0072-EX-CN-2021
EL944483
Experimentation Description

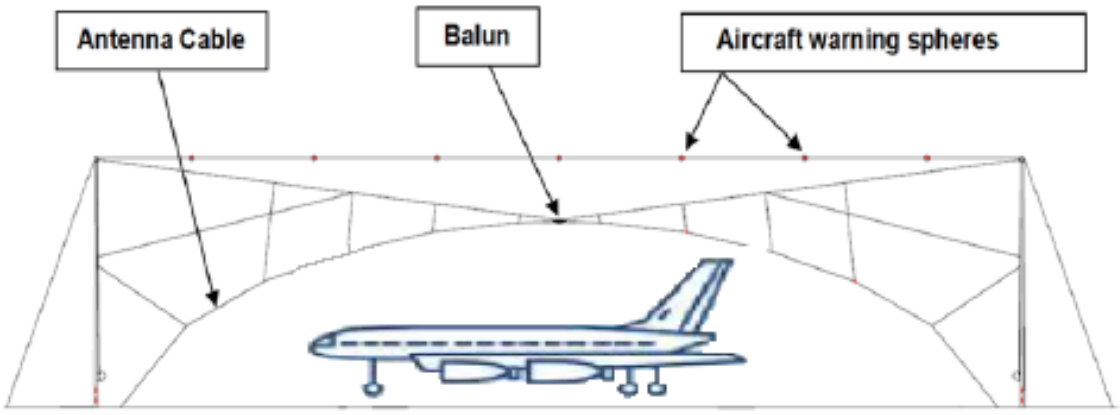
To demonstrate compliance with aircraft High-Intensity Radiated Field (HIRF) regulations. The HIRF regulations apply to aircraft electrical and electronic systems, including power distribution systems, electrical generating systems, electronic engine control systems, electronic flight control systems, and navigation, communication, and flight reference systems. The term 'systems' refers to electrical and electronic equipment; interconnecting power, signal, and control wiring; indicators; control panels; sensors; and software. A certification applicant must demonstrate that aircraft systems that perform functions whose failure could prevent continued safe flight and landing are not adversely affected when the aircraft is exposed to the HIRF Environment I, II or III, as specified in the regulations. Additionally, systems performing functions related to the ability of the flight crew and aircraft to operate in adverse operating conditions must not be adversely affected during and after exposure to equipment test levels specified in the regulations. The approach to achieving HIRF certification is through appropriate system protection, qualification, and installation.

Testing period will end Jan 2023. Cease / Stop Buzzer for HIRF test control station is (903) 455 8211; (903) 455 8158; and (903) 457 3544.

To demonstrate HIRF compliance an ellipticus and a log period antenna are used. The test control station is 1.15 km from an active runway. Please see antenna information document for configurations.

Frequency sweeps will be conducted through the following frequency list in order of 1) Horizontal, 2) Vertical, then 3) Noise (no transmit) polarization. The frequency sweep speed is seven (7) ascending sequential frequencies per second. The tone bandwidth is 10 Hz and pulsed.

The following table lists the desired frequencies for the ellipticus antenna. The ERP is 30.5 watts. Horizontal Polarization Mode from 0.1 MHz to 220 MHz. Vertical Polarization Mode from 0.1 MHz to 15.0 MHz.



Ellipticus Antenna

MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz
0.10	7.1	13.7	18.8	24.7	30.4	41.4	51.4	63.5	94.0
0.20	7.2	13.9	18.9	24.8	30.6	41.6	51.6	64.0	94.5
0.30	7.7	14.0	19.0	24.9	30.8	41.8	51.8	64.5	95.0
0.40	7.8	14.1	19.1	25.0	31.2	42.4	52.2	65.0	96.0
0.50	8.0	14.2	19.2	25.1	31.4	42.6	52.4	66.5	97.0
0.60	8.1	14.3	19.3	25.2	31.6	42.8	52.6	67.0	98.0
0.80	8.3	14.4	19.4	25.3	31.8	43.0	52.8	67.5	99.0
0.90	8.4	14.5	19.6	25.4	32.0	43.2	53.0	68.5	105.0
1.00	8.5	14.6	19.7	25.5	32.2	43.4	53.2	69.0	130.0
1.10	8.6	14.7	19.8	25.6	32.4	43.6	53.4	69.5	140.0
1.20	8.8	14.8	20.0	25.7	32.6	43.8	53.6	70.5	145.0
1.30	8.9	14.9	20.1	25.9	33.0	44.0	53.8	71.5	150.0
1.35	9.0	15.0	20.3	26.1	33.2	44.2	54.2	72.0	155.0
1.45	9.2	15.2	20.4	26.3	33.6	44.4	54.4	72.5	160.0
1.50	9.3	15.3	20.5	26.4	34.0	44.6	54.6	75.5	165.0
1.60	9.4	15.4	20.6	26.5	34.2	44.8	54.8	76.0	170.0
1.70	9.7	15.5	20.7	26.6	34.4	45.0	55.0	76.5	175.0
1.80	10.0	15.6	20.9	26.7	34.6	45.2	55.2	77.0	180.0
1.90	10.3	15.7	21.1	26.8	34.8	45.4	55.4	77.5	185.0
2.20	10.4	15.9	21.2	26.9	35.0	45.6	55.6	78.0	190.0
2.30	10.5	16.0	21.3	27.1	35.2	45.8	55.8	78.5	200.0
2.55	10.7	16.1	21.4	27.2	35.4	46.0	56.2	79.0	205.0
2.6	10.8	16.2	21.5	27.3	35.6	46.2	56.4	79.7	215.0
2.7	10.9	16.3	21.6	27.6	35.8	46.4	56.6	80.5	220.0
3.0	11.0	16.4	21.7	27.7	36.0	46.6	56.8	81.0	
3.1	11.1	16.6	21.8	27.9	36.2	46.8	57.0	81.5	
3.6	11.3	16.7	22.0	28.1	36.4	47.0	57.2	82.5	
3.7	11.4	16.8	22.1	28.2	36.6	47.2	57.4	83.5	
3.8	11.5	16.9	22.2	28.3	36.8	47.4	57.6	84.0	
4.1	11.6	17.1	22.4	28.4	37.0	47.6	57.8	84.5	
4.3	11.7	17.2	22.7	28.5	37.2	48.0	58.0	85.5	
4.5	11.8	17.3	22.8	28.6	37.4	48.2	58.2	86.0	
4.6	12.0	17.4	23.1	28.7	37.6	48.4	58.4	86.5	
4.7	12.1	17.5	23.3	28.8	37.8	48.8	58.6	87.0	
4.9	12.2	17.6	23.4	28.9	38.2	49.0	58.8	87.5	
5.0	12.3	17.7	23.5	29.0	38.4	49.2	59.0	88.0	
5.2	12.4	17.8	23.7	29.1	38.6	49.4	59.2	88.5	
5.3	12.5	17.9	23.8	29.2	38.8	49.6	59.4	89.0	
5.5	12.6	18.0	23.9	29.3	39.0	49.8	59.6	89.5	
5.6	12.7	18.1	24.0	29.4	39.6	50.2	59.8	90.0	
5.7	12.8	18.2	24.1	29.6	39.8	50.4	60.5	90.25	
5.8	12.9	18.3	24.2	29.7	40.2	50.6	61.0	90.75	
6.2	13.1	18.4	24.4	29.8	40.4	50.8	61.5	92.0	
6.3	13.3	18.5	24.5	29.9	40.6	51.0	62.0	93.0	
6.4	13.5	18.7	24.6	30.2	41.0	51.2	62.5	93.25	

The following table lists the desired frequencies for the log periodic antenna. The ERP is 214 watts. Vertical Polarization Mode from 15.0 MHz to 220 MHz. Horizontal Polarization Mode is not used.

Log Periodic Antenna

MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz
15.0	18.8	23.3	27.2	32.4	40.4	48.0	55.4	67.5	90.0
15.2	18.9	23.4	27.3	32.6	40.6	48.2	55.6	68.5	90.25
15.3	19.0	23.5	27.6	33.0	41.0	48.4	55.8	69.0	90.75
15.4	19.1	23.7	27.7	33.2	41.4	48.8	56.2	69.5	92.0
15.5	19.2	23.8	27.9	33.6	41.6	49.0	56.4	70.5	93.0
15.6	19.3	23.9	28.1	34.0	41.8	49.2	56.6	71.5	93.25
15.7	19.4	24.0	28.2	34.2	42.4	49.4	56.8	72.0	94.0
15.9	19.6	24.1	28.3	34.4	42.6	49.6	57.0	72.5	94.5
16.0	19.7	24.2	28.4	34.6	42.8	49.8	57.2	75.5	95.0
16.1	19.8	24.4	28.5	34.8	43.0	50.2	57.4	76.0	96.0
16.2	20.0	24.5	28.6	35.0	43.2	50.4	57.6	76.5	97.0
16.3	20.1	24.6	28.7	35.2	43.4	50.6	57.8	77.0	98.0
16.4	20.3	24.7	28.8	35.4	43.6	50.8	58.0	77.5	99.0
16.6	20.4	24.8	28.9	35.6	43.8	51.0	58.2	78.0	105.0
16.7	20.5	24.9	29.0	35.8	44.0	51.2	58.4	78.5	130.0
16.8	20.6	25.0	29.1	36.0	44.2	51.4	58.6	79.0	140.0
16.9	20.7	25.1	29.2	36.2	44.4	51.6	58.8	79.7	145.0
17.1	20.9	25.2	29.3	36.4	44.6	51.8	59.0	80.5	150.0
17.2	21.1	25.3	29.4	36.6	44.8	52.2	59.2	81.0	155.0
17.3	21.2	25.4	29.6	36.8	45.0	52.4	59.4	81.5	160.0
17.4	21.3	25.5	29.7	37.0	45.2	52.6	59.6	82.5	165.0
17.5	21.4	25.6	29.8	37.2	45.4	52.8	59.8	83.5	170.0
17.6	21.5	25.7	29.9	37.4	45.6	53.0	60.5	84.0	175.0
17.7	21.6	25.9	30.2	37.6	45.8	53.2	61.0	84.5	180.0
17.8	21.7	26.1	30.4	37.8	46.0	53.4	61.5	85.5	185.0
17.9	21.8	26.3	30.6	38.2	46.2	53.6	62.0	86.0	190.0
18.0	22.0	26.4	30.8	38.4	46.4	53.8	62.5	86.5	200.0
18.1	22.1	26.5	31.2	38.6	46.6	54.2	63.5	87.0	205.0
18.2	22.2	26.6	31.4	38.8	46.8	54.4	64.0	87.5	215.0
18.3	22.4	26.7	31.6	39.0	47.0	54.6	64.5	88.0	220.0
18.4	22.7	26.8	31.8	39.6	47.2	54.8	65.0	88.5	
18.5	22.8	26.9	32.0	39.8	47.4	55.0	66.5	89.0	
18.7	23.1	27.1	32.2	40.2	47.6	55.2	67.0	89.5	