
APPENDIX A

Standard Rain Rates

All types of radar are calibrated back to a standard dBz reflectivity scale.

A radar can only accurately measure reflectivity. Different forms of rainfall will produce different rain rates for the same dBz (reflectivity) power. The rain rates given in the following tables are a standard approximation only.

To differentiate between different radar types, a dBm to dBz Radar Constant is needed to derive the required dBm level from a Signal Generator for calibrating each level. This constant is calculated by the Raptic Tx given the following parameters: Magnetron Frequency, Peak RF Power, Antenna Gain, Antenna Beamwidth, RF Pulse duration, STC Range and Waveguide losses. Therefore, each radar type has its own unique correction figure and only this one figure needs to be calculated to derive all standard video calibration levels (See Page)

dBz settings for Normal/TAST updates

Video Level	Assumed Rain Rate (mm/hr)	Sig. Strength (dBz)
6	100	55.0
5	40	48.6
4	20	43.8
3	10	39.0
2	2	27.8
1	0.3	11.8

Level 1 should actually be made as sensitive as possible, consistent with long-term stability against excessive noise breakthrough. The figure given here is to be used as a guide to ensure that the radar is able to meet this minimum sensitivity requirement.

dBz Settings for 16 level Volumetric updates

Video Level	Assumed Rain Rate (mm/hr)	Sig. Strength (dBz)
15	364.6	64.0
14	236.8	61.0
13	153.8	58.0
12	99.9	55.0
11	64.8	52.0
10	42.1	49.0
9	27.3	46.0
8	17.8	43.0
7	11.5	40.0
6	7.5	37.0
5	4.9	34.0
4	3.2	31.0
3	2.1	28.0
2	1.0	23.0
1	0.2	11.8

Level 1 should actually be made as sensitive as possible, consistent with good long-term stability against excessive noise breakthrough. The figure given here is to be used as a guide to ensure that the radar is able to meet this minimum sensitivity requirement.