

Data in support of claim that proposed operation meets off-axis criteria of 1986 Declaratory Order

ID Applicant: Telesat

Date of Application:

02/11/11

HEADING

a1	Antenna Manufacturer:	Vertex/RSI	c	main bore gain	51.60	dBi
a2	Antenna Model:	3.8m	d	frequency at which gain was measured	14.00	GHz
a3	Antenna ID:	Transportable	e	maximum input power density (dBw/4KHz)	-24.40	dBw/4KHz
b	Transmit band (b):	14.000 GHz				

1.0 to 7 degrees calculated maximum difference in off-axis eirp density: -3.80 dBw/4KHz

1.0 to 180 degrees calculated maximum difference in off-axis eirp density: -3.80

TABLE

EIRP for Antenna Conforming to 25.209(a) operating at 25.212 power density limits

Gain and EIRP for Antenna Not Conforming to 25.209(a) operating at stated maximum power density

1	2	3	4	5	6	7
Angle (degrees)	25.209 Gain (dBi)	Off-Axis EIRP Density for -14.00 dBw/4Kz	Gain relative to main bore gain (dB)	Actual Gain in dBi	Off-Axis EIRP Density for input of -24.40	Difference in Off-Axis EIRP Density (6) minus (3)
1.00	29.00	15.00	-16.00	35.60	11.20	-3.80
1.20	27.02	13.02	-24.00	27.60	3.20	-9.82
1.40	25.35	11.35	-20.00	31.60	7.20	-4.15
1.60	23.90	9.90	-22.80	28.80	4.40	-5.50
1.80	22.62	8.62	-24.80	26.80	2.40	-6.22
2.00	21.47	7.47	-35.00	16.60	-7.80	-15.27
2.20	20.44	6.44	-28.00	23.60	-0.80	-7.24
2.40	19.49	5.49	-33.50	18.10	-6.30	-11.79
2.60	18.63	4.63	-37.00	14.60	-9.80	-14.43
2.80	17.82	3.82	-36.00	15.60	-8.80	-12.62
3.00	17.07	3.07	-36.50	15.10	-9.30	-12.37
3.20	16.37	2.37	-33.40	18.20	-6.20	-8.57
3.40	15.71	1.71	-41.00	10.60	-13.80	-15.51
3.60	15.09	1.09	-41.00	10.60	-13.80	-14.89
3.80	14.51	0.51	-42.50	9.10	-15.30	-15.81
4.00	13.95	-0.05	-41.50	10.10	-14.30	-14.25
4.20	13.42	-0.58	-41.00	10.60	-13.80	-13.22
4.40	12.91	-1.09	-43.50	8.10	-16.30	-15.21
4.60	12.43	-1.57	-46.00	5.60	-18.80	-17.23
4.80	11.97	-2.03	-49.50	2.10	-22.30	-20.27
5.00	11.53	-2.47	-51.00	0.60	-23.80	-21.33
5.20	11.10	-2.90	-47.00	4.60	-19.80	-16.90
5.40	10.69	-3.31	-45.00	6.60	-17.80	-14.49
5.60	10.30	-3.70	-42.00	9.60	-14.80	-11.10
5.80	9.91	-4.09	-42.50	9.10	-15.30	-11.21
6.00	9.55	-4.45	-45.00	6.60	-17.80	-13.35
6.20	9.19	-4.81	-44.00	7.60	-16.80	-11.99
6.40	8.85	-5.15	-44.50	7.10	-17.30	-12.15
6.60	8.51	-5.49	-41.20	10.40	-14.00	-8.51
6.80	8.19	-5.81	-41.30	10.30	-14.10	-8.29
7.00	8.00	-6.00	-46.50	5.10	-19.30	-13.30

Data in support of claim that proposed operation meets off-axis criteria of 1986 Declaratory Order

ID Applicant: Telesat

Date of Application:

02/15/04

HEADING

a1	Antenna Manufacturer:	Vertex/RSI	c	main bore gain	51.70	dBi
a2	Antenna Model:	3.8m	d	frequency at which gain was measured	14.25	GHz
a3	Antenna ID:	Transportable	e	maximum input power density (dBw/4KHz)	-24.40	dBw/4KHz
b	Transmit band (b):	14000 MHz				

1.0 to 7 degrees calculated maximum difference in off-axis eirp density: -6.22 dBw/4KHz

1.0 to 180 degrees calculated maximum difference in off-axis eirp density: -6.22

TABLE

EIRP for Antenna Conforming to 25.209(a) operating at 25.212 power density limits

1 Angle (degrees)	2 25.209 Gain (dBi)	3 Off-Axis EIRP Density for -14.00 dBw/4Kz
1.00	29.00	15.00
1.20	27.02	13.02
1.40	25.35	11.35
1.60	23.90	9.90
1.80	22.62	8.62
2.00	21.47	7.47
2.20	20.44	6.44
2.40	19.49	5.49
2.60	18.63	4.63
2.80	17.82	3.82
3.00	17.07	3.07
3.20	16.37	2.37
3.40	15.71	1.71
3.60	15.09	1.09
3.80	14.51	0.51
4.00	13.95	-0.05
4.20	13.42	-0.58
4.40	12.91	-1.09
4.60	12.43	-1.57
4.80	11.97	-2.03
5.00	11.53	-2.47
5.20	11.10	-2.90
5.40	10.69	-3.31
5.60	10.30	-3.70
5.80	9.91	-4.09
6.00	9.55	-4.45
6.20	9.19	-4.81
6.40	8.85	-5.15
6.60	8.51	-5.49
6.80	8.19	-5.81
7.00	8.00	-6.00

Gain and EIRP for Antenna Not Conforming to 25.209(a) operating at stated maximum power density

4 Gain relative to main bore gain (dB)	5 Actual Gain in dBi	6 Off-Axis EIRP Density for input of -24.40	7 Difference in Off-Axis EIRP Density (6) minus (3)
-26.00	25.70	1.30	-13.70
-20.50	31.20	6.80	-6.22
-25.00	26.70	2.30	-9.05
-32.00	19.70	-4.70	-14.60
-32.30	19.40	-5.00	-13.62
-27.50	24.20	-0.20	-7.67
-27.50	24.20	-0.20	-6.64
-31.80	19.90	-4.50	-9.99
-34.00	17.70	-6.70	-11.33
-35.00	16.70	-7.70	-11.52
-32.50	19.20	-5.20	-8.27
-37.00	14.70	-9.70	-12.07
-37.00	14.70	-9.70	-11.41
-39.50	12.20	-12.20	-13.29
-45.50	6.20	-18.20	-18.71
-47.00	4.70	-19.70	-19.65
-39.00	12.70	-11.70	-11.12
-40.60	11.10	-13.30	-12.21
-41.30	10.40	-14.00	-12.43
-48.00	3.70	-20.70	-18.67
-46.00	5.70	-18.70	-16.23
-44.00	7.70	-16.70	-13.80
-47.00	4.70	-19.70	-16.39
-47.30	4.40	-20.00	-16.30
-46.20	5.50	-18.90	-14.81
-45.50	6.20	-18.20	-13.75
-45.00	6.70	-17.70	-12.89
-46.00	5.70	-18.70	-13.55
-52.50	-0.80	-25.20	-19.71
-46.00	5.70	-18.70	-12.89
-46.00	5.70	-18.70	-12.70

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HEADING

a1 Antenna Manufacturer: VertexRSI c main bore gain 51.80 dBi
 a2 Antenna Model: 3.8m d frequency at which gain was measured 14.50 GHz
 a3 Antenna ID: Transportable e maximum input power density (dBw/4KHz) -24.40 dBw/4KHz
 b Transmit band (b): 14.0 GHz

1.0 to 7 degrees calculated maximum difference in off-axis eirp density: -6.62 dBw/4KHz

1.0 to 180 degrees calculated maximum difference in off-axis eirp density: -6.62

TABLE

EIRP for Antenna Conforming to 25.209(a) operating at 25.212 power density limits

Gain and EIRP for Antenna Not Conforming to 25.209(a) operating at stated maximum power density

1 Angle (degrees)	2 25.209 Gain (dBi)	3 Off-Axis EIRP Density for -14.00 dBw/4Kz	4 Gain relative to main bore gain (dB)	5 Actual Gain in dBi	6 Off-Axis EIRP Density for input of -24.40	7 Difference in Off-Axis EIRP Density (6) minus (3)
1.00	29.00	15.00	-28.00	23.80	-0.60	-15.60
1.20	27.02	13.02	-21.00	30.80	6.40	-6.62
1.40	25.35	11.35	-26.00	25.80	1.40	-9.95
1.60	23.90	9.90	-32.00	19.80	-4.60	-14.50
1.80	22.62	8.62	-34.00	17.80	-6.60	-15.22
2.00	21.47	7.47	-35.00	16.80	-7.60	-15.07
2.20	20.44	6.44	-33.00	18.80	-5.60	-12.04
2.40	19.49	5.49	-36.20	15.60	-8.80	-14.29
2.60	18.63	4.63	-31.50	20.30	-4.10	-8.73
2.80	17.82	3.82	-34.30	17.50	-6.90	-10.72
3.00	17.07	3.07	-39.00	12.80	-11.60	-14.67
3.20	16.37	2.37	-45.00	6.80	-17.60	-19.97
3.40	15.71	1.71	-41.00	10.80	-13.60	-15.31
3.60	15.09	1.09	-42.50	9.30	-15.10	-16.19
3.80	14.51	0.51	-40.50	11.30	-13.10	-13.61
4.00	13.95	-0.05	-37.70	14.10	-10.30	-10.25
4.20	13.42	-0.58	-39.10	12.70	-11.70	-11.12
4.40	12.91	-1.09	-46.00	5.80	-18.60	-17.51
4.60	12.43	-1.57	-46.00	5.80	-18.60	-17.03
4.80	11.97	-2.03	-43.20	8.60	-15.80	-13.77
5.00	11.53	-2.47	-42.00	9.80	-14.60	-12.13
5.20	11.10	-2.90	-41.20	10.60	-13.80	-10.90
5.40	10.69	-3.31	-44.00	7.80	-16.60	-13.29
5.60	10.30	-3.70	-45.00	6.80	-17.60	-13.90
5.80	9.91	-4.09	-45.50	6.30	-18.10	-14.01
6.00	9.55	-4.45	-45.50	6.30	-18.10	-13.65
6.20	9.19	-4.81	-46.50	5.30	-19.10	-14.29
6.40	8.85	-5.15	-46.20	5.60	-18.80	-13.65
6.60	8.51	-5.49	-44.20	7.60	-16.80	-11.31
6.80	8.19	-5.81	-43.60	8.20	-16.20	-10.39
7.00	8.00	-6.00	-46.40	5.40	-19.00	-13.00