indirectly via separate transformers power supplies) connected to a public power network.

The power-input leads of the wall mount power supply were connected to the Line Impedance Stabilization Network (LISN) using the 50 ohms/50 micro henry CISPR network. The LISN and the Unit were connected and positioned as shown in Figure 1.

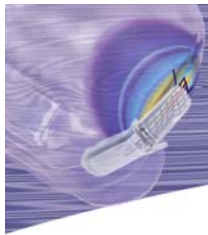
Measurements were performed using the spectrum analyzer with quasi-peak and average function and 9kHz resolution bandwidth. Specific peaks were measured from the continuous plots.

The rear of the unit and peripherals were aligned and flush with the rear of the tabletop. The rear of the tabletop was 40 cm removed from the vertical conducting (shielded room) wall.

In order to find out the maximum emission, the preliminary test and a final test were performed.

The preliminary investigation was performed through the whole specified frequency range of 150kHz – 30MHz in a single scan, to investigate the frequency of the emission that has the highest amplitude relative to the limits within normal operating modes, cable positions, and a typical system configuration.

The specified frequency range was then divided into several sub-divisions having narrow span in which frequencies and the levels of the interfering signals could be observed more accurately. Changing the typical cable positions or cable manipulation under the typical system configuration maximized the maximum emission in the each sub-divided frequency band. The level and the frequencies at the points, which were



Test: Power Lines (Transmitter AC Wireline) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

regarded as relatively high emission in the sub-band, was measured and recorded. This step was repeated for all sub bands.

Based on the collected results, and the operation mode produced the maximum emission was selected and recorded in the report.

Note: The tests Power lines Conducted Emissions were performed using both power supplies as shown in tables 1-8. Although, the user can use either 24 V or 12 V power supply, power delivered to the RF circuitry is internally regulated and limited to 5 V only, as such RF test results presented are from a single power supply. Spot checks were made using different power supply and RF test data showed no differences.

Test Results:

Test Data is tabulated in Tables 1 to 8. Only the highest measured values are presented in each table. Plots are shown in Graphs 1 to 14.

Test: Power Lines (Transmitter AC Wireline) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

TABLE 1
CONDUCTED R.F. EMISSION LEVELS
 24 Volts, Line: LIVE, Detection: Quasi-Peak
 Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.443	42.6	134.9	57.0	708	14.4
0.150	51.1	358.9	66.0	1995	14.9
0.679	34.9	55.6	56.0	631	21.1
0.971	31.5	37.6	56.0	631	24.5
9.818	31.3	36.7	60.0	1000	28.7
2.183	24.0	15.8	56.0	631	32.0
14.423	27.5	23.7	60.0	1000	32.5
1.214	23.4	14.8	56.0	631	32.6
1.041	23.1	14.3	56.0	631	32.9

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Test: Power Lines (Transmitter AC Wireline) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Table 2

CONDUCTED R.F. EMISSION LEVELS

24 Volts, Line: LIVE, Detection: Average

Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.970	27.7	24.3	56.0	631	28.3
9.818	27.1	22.6	60.0	1000	32.9
1.212	20.3	10.4	56.0	631	35.7
8.000	24.2	16.2	60.0	1000	35.8
2.182	18.7	8.6	56.0	631	37.3
14.420	22.2	12.9	60.0	1000	37.8
0.680	17.1	7.2	56.0	631	38.9
14.472	21.1	11.4	60.0	1000	38.9
5.091	20.2	10.2	60.0	1000	39.8

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Test: Power Lines (Transmitter AC Wireline) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Table 3
 CONDUCTED R.F. EMISSION LEVELS
 24 Volts, Line: NEUTRAL, Detection: Quasi-Peak
 Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.849	44.6	169.8	56.0	631	11.4
0.150	50.7	342.8	66.0	1995	15.3
0.409	37.8	77.6	57.7	764	19.9
0.970	32.0	39.8	56.0	631	24.0
0.728	31.6	38.0	56.0	631	24.4
0.652	30.5	33.5	56.0	631	25.5
1.213	25.6	19.1	56.0	631	30.4
2.062	25.6	19.1	56.0	631	30.4
2.182	24.9	17.6	56.0	631	31.1

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Test: Power Lines (Transmitter AC Wireline) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Table 4
CONDUCTED R.F. EMISSION LEVELS
 24 Volts, Line: NEUTRAL, Detection: Average
 Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.848	40.9	110.9	56.0	631	15.1
0.970	28.5	26.6	56.0	631	27.5
0.730	23.7	15.3	56.0	631	32.3
1.212	22.5	13.3	56.0	631	33.5
2.060	20.6	10.7	56.0	631	35.4
2.182	20.0	10.0	56.0	631	36.0
1.818	18.3	8.2	56.0	631	37.7
1.091	17.9	7.9	56.0	631	38.1
2.303	17.7	7.7	56.0	631	38.3

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Test: Power Lines (Transmitter AC Wireline) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Table 5
 CONDUCTED R.F. EMISSION LEVELS
 12 Volts, Line: LIVE, Detection: Quasi-Peak
 Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.598	36.2	64.6	56.0	631	19.8
0.150	40.0	100.0	66.0	1995	26.0
13.343	29.6	30.2	60.0	1000	30.4
2.063	23.5	15.0	56.0	631	32.5
9.575	25.3	18.4	60.0	1000	34.7
13.447	23.8	15.5	60.0	1000	36.2
25.333	23.7	15.3	60.0	1000	36.3
4.000	19.1	9.0	56.0	631	36.9
27.271	22.8	13.8	60.0	1000	37.2

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Test: Power Lines (Transmitter AC Wireline) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Table 6

CONDUCTED R.F. EMISSION LEVELS

12 Volts, Line: LIVE, Detection: Average

Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.607	20.9	11.1	56.0	631	35.1
13.447	23.8	15.5	60.0	1000	36.2
13.397	23.6	15.1	60.0	1000	36.4
13.342	23.4	14.8	60.0	1000	36.6
13.288	23.2	14.5	60.0	1000	36.8
13.657	22.8	13.8	60.0	1000	37.2
2.060	18.1	8.0	56.0	631	37.9
13.814	21.5	11.9	60.0	1000	38.5
9.576	20.1	10.1	60.0	1000	39.9

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Test: Power Lines (Transmitter AC Wireline) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

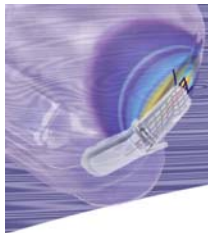
Product: Access Point 300, Model: S-AP-300

Table 7
CONDUCTED R.F. EMISSION LEVELS
 12 Volts, Line: NEUTRAL, Detection: Quasi-Peak
 Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.849	37.3	73.3	56.0	631	18.7
0.786	33.9	49.5	56.0	631	22.1
0.728	33.7	48.4	56.0	631	22.3
0.490	32.0	39.9	56.2	643	24.1
0.970	28.9	27.9	56.0	631	27.1
0.150	38.7	86.1	66.0	1995	27.3
1.213	23.5	15.0	56.0	631	32.5

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.



Test: Power Lines (Transmitter AC Wireline) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Table 8
CONDUCTED R.F. EMISSION LEVELS
12 Volts, Line: NEUTRAL, Detection: Average
Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.848	33.0	44.7	56.0	631	23.0
0.784	26.5	21.1	56.0	631	29.5
0.970	24.8	17.4	56.0	631	31.2
0.728	24.4	16.6	56.0	631	31.6
1.213	19.4	9.3	56.0	631	36.6
9.819	22.5	13.3	60.0	1000	37.5
13.553	22.2	12.9	60.0	1000	37.8
13.816	20.5	10.6	60.0	1000	39.5
1.453	15.7	6.1	56.0	631	40.3

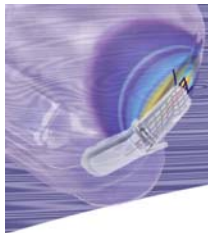
Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Tested by

date

June 1/05



Maximum Peak Power Output

FCC ID: QVJSAP300Client

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Section B

Test: Maximum Peak Power Output

Maximum Peak Power Output

FCC ID: QVJSAP300Client

Client: FleetMind Solutions

Product: Access Point 300, **Model:** S-AP-300

Ref.: FCC Part 15.247(b)(1)

Criteria: The maximum peak output power shall not exceed 1 watt (30 dBm). If directional transmitting antennas with a gain of more than 6 dB are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB.

Condition: Conducted Test

Procedure: The maximum peak output RF power was measured by conducted method. The DUI was configured to operate at maximum power and the antenna port was connected to the spectrum analyzer via cable. Tests were done for Low (906.0MHz), Medium (915.0MHz) and High (924.0MHz) channels. Results are shown in table c1.

The spectrum analyzer settings were adjusted as follows:

Resolution BW:	3 MHz
Video BW:	3 MHz
Span:	5.0 MHz
Reference Level:	30.0 dBm
Sweep Time:	20 ms
Attenuator:	50 dB
Detector Function	Peak

Equipment: See Appendix A.

Test Set-ups: See Figure No. c1.

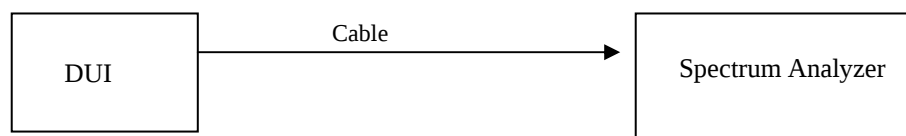


Figure c1: Test set up for the Conducted Power Measurement

Maximum Peak Power Output

FCC ID: QVJSAP300Client

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Test Results:

Table c1
Maximum Peak Output RF Power: Conducted

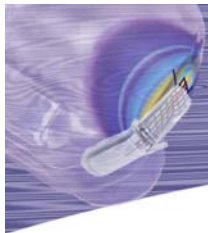
FREQ (MHz)	Channel	Measured Power (dBm)	Cable Loss (dB)	Output Power (dBm)	Output Power (mW)	Limit (dBm)	Margin (dB)	Pass/Fail
906.0	Low	20.1	0.5	20.6	115	30.0	9.4	Pass
915.0	Medium	19.7	0.5	20.2	105	30.0	9.8	Pass
924.0	High	18.9	0.5	19.4	87.1	30.0	10.6	Pass

Conclusion: Pass. Since the gains of the antennas specified by manufacturer do not exceed 6.0 dBi there was no need to reduce the output power.

ERP values:

	Centurion MicroBlade Antenna	Sinclair Ground Plane Omni Antenna
906MHz	21.7dBm	20.6dBm
915MHz	21.3dBm	20.2dBm
924MHz	20.5dBm	19.4dBm

Highest ERP 21.7 dBm



Maximum Peak Power Output

FCC ID: QVJSAP300Client

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Pictures of Test Set-up

Maximum Peak Power Output

FCC ID: QVJSAP300Client

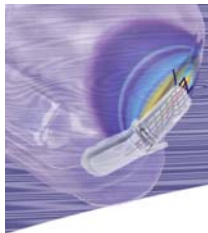
Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300



**FleetMind – Access Point
Maximum Peak Output RF Power Measurement (Conducted)**

FMSB-Access Point-5164



Antenna Requirements

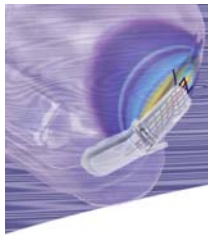
FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Section C

Antenna Requirements



Antenna Requirements

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, **Model:** S-AP-300

Ref.: FCC Part 15.203

Criteria: An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the applicant can be used with the device. The use of a permanently attached antenna or of an antenna that used a unique coupling to the intentional radiator shall be sufficient to comply with this requirement.

Result: The FleetMind Access Point 300 complies with the requirement of 15.203. Both antennas use unique coupling methods, the connector is located inside the box and the antenna cable is routed out of the box through a hole. Cable connector can not be accessed from outside. At the other end, the cable is permanently connected to the antenna. The box cover is attached with the base by 14 unique screws making it difficult to open.

Note: Two antennas were tested for this Class II Permissive Change application; but only one of which will be used in any given installation.

Antennas: Centurion, Dualband MicroBlade, MAF 90007
880-960 MHz, Peak Gain (Max) 3.2 dBi

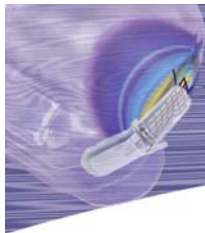
Sinclair, Ground Plane Omni antenna SG401-SF2SNM
890-960 MHz, Gain 2.1 dBi

Conclusion: The unit meets the Antenna requirements of 15.203

Condition: See Criteria

Set-up: N/A

Equipment: N/A



Antenna Requirements

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Specifications

Dualband MicroBlade™

Telematics Antenna - GSM & DCS

Part Number (P/N):

MAF90002

MAF90004

Specifications:

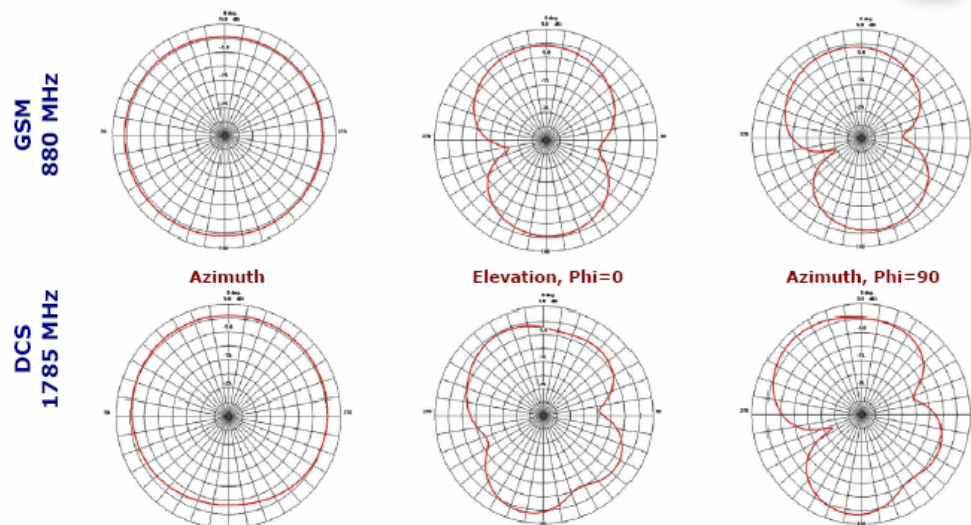
- Slim flexible design for easy integration into automotive vehicles
- Sleek durable housing for longer lifespan
- Great for data over voice applications

	GSM	DCS
Element Type	PCB	PCB
Frequency Ranges	880 - 960 MHz	1710 - 1880 MHz
Peak Gain (Max)	3.2 dBi	2.4 dBi
Polarization	Linear	
Impedance	50 ohms	
Input Power (Max)	10 watts	
VSWR (Min performance)	< 2.0:1	
Input Connection	Semi-rigid Cable	
Dimensions (L x W)	143 x 27 mm	
Cover	Polyolefin	



Cables & Connectors:

Part Number	Cable	Connector
MAF90002	3 m Black RG-174 Coax	SMA - Male
MAF90004	9' Black RG-174 Coax	Straight MCX Plug



Specifications subject to change without notice.

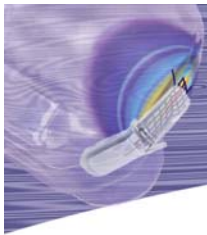
MicroBlade GSM.DCS 2 - 5/31/04



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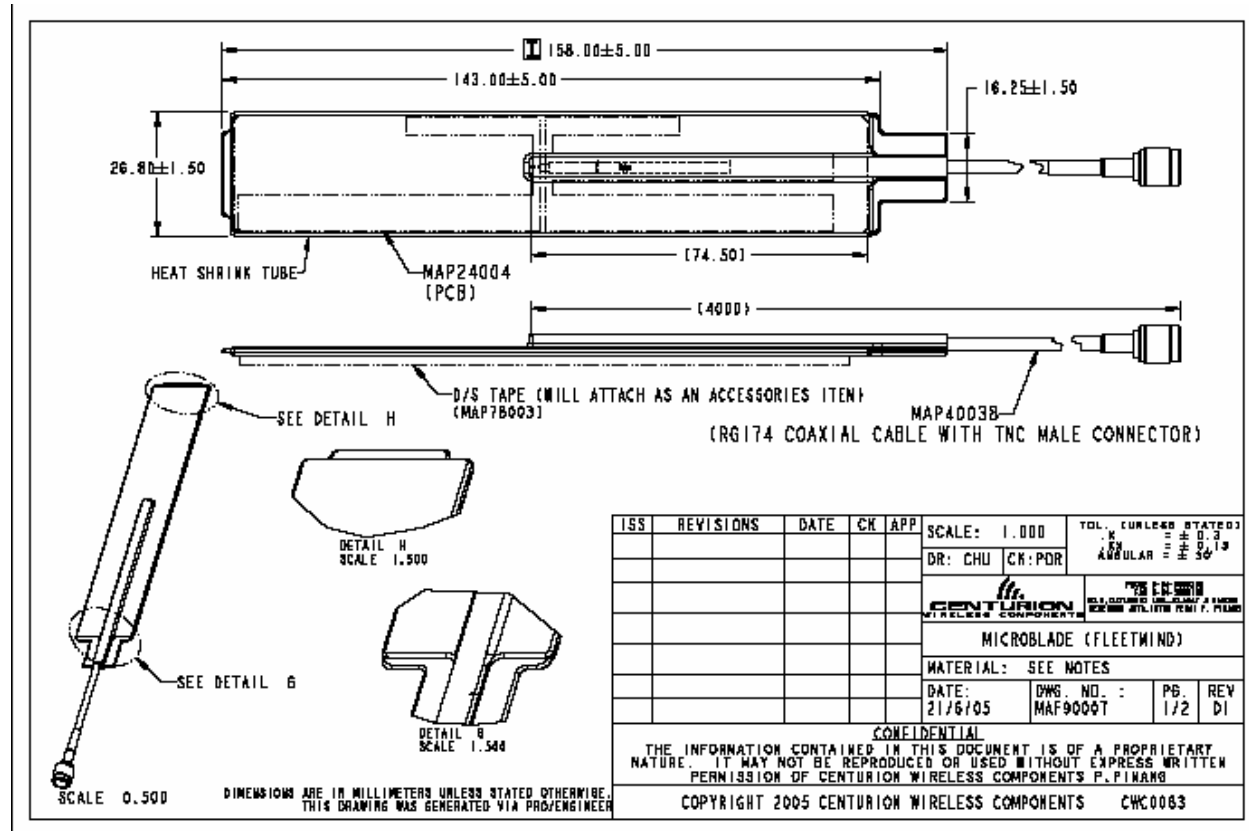


Antenna Requirements

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300



FMSB-Access Point-5164

Antenna Requirements

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

SINCLAIR

We have you covered.

Antennas - 700-1000 MHz Base Station

SG401 Series

SG401-SF2SNM

(SRL401NM*2)

Ground plane omni antenna, 0 dBd gain, 890-960 MHz

- Rugged construction, light weight and easy to install
- Can be stocked for reuse due to it's broad band
- 2 clamps provided

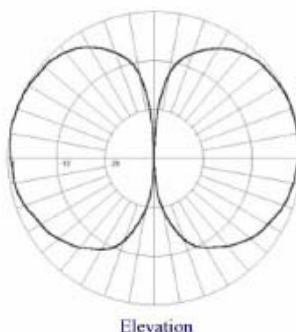


Electrical Specifications		
Frequency range	MHz	890 to 960
Gain	dBd (dBi)	unity (2.1)
Pattern		omnidirectional
Input VSWR (max)		1.5:1
Polarization		vertical
Horizontal beamwidth	degrees	360
Vertical beamwidth	degrees	80
Average power input (max)	W	100
Lightning protection		DC ground
Connector		N Male

Mechanical Specifications		
Height	in (mm)	21 (533)
Weight	lbs (kg)	1 (0.5)
Mounting hardware		Clamps supplied

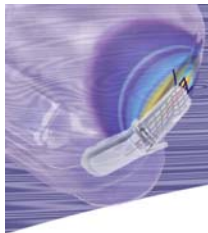
Environmental Specifications		
Survival wind velocity (no ice)	mph (km/h)	175 (282)
Survival wind velocity (1/2" radial ice)	mph (km/h)	140 (225)
Rated wind velocity (no ice)	mph (km/h)	150 (242)
Rated wind velocity (1/2" radial ice)	mph (km/h)	110 (177)
Lateral thrust (100mph)	lbs (N)	12.3 (54.7)
Temperature range	°F (°C)	-40 to +140 (-40 to +60)

Ordering Information
Specify frequency of operation.



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E-mail	salesusa@sinctech.com	salesuk@sinctech.com	salescan@sinctech.com



Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Section D

Test: Radiated Spurious Emissions & Restricted Bands

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, **Model:** S-AP-300

Ref.: FCC Part 15.247 (c), 15.205

Criteria: 1) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required.

2) **Restricted Bands:** In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Condition: Conducted & Radiated Tests

Set-up: See Figure 1 and figure 2

Equipment: See Appendix A

Methodology: 1) **RF Antenna Conducted Test:** The DUI was configured to operate at maximum power and with the frequency which has the highest emission level. The DUI antenna port was connected to the spectrum analyser via RF cable.

Set the spectrum analyser as following: RBW = 100KHz, VBW = 300KHz, scan up through 10th harmonic. Record observable harmonics and spurs.

2) **Tests for Restricted Bands:** The preliminary radiated emission measurement was performed according to the description of ANSI C63.4 – 1992 Sec.8.3.1.1 in a semi anechoic shielded room in order to determine the characteristic frequencies of the radiation and record all frequencies that fall into the restricted bands.

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Based on this information, measurements were performed in the open area test site at these characteristic frequencies. APREL Open Area Test Site is calibrated to ANSI C63.4-1992 and is filed with FCC. The test site is characteristically flat, free of reflecting structures. All reflecting objects, including test personnel, lie outside the perimeter of the ellipse (defined in ANSI C63.4-1992) or below the ground plane level. The horizontal and vertical site attenuation measurements are within ± 4 dB of the theoretical site attenuation of an ideal site. The DUI was placed on a turntable positioned 3 meters away from the receiving antenna, which in turn was connected to the spectrum analyzer. The DUI was operated in a manner that produced the highest emissions.

For each characteristic frequency, the received signal was maximized by appropriate positioning of the turntable and the height of the receiving antenna. The height of the antenna was adjusted between 1 m and 4 m in height above the ground plane. The turntable was rotated 360° from a remote control to maximize the emissions. The process was repeated for both horizontal and vertical polarization. All cables were arranged for maximum emission.

Radiated RF emission levels measured were identified as having been emitted by the DUI. Measurements were performed using the spectrum analyzer employing a CISPR quasi-peak detector function and 120 kHz bandwidth on frequencies from 30 MHz to 960 MHz, and for frequencies above 960 MHz employing an average detector function and 1 MHz resolution bandwidth. All measurements were performed at discrete frequencies.

Block Diagram:

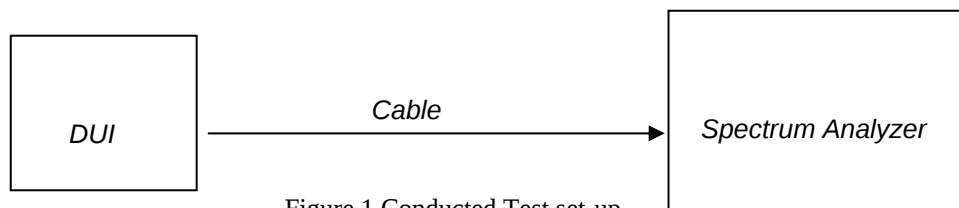
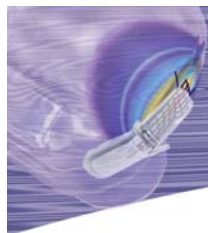


Figure 1 Conducted Test set-up



Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

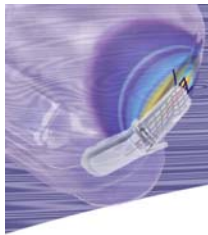
Table 1: Restricted Bands per §15.205

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	Above 38.6
13.36 - 13.41			

Table 2: Radiated Emission Limits per §15.209

Frequency (MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	(meters)
0.009 – 0.490	2400/F _(kHz)	20·log ₁₀ (2400/F _(kHz))	300
0.490 – 1.705	24000/F _(kHz)	20·log ₁₀ (24000/F _(kHz))	30
1.705 – 30.00	30	29.5	30
30.0 – 88.0	100	40.0	3
88.0 – 216.0	150	43.5	3
216 - 960	200	46.0	3
Above 960	500	54.0	3

Note: The emissions from an intentional radiator, which fall in the restricted bands as shown in table 1, shall not exceed the field strength levels specified in table 2.



Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

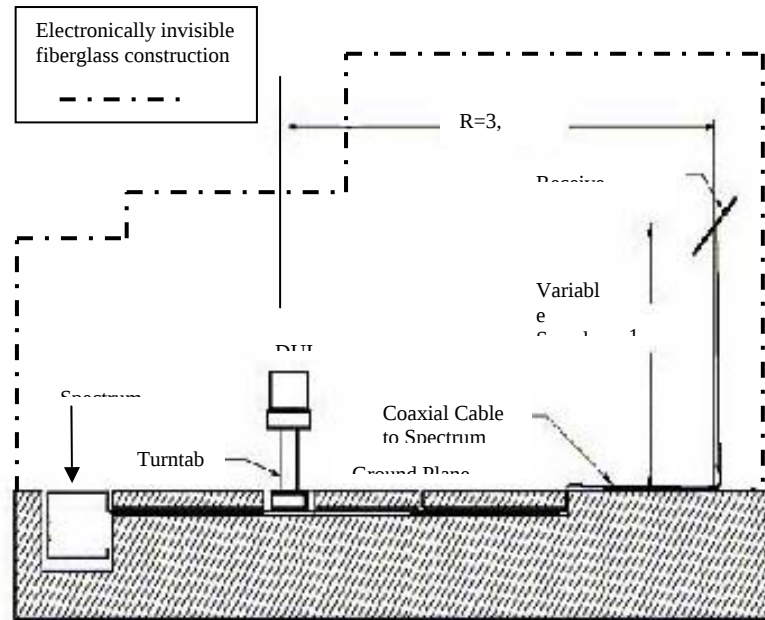


Figure 2.a: Test set up for the radiated emission measurement in OATS (not to



Figure 2.b: APREL Laboratories all season Open Area Test Site (OATS)

FMSB-Access Point-5164

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

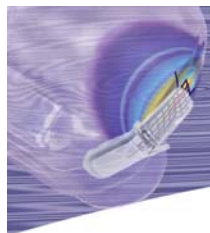
Test Results: Test data is tabulated in Tables 3 and 4

Table 3 RF Antenna Port Emissions: Conducted

Frequency: 915MHz (highest emissions)

Frequency (MHz)	Reading (dBm)	Cable Loss (dB)	Emissions (dBm)	Limit (dBm)	Margin (dB)
Harmonics					
915.0	14.4	2.0	16.4	Reference	
1830.0	-29.5	2.7	-26.8	-3.6	23.2
2745.0	-37.3	3.4	-33.9	-3.6	30.3
3660.0	-57.2	4.1	-53.1	-3.6	49.5
4575.0	-63.8	4.7	-59.1	-3.6	55.5
5490.0	-64.2	5.4	-58.8	-3.6	55.2
Spurious					
64.0	-55.6	0.7	-54.9	-3.6	51.3
72.0	-50.8	0.7	-50.1	-3.6	46.5
80.0	-55.1	0.7	-54.4	-3.6	50.8
104.0	-50.5	0.8	-49.7	-3.6	46.1
120.0	-47.1	0.9	-46.2	-3.6	42.6
136.0	-46.0	0.9	-45.1	-3.6	41.5
160.0	-48.9	1.0	-47.9	-3.6	44.3
168.0	-49.3	1.0	-48.3	-3.6	44.7
240.0	-41.0	1.1	-39.9	-3.6	36.3
248.0	-42.2	1.1	-41.1	-3.6	37.5
256.0	-45.0	1.1	-43.9	-3.6	40.3
272.0	-43.7	1.2	-42.5	-3.6	38.9
296.0	-43.2	1.2	-42.0	-3.6	38.4

Note: The limit for harmonics and spurious signals is 20 dB below the fundamental signal which is 16.4 dBm. Therefore the limit is $16.4 - 20.0 = -3.6$ dBm.



Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Table 4.a Restricted Bands Emissions

FleetMind – Access Point

Radiated Emissions from Transmitter

Frequency: 915MHz , Distance: 3.0 m

Polarization: Vertical

Frequency (MHz)	Reading (dBμV)	Correction (dB/m)	Field- strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
248.00	13.0	16.3	29.3	46.0	16.7
256.00	16.2	16.5	32.7	46.0	13.3
272.00	15.6	16.8	32.4	46.0	13.6
280.00	18.5	17.0	35.5	46.0	10.5

Table 4.b Restricted Bands Emissions

FleetMind – Access Point

Radiated Emissions from Transmitter

Frequency: 915MHz , Distance: 3.0 m

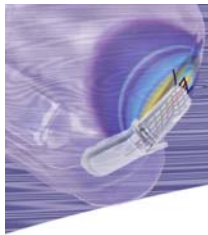
Polarization: Horizontal

Frequency (MHz)	Reading (dBμV)	Correction (dB/m)	Field- strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
248.00	15.3	16.3	31.6	46.0	14.4
256.00	15.4	16.5	31.9	46.0	14.1
272.00	17.6	16.8	34.4	46.0	11.6
280.00	20.5	17.0	37.5	46.0	8.5

Notes:

1. The spectrum was scanned from 9 kHz to 10th harmonic and the worst-case emissions are reported.
2. All conducted harmonics and spurious signals were at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz Resolution Bandwidth.

FMSB-Access Point-5164



Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

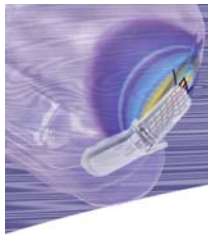
Client: FleetMind Solutions

Product: Access Point 300, **Model:** S-AP-300

3. All radiated spurious signals in the restricted bands specified in §15.205 were below the limits listed in Table 2.
4. There were no radiated fundamental signals and harmonics observed within the restricted bands specified in §15.205.
5. The band-edge requirements are not applicable.

Note: The tests for restricted bands were performed using both antennas; the delta between the two results obtained from the two antennas were negligible, as such only the results from one antenna is presented.

Conclusion: The unit complies with the requirements.



Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Pictures of Test Set-up

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300



FleetMind – Access Point (DUI)

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300



FleetMind – Access Point

**Spurious Emissions from Transmitter - Conducted
Frequency Range: 9KHz – 10GHz**

FMSB-Access Point-5164

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300



FleetMind – Access Point with Sinclair Ground plane omni antenna

Testing for Radiated Emissions from Transmitter

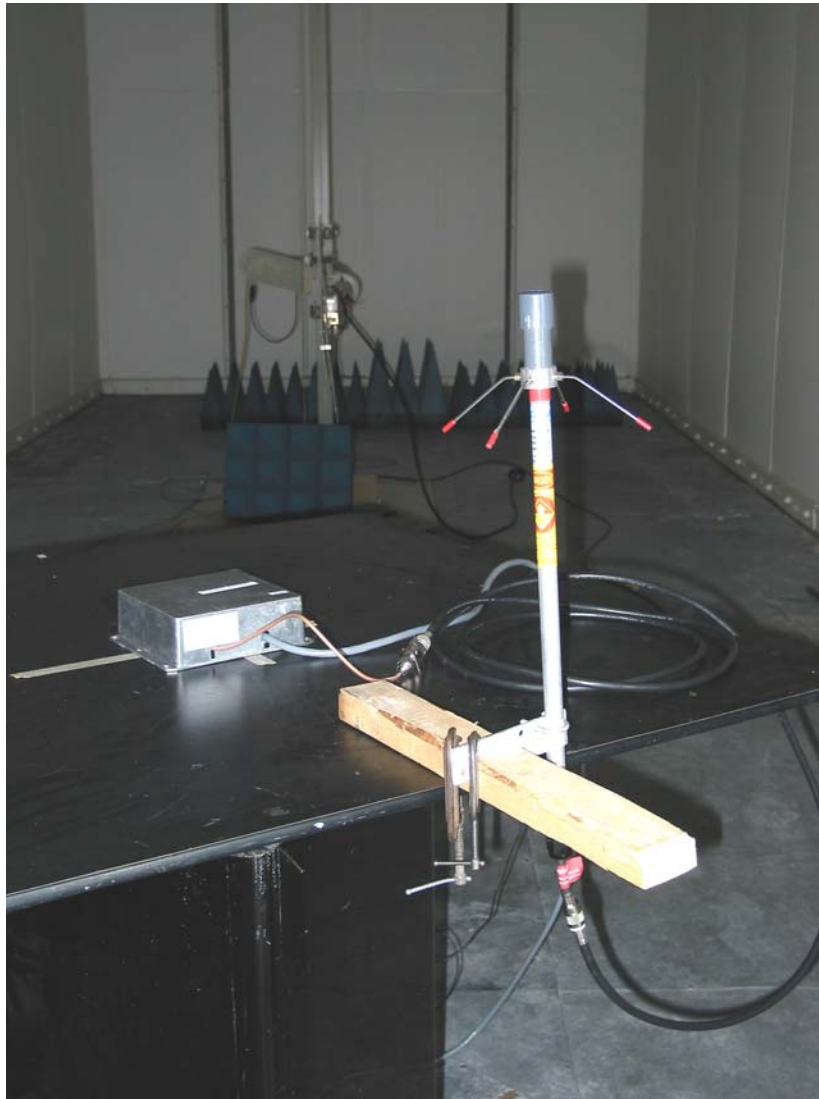
FMSB-Access Point-5164

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300



FleetMind – Access Point with Sinclair Ground plane omni antenna
Testing for Radiated Emissions from Transmitter

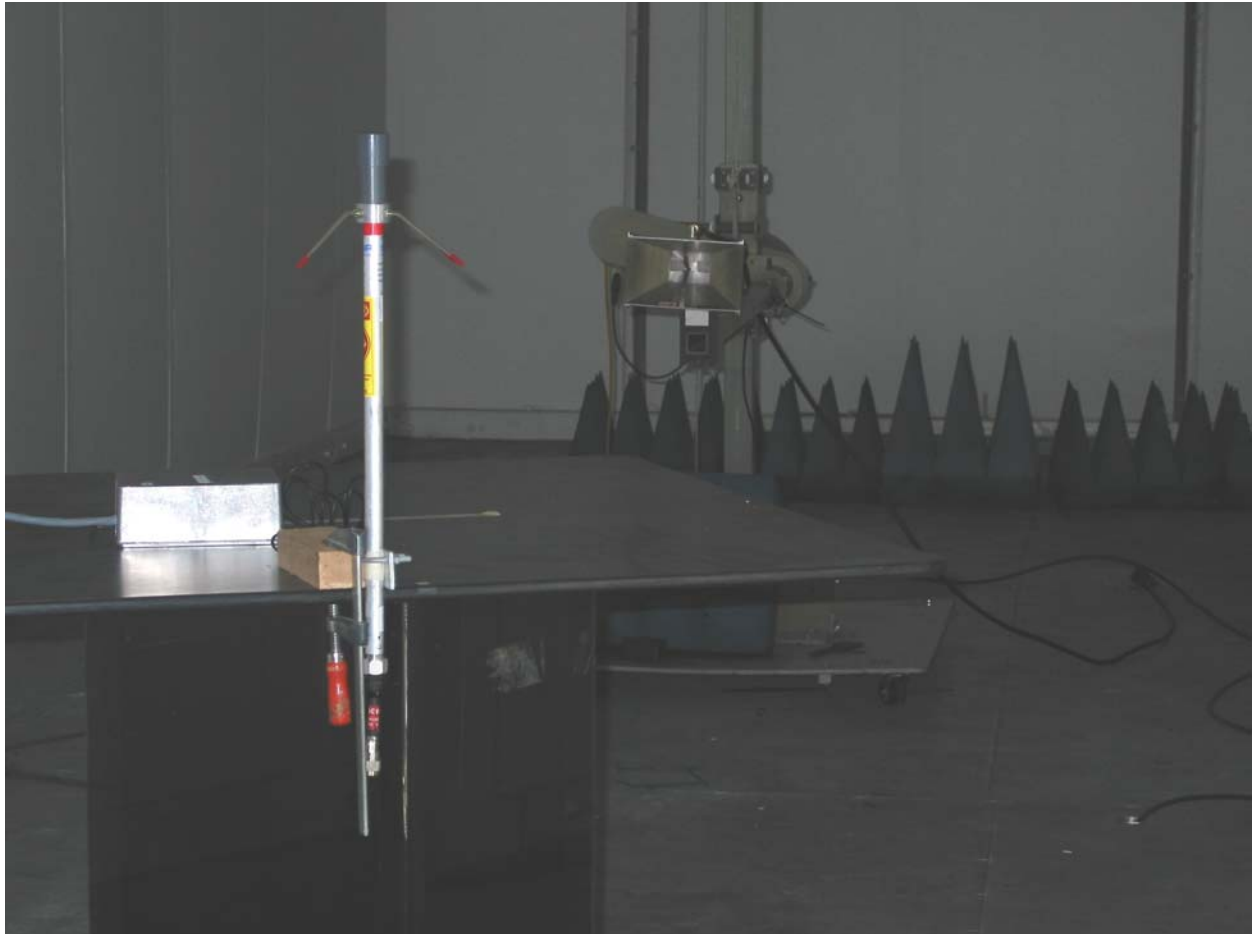
FMSB-Access Point-5164

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300



FleetMind – Access Point with Sinclair Ground plane omni antenna

Testing for Radiated Emissions from Transmitter

FMSB-Access Point-5164

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300



FleetMind – Access Point with Sinclair Ground plane omni antenna

Testing for Radiated Emissions from Transmitter

FMSB-Access Point-5164

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client FleetMind Solutions

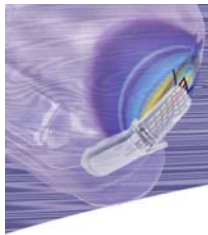
Product: Access Point 300, Model: S-AP-300



FleetMind – Access Point with Centurion MicroBlade Antenna MAF90002

Testing for Radiated Emissions from Transmitter

FMSB-Access Point-5164



Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300



FleetMind – Access Point with Centurion MicroBlade Antenna MAF90002

Testing for Radiated Emissions from Transmitter

FMSB-Access Point-5164

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client FleetMind Solutions

Product: Access Point 300, Model: S-AP-300



FleetMind – Access Point with Centurion MicroBlade Antenna MAF90002

Testing for Radiated Emissions from Transmitter

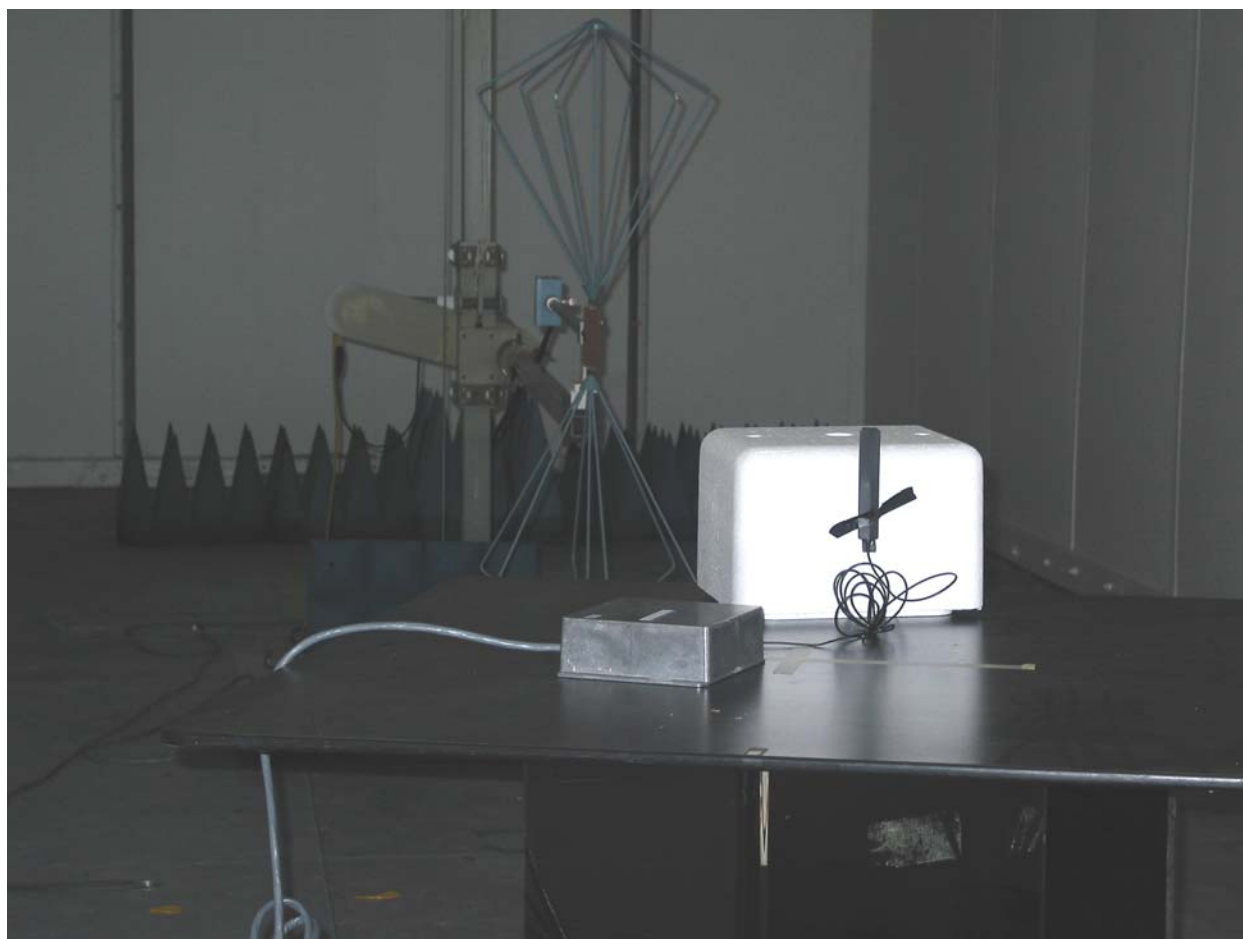
FMSB-Access Point-5164

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client FleetMind Solutions

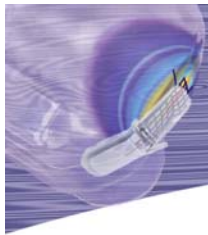
Product: Access Point 300, Model: S-AP-300



FleetMind – Access Point with Centurion MicroBlade Antenna MAF90002

Testing for Radiated Emissions from Transmitter

FMSB-Access Point-5164



Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Appendix A

List of Equipment

Radiated Spurious Emissions & Restricted Bands

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, **Model:** S-AP-300

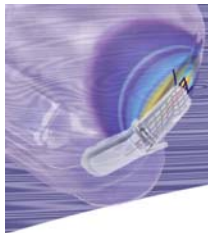
List of Equipment

Description	Range	Manufacturer	Model #	APREL Asset #	Cal. Due Date
Spectrum Analyzer	9 kHz - 3 GHz	Anritsu	MS2661C	301330	Sept. 11, 2005
Spectrum Analyzer	9 kHz - 30 GHz	Anritsu	MS2667C	301386	Sept.5, 2005
Biconical Antenna	20 MHz - 200 MHz	Eaton	94455-1	100890	July 18, 2005
Log - Periodic Antenna	200 MHz -1.0 GHz	Eaton	ALP-1	100063	July 31, 2005
Horn Antenna	1 – 18 GHz	APREL Inc.	AA – 118	100553	June 17, 2005
Anechoic Shielded Room	10 kHz - 10 GHz	APREL Inc.	–	301329	N/A
OATS	30 MHz – 1 GHz	APREL Inc.	3 m & 10 m	N/A	N/A
Mast with the Controller	1 m – 4 m	EMCO	1051 – 12	100507	N/A
Turntable with the Controller	0° - 360°	EMCO	1060 – 1.241	100506	N/A

Calibration verified by _____

date June 1/05

FMSB-Access Point-5164



Test: Power Lines (Receive Mode) Conducted Emissions

FCC ID: QVJSAP300

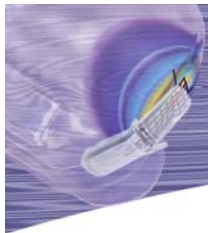
Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Appendix B

Test Results

Power Lines (Receive Mode) Conducted Emissions



Test: Power Lines (Receive Mode) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

Reference: FCC Part 15.107

There is virtually no difference between the results found between the transmit and receive mode.

Test: Power Lines (Receive Mode) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

FCC Part 15.107

TABLE 1

CONDUCTED R.F. EMISSION LEVELS
24 Volts, Line: LIVE, Detection: Quasi-Peak
Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.443	42.6	134.9	57.0	708	14.4
0.150	51.1	358.9	66.0	1995	14.9
0.679	34.9	55.6	56.0	631	21.1
0.971	31.5	37.6	56.0	631	24.5
9.818	31.3	36.7	60.0	1000	28.7
2.183	24.0	15.8	56.0	631	32.0
14.423	27.5	23.7	60.0	1000	32.5
1.214	23.4	14.8	56.0	631	32.6
1.041	23.1	14.3	56.0	631	32.9

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Test: Power Lines (Receive Mode) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

FCC Part 15.107

Table 2

CONDUCTED R.F. EMISSION LEVELS

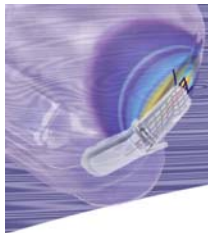
24 Volts, Line: LIVE, Detection: Average

Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.970	27.7	24.3	56.0	631	28.3
9.818	27.1	22.6	60.0	1000	32.9
1.212	20.3	10.4	56.0	631	35.7
8.000	24.2	16.2	60.0	1000	35.8
2.182	18.7	8.6	56.0	631	37.3
14.420	22.2	12.9	60.0	1000	37.8
0.680	17.1	7.2	56.0	631	38.9
14.472	21.1	11.4	60.0	1000	38.9
5.091	20.2	10.2	60.0	1000	39.8

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.



Test: Power Lines (Receive Mode) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

FCC Part 15.107

Table 3
CONDUCTED R.F. EMISSION LEVELS
24 Volts, Line: NEUTRAL, Detection: Quasi-Peak
Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.849	44.6	169.8	56.0	631	11.4
0.150	50.7	342.8	66.0	1995	15.3
0.409	37.8	77.6	57.7	764	19.9
0.970	32.0	39.8	56.0	631	24.0
0.728	31.6	38.0	56.0	631	24.4
0.652	30.5	33.5	56.0	631	25.5
1.213	25.6	19.1	56.0	631	30.4
2.062	25.6	19.1	56.0	631	30.4
2.182	24.9	17.6	56.0	631	31.1

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Test: Power Lines (Receive Mode) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

FCC Part 15.107

Table 4
CONDUCTED R.F. EMISSION LEVELS
24 Volts, Line: NEUTRAL, Detection: Average
Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.848	40.9	110.9	56.0	631	15.1
0.970	28.5	26.6	56.0	631	27.5
0.730	23.7	15.3	56.0	631	32.3
1.212	22.5	13.3	56.0	631	33.5
2.060	20.6	10.7	56.0	631	35.4
2.182	20.0	10.0	56.0	631	36.0
1.818	18.3	8.2	56.0	631	37.7
1.091	17.9	7.9	56.0	631	38.1
2.303	17.7	7.7	56.0	631	38.3

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Test: Power Lines (Receive Mode) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

FCC Part 15.107

Table 5
CONDUCTED R.F. EMISSION LEVELS
12 Volts, Line: LIVE, Detection: Quasi-Peak
Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.598	36.2	64.6	56.0	631	19.8
0.150	40.0	100.0	66.0	1995	26.0
13.343	29.6	30.2	60.0	1000	30.4
2.063	23.5	15.0	56.0	631	32.5
9.575	25.3	18.4	60.0	1000	34.7
13.447	23.8	15.5	60.0	1000	36.2
25.333	23.7	15.3	60.0	1000	36.3
4.000	19.1	9.0	56.0	631	36.9
27.271	22.8	13.8	60.0	1000	37.2

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Test: Power Lines (Receive Mode) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

FCC Part 15.107

Table 6

CONDUCTED R.F. EMISSION LEVELS

12 Volts, Line: LIVE, Detection: Average

Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.607	20.9	11.1	56.0	631	35.1
13.447	23.8	15.5	60.0	1000	36.2
13.397	23.6	15.1	60.0	1000	36.4
13.342	23.4	14.8	60.0	1000	36.6
13.288	23.2	14.5	60.0	1000	36.8
13.657	22.8	13.8	60.0	1000	37.2
2.060	18.1	8.0	56.0	631	37.9
13.814	21.5	11.9	60.0	1000	38.5
9.576	20.1	10.1	60.0	1000	39.9

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Test: Power Lines (Receive Mode) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

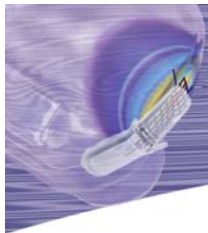
FCC Part 15.107

Table 7
CONDUCTED R.F. EMISSION LEVELS
12 Volts, Line: NEUTRAL, Detection: Quasi-Peak
Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.849	37.3	73.3	56.0	631	18.7
0.786	33.9	49.5	56.0	631	22.1
0.728	33.7	48.4	56.0	631	22.3
0.490	32.0	39.9	56.2	643	24.1
0.970	28.9	27.9	56.0	631	27.1
0.150	38.7	86.1	66.0	1995	27.3
1.213	23.5	15.0	56.0	631	32.5

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.



Test: Power Lines (Receive Mode) Conducted Emissions

FCC ID: QVJSAP300

Client: FleetMind Solutions

Product: Access Point 300, Model: S-AP-300

FCC Part 15.107

Table 8
CONDUCTED R.F. EMISSION LEVELS
12 Volts, Line: NEUTRAL, Detection: Average
Resolution Bandwidth: 9 kHz

Frequency (MHz)	Measured Level		Limit		Margin (dB) “C5”
	dBµV “C1”	µV	dBµV “C3”	µV	
0.848	33.0	44.7	56.0	631	23.0
0.784	26.5	21.1	56.0	631	29.5
0.970	24.8	17.4	56.0	631	31.2
0.728	24.4	16.6	56.0	631	31.6
1.213	19.4	9.3	56.0	631	36.6
9.819	22.5	13.3	60.0	1000	37.5
13.553	22.2	12.9	60.0	1000	37.8
13.816	20.5	10.6	60.0	1000	39.5
1.453	15.7	6.1	56.0	631	40.3

Margin C5 = C3-C1 in dB

All the above measurements were performed in the shielded room.

Tested by

date

June 1/05