



Transport
Canada

Transports
Canada

Subject: Marking of Meteorological Towers

Issuing Office:

PAA Sub Activity

Area:

File Classification

No.:

RDIMS No.:

Z 5000-34 U

6217088-V14

Document No.:

AC 600-001

Issue No.:

Effective Date:



TABLE OF CONTENTS

INTRODUCTION 3

Purpose3
 Applicability.....3
 Description of Changes.....3

REFERENCES AND REQUIREMENTS 3

Reference Documents.....3
 Cancelled Documents.....3
 Definitions and Abbreviations.....3

BACKGROUND 3

DISCUSSION 4

SUGGESTED MEANS FOR THE MARKING OF MET TOWERS 5

NEED FOR RECONNAISSANCE AND COMMUNICATION 5

CONTACT OFFICE 6

1.0 INTRODUCTION

This Advisory Circular (AC) is provided for information and guidance purposes. It may describe an example of an acceptable means, but not the only means, of demonstrating compliance with regulations and standards. This AC on its own does not change, create, amend or permit deviations from regulatory requirements, nor does it establish minimum standards.

1.01 Purpose

The purpose of this document is to provide guidance regarding the marking of meteorological towers (MET towers) as a means to give indication of their location to crop spraying aircraft.

1.02 Applicability

This document is intended for windfarm owners who may install MET towers and operators of crop spraying aircraft.

1.03 Description of Changes

Not applicable.

2.0 REFERENCES AND REQUIREMENTS

2.01 Reference Documents

It is intended that the following reference materials be used in conjunction with this document:

- (a) *Aeronautics Act*;
- (b) Part VI, Subpart 01 of the *Canadian Aviation Regulations (CARs) — Orders Regarding the Marking and Lighting of Hazards to Aviation Safety*;
- (c) Standard 621 of the CARs— *Standards, Obstruction Marking and Lighting*;
- (d) Transport Canada Publication (TP) 312, Edition 04, 1993-03 — *Aerodromes Standards and Recommended Practices (revised 03/2005)*;

2.02 Cancelled Documents

Not applicable.

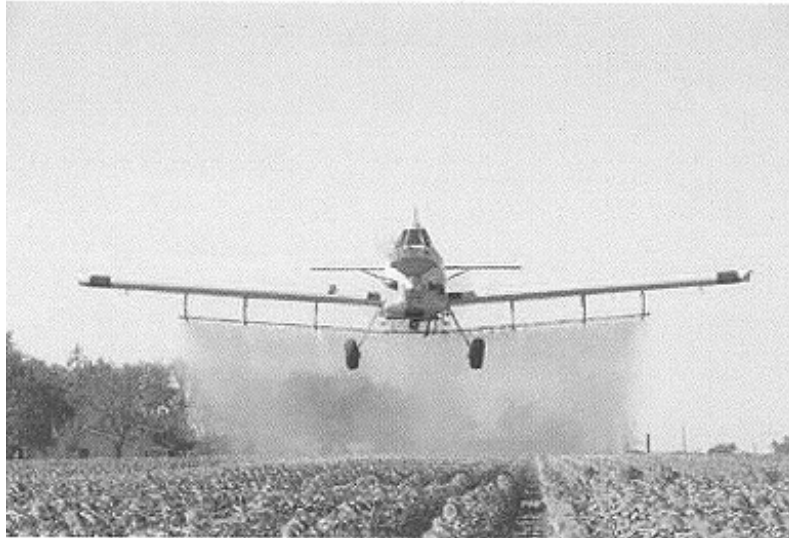
2.03 Definitions and Abbreviations

The following definitions and abbreviations are used in this document:

- (e) **MET Tower:** Meteorological Tower
- (f) **TCCA:** Transport Canada Civil Aviation

3.0 BACKGROUND

- (2) In the stage before actual construction of a windfarm it is common to install one or more MET towers to permit an analysis of the wind resource. Sometimes these MET towers are installed on or adjacent to farmland that may be subject to crop spraying. The following figure demonstrates crop spraying which is done at heights of 3 to 4m. The MET tower may also be made permanent so as to continue to monitor wind characteristics after completion of the windfarm.



- (3) Section 621.19 of the Standard provides standards for the marking and lighting of obstacles, but this is primarily with consideration of objects that are more than 90m in height and located near an aerodrome or recognized flight route.
- (4) MET towers are commonly not of a height or location as to directly necessitate marking and lighting. For the same reason they are not identified on aeronautical charts.
- (5) MET towers may pose a hazard, as they are difficult to discern.
- (6) Although section 621.19 of the Standard speaks of " any other obstruction" in paragraph 2.2 (e), it is not feasible for Transport Canada to regulate the application of marking and lighting of all objects that might be encountered by pilots who choose to engage in a specialized activity that involves flight very low to the ground. Most of these objects are of natural origin (e.g. trees). The MET tower, however, is a structure that is under the control of the windfarm company. In as much as there is control, it would seem both reasonable and prudent to apply marking because of the adverse impact the tower may have upon the known activity of crop spraying. Here we are considering only marking, since crop spraying does not occur at night.

4.0 DISCUSSION

- (7) MET towers are the most common means for measuring wind speed and direction at a site. The towers are made of tubular steel sections of approximately 20cm to 25cm diameter and generally installed to a height of 50m to 60m. They are secured by means of sets guy wires, which connect from the tower at several levels to anchors on the ground. The wind speed and direction are measured using anemometers for the wind speed, and wind vanes for the direction. The data is recorded and stored by a logger box at the bottom of the tower.
- (8) The following picture, representing MET tower amongst wind turbines, shows that the tubular structure of the MET tower [situated in the rectangle below], does not present a sufficient silhouette to be seen by pilots and can disappear from view, especially when viewed against the ground rather than the horizon.



Photo credit: National Agricultural Aviation Association (NAAA)

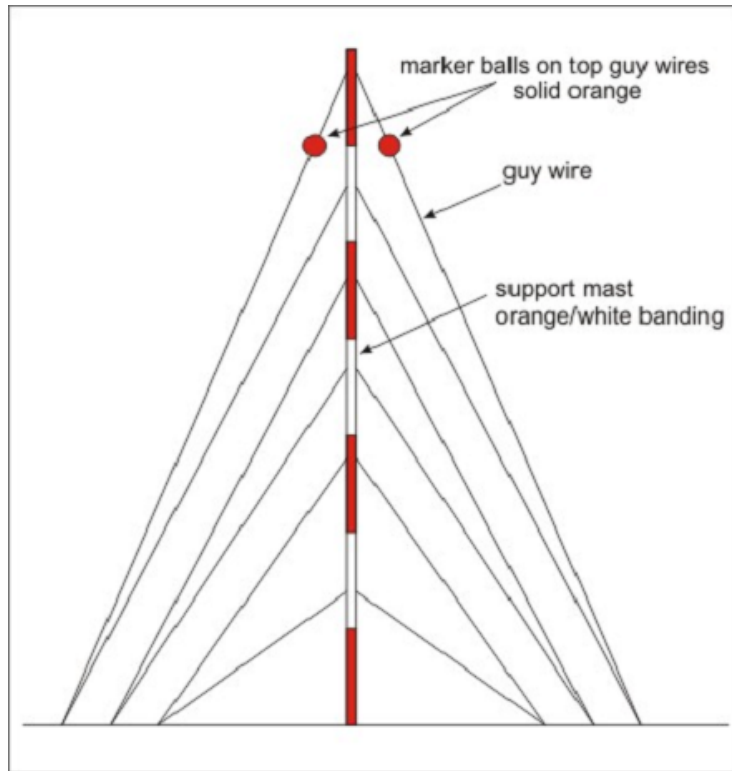
5.0 SUGGESTED MEANS FOR THE MARKING OF MET TOWERS

As illustrated in the following figure there are two elements to this suggested means for the marking of MET towers.

- (a) The tower itself would be marked in accordance to section 621.19 of the Standard with banding in orange and white or otherwise conspicuous colour combination; and
- (b) Marker balls are installed on the top guy wires.

6.0 NEED FOR RECONNAISSANCE AND COMMUNICATION

The marking of the MET tower is not a guarantee that it will always be seen given ambient lighting conditions. The application of marking should not be taken to obviate the need for a proper reconnaissance by the pilot of the area to be over flown and contact with the farmer to be informed of any new objects that may have been installed in or nearby the field to be sprayed.



7.0 CONTACT OFFICE

For more information, please contact the Airspace Standards and Procedures (AARTA);

Phone: 613-990-2100
Fax: 613-954-1602
E-mail: eduard.alf@tc.gc.ca

Suggestions for amendment to this document are invited, and should be submitted via to the Transport Canada Civil Aviation Issues Reporting System (CAIRS) at the following e-mail address: CAIRS_NCR@tc.gc.ca (or Internet address: <http://www.tc.gc.ca/CAIRS>).

[Original signed by]

Jacqueline Booth
A/Director, Standards
Civil Aviation
Transport Canada