

Wind Velocity: The ground equipment shall remain within monitor limits with wind velocities of up to 70 knots from such directions that the velocity component perpendicular to runway centerline does not exceed 35 knots. The ground equipment shall withstand winds up to 100 knots from any direction without damage.

Hail Stones: 1.25 centimeters (½ inch) diameter.

Rain: Provide required coverage with rain falling at a rate of 50 millimeters (2 inches) per hour, through a distance of 9 kilometers (5 nautical miles) and with rain falling at the rate of 25 millimeters (1 inch) per hour for the additional 28 kilometers (15 nautical miles).

Ice Loading: Encased in 1.25 centimeters (½ inch) radial thickness of clear ice.

Antenna Radome De-Icing: Down to -6 °C (20 °F) and wind up to 35 knots.

(d) The transmitter frequencies of an MLS must be in accordance with the frequency plan approved by the FAA.

(e) The DME component listed in paragraph (a)(4) of this section must comply with the minimum standard performance requirements specified in subpart G of this part.

(f) The marker beacon components listed in paragraph (b)(4) of this section must comply with the minimum standard performance requirements specified in subpart H of this part.

#### § 171.311 Signal format requirements.

The signals radiated by the MLS must conform to the signal format in which angle guidance functions and data functions are transmitted sequentially on the same C-band frequency. Each function is identified by a unique digital code which initializes the airborne receiver for proper processing.

The signal format must meet the following minimum requirements:

(a) *Frequency assignment.* The ground components (except DME/Marker Beacon) must operate on a single frequency assignment or channel, using time division multiplexing. These components must be capable of operating on any one of the 200 channels spaced 300 KHz apart with center frequencies from 5031.0 MHz to 5090.7 MHz and with channel numbering as shown in Table 1a. The operating radio frequencies of all ground components must not vary by more than ±10 KHz from the assigned frequency. Any one transmitter frequency must not vary more than ±50 Hz in any one second period. The MLS angle/data and DME equipment must operate on one of the paired channels as shown in Table 1b.

TABLE 1a—FREQUENCY CHANNEL PLAN

Channel No.	Frequency (MHz)
500 .....	5031.0
501 .....	5031.3
502 .....	5031.6
503 .....	5031.9
504 .....	5032.2
505 .....	5032.5
506 .....	5032.8
507 .....	5033.1
508 .....	5033.4
509 .....	5033.7
510 .....	5034.0
511 .....	5034.3
* .....	*
598 .....	5060.4
599 .....	5060.7
600 .....	5061.0
601 .....	5061.3
* .....	*
698 .....	5090.4
699 .....	5090.7

TABLE 1b—CHANNELS

Channel pairing				DME parameters					
DME No.	VHF freq. MHz	MLS angle freq. MHz	MLS Ch. No.	Interrogation				Reply	
				Freq. MHz	Pulse codes				
					DME/N μs	DME/P Mode		Freq. MHz	Pulse codes μs
						IA μs	FA μs		
* 1X .....	.....	.....	.....	1025	12	.....	.....	962	12
** 1Y .....	.....	.....	.....	1025	36	.....	.....	1088	30
* 2X .....	.....	.....	.....	1026	12	.....	.....	963	12
** 2Y .....	.....	.....	.....	1026	36	.....	.....	1089	30
* 3X .....	.....	.....	.....	1027	12	.....	.....	964	12
** 3Y .....	.....	.....	.....	1027	36	.....	.....	1090	30
* 4X .....	.....	.....	.....	1028	12	.....	.....	965	12
** 4Y .....	.....	.....	.....	1028	36	.....	.....	1091	30
* 5X .....	.....	.....	.....	1029	12	.....	.....	966	12