

Sound Output Data for models SOU-xxx-14, EMA1224FR, DBS-x-14 and DBS-x-4, DBS1224B4W and DBS122FW

Sound levels measured in accordance with EN54-3, Para 5.3 Operational Performance
Measurements are dB(A) @ 1m.

Tone Table

Mode	Stage 1	Description	Stage2	Description
a	500/1200Hz 0.015s	Sweep	1200/500Hz 0.10s	Sweep
b	2400Hz	Continuous	800/1000 0.05s	Alternating
c	1200/0Hz 0.02s	Intermittent	1200/500Hz 0.10s	Sweep
d	1200/500Hz 0.10s	Sweep	1200/500Hz 0.10s	Sweep
e	800Hz	Continuous	800/1000Hz 0.05s	Alternating
f	500/1200Hz 0.50s	Sweep	800/1000Hz 0.05s	Alternating
g	800/1000Hz 0.05s	Alternating	800/1000Hz 0.05s	Alternating
h	2400/0Hz	Intermittent	1200/500Hz 0.10s	Sweep
i	500/1200Hz 0.12	Sweep	1200/500Hz 1.00s	Sweep
j	2400Hz	Continuous	800/1000Hz 0.50s	Alternating
k	1200/0Hz 0.5s	Intermittent	1200/500Hz 1.00s	Sweep
l	1200/500Hz 1.00s	Sweep	1200/500Hz 1.00s	Sweep
m	800Hz	Continuous	800/1000Hz 0.50s	Alternating
n	500/1200Hz 4.0s	Sweep	800/1000Hz 0.50s	Alternating
o	800/1000Hz 0.50s	Alternating	800/1000Hz 0.50s	Alternating
p	2400/0Hz 0.50s	Intermittent	1200/500Hz 1.00s	Sweep

Mode	Stage 1	Description	Stage2	Description
q	800Hz	Continuous	N/A	-
r	800/1000Hz 0.5s	Alternating	N/A	-
s	500/1200Hz 4.0s	Sweep	N/A	-
t	800Hz/0Hz Temporal	Intermittent	N/A	-

SOU-LPR-14**Tone M**

Operational performance – SOU-LPR-14 (EMA1224FR)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 14V	Min 10V	Difference	Max 14V	Min 10V	Difference
15°	84.8	80.5	4.3	88.9	85.9	3
45°	83.8	80.8	3.0	86.2	83.3	2.9
75°	91.6	89.8	2.8	91.3	88.4	2.9
105°	90.7	87.8	2.9	91.2	88.4	3.1
135°	84.3	81.4	2.9	88.1	83.4	4.7
165°	84.2	81.0	3.2	89.1	86.0	3.1

Operational performance – SOU-LPR-14						
Minimum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 14V	Min 10V	Difference	Max 14V	Min 10V	Difference
15°	72.0	69.0	3	75.4	72.3	3.1
45°	71.9	68.9	3	73.6	70.4	3.2
75°	79.4	76.4	3	78.2	75.0	3.2
105°	79.6	76.4	3.2	78.0	74.9	3.1
135°	73.2	69.6	3.6	73.4	70.6	2.8
165°	73.1	69.9	3.2	75.3	72.4	2.9

DBS-R-14**Tone A**

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	83.7	81.4	2.3	82.6	80.5	2.1
45°	84.0	81.9	2.1	80.4	78.3	2.1
75°	90.1	88.2	1.9	87.5	85.4	2.1
105°	89.8	87.9	1.9	87.1	85.0	2.1
135°	84.4	82.6	1.8	78.7	76.7	2.0
165°	84.0	82.1	1.9	82.3	80.3	2.0

Operational performance – DBS-R-14 (DBS1224FW)						
Minimum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	72.7	70.7	2.0	71.6	69.4	2.2
45°	73.3	71.3	2.0	69.2	66.9	2.3
75°	79.0	76.6	2.4	76.4	74.1	2.3
105°	78.9	76.8	2.1	75.5	73.2	2.3
135°	73.7	71.3	2.4	68.6	65.4	3.2
165°	73.1	71.0	2.1	71.7	69.6	2.1

Tone B

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	85.7	83.5	2.2	86.3	84.0	2.3
45°	82.0	79.7	2.3	81.3	79.3	2.0
75°	91.4	89.2	2.2	90.5	88.2	2.3
105°	91.2	89.0	2.2	88.6	86.4	2.2
135°	80.4	78.3	2.1	79.6	77.7	1.9
165°	86.4	84.2	2.2	86.7	84.4	2.3

Operational performance – DBS-R-14 (DBS1224FW)						
Minimum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	71.5	69.3	2.2	72.4	70.4	2.0
45°	68.0	65.8	2.2	68.7	66.6	2.1
75°	77.2	75.0	2.2	77.3	75.1	2.2
105°	76.8	74.5	2.3	74.0	71.9	2.1
135°	65.8	63.5	2.3	67.4	65.2	2.2
165°	72.4	70.2	2.2	73.5	71.3	2.2

Tone C

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	81.4	79.4	2.0	82.6	80.3	2.3
45°	79.4	77.5	1.9	78.5	76.6	1.9
75°	87.1	85.1	2.0	86.5	83.4	2.1
105°	86.8	83.8	2.0	83.5	82.6	1.9
135°	78.3	76.4	1.9	76.2	73.1	2.1
165°	82.0	80.0	2.0	82.1	80.0	2.1

Operational performance – DBS-R-14 (DBS1224FW)						
Minimum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	66.8	64.6	2.2	67.5	65.3	2.2
45°	65.8	63.6	2.2	64.9	62.7	2.2
75°	72.3	70.0	2.3	72.2	70.1	2.1
105°	71.7	69.5	2.2	69.9	67.7	2.2
135°	64.4	62.2	2.2	63.4	61.1	2.3
165°	67.2	64.9	2.3	67.9	65.8	2.1

Tone D

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	81.3	79.2	2.1	83.4	81.3	2.1
45°	82.0	79.9	2.1	80.7	78.6	2.1
75°	88.2	83.0	2.2	88.0	86.0	2.0
105°	88.0	85.9	2.1	86.8	84.8	2.0
135°	82.2	80.2	2.0	78.6	73.6	2.0
165°	81.6	79.5	2.1	82.7	80.6	2.1

Operational performance – DBS-R-14 (DBS1224FW)

Minimum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	70.5	68.2	2.3	72.7	70.5	2.2
45°	71.1	68.9	2.2	70.0	67.8	2.2
75°	77.4	75.1	2.3	77.3	75.0	2.3
105°	77.0	74.7	2.3	76.4	74.2	2.2
135°	71.3	69.0	2.3	68.3	66.0	2.3
165°	71.4	69.2	2.2	72.2	69.9	2.3

Tone E

Operational performance – DBS-R-14 (DBS1224FW)

Maximum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	81.8	79.6	2.2	81.6	79.7	1.9
45°	81.5	79.3	2.2	80.0	78.0	2.0
75°	88.1	85.9	2.2	87.5	85.5	2.0
105°	87.7	85.6	2.1	86.9	83.7	2.2
135°	79.5	77.3	2.2	79.1	76.8	2.3
165°	81.8	79.7	2.1	82.5	80.6	1.9

Operational performance – DBS-R-14 (DBS1224FW)

Minimum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	71.4	69.0	2.4	72.5	70.4	2.1
45°	69.6	67.3	2.3	69.5	66.9	2.6
75°	77.2	74.9	2.3	77.3	74.9	2.4
105°	76.8	74.5	2.3	75.9	73.5	2.4
135°	67.8	65.4	2.4	67.4	65.3	2.1
165°	71.4	69.1	2.3	72.3	69.8	2.5

Tone F

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	81.4	79.4	2.0	83.2	81.2	2.0
45°	82.5	80.5	2.0	81.0	79.0	2.0
75°	88.4	86.3	2.1	88.2	86.2	2.0
105°	88.1	86.0	2.1	87.6	85.6	2.0
135°	82.4	80.4	2.0	79.6	77.7	1.9
165°	81.8	79.8	2.0	83.1	81.0	2.1

Operational performance – DBS-R-14 (DBS1224FW)						
Minimum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	70.9	68.7	2.2	73.2	71.1	2.1
45°	71.4	69.2	2.2	70.5	68.3	2.2
75°	77.7	75.5	2.2	77.6	75.4	2.2
105°	77.1	74.8	2.3	77.1	74.9	2.2
135°	71.5	69.2	2.3	68.6	66.4	2.2
165°	71.7	69.4	2.3	72.9	70.7	2.2

Tone G

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	80.9	78.8	2.1	82.9	80.9	2.0
45°	81.5	79.4	2.1	80.6	78.5	2.1
75°	88.2	86.1	2.1	88.4	86.2	2.2
105°	87.8	85.7	2.1	87.7	85.5	2.2
135°	80.7	78.5	2.2	77.7	75.6	2.1
165°	80.8	78.6	2.2	82.5	80.4	2.1

Operational performance – DBS-R-14 (DBS1224FW)

Minimum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	70.4	68.2	2.2	72.3	70.4	1.9
45°	70.5	68.2	2.3	69.7	67.5	2.2
75°	77.4	75.1	2.3	77.2	74.9	2.3
105°	76.8	74.5	2.3	76.5	74.3	2.2
135°	69.5	67.3	2.2	66.8	64.5	2.3
165°	70.3	68.1	2.2	72.2	70.0	2.2

Tone H

Operational performance – DBS-R-14 (DBS1224FW)

Maximum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	85.0	83.0	2.0	85.8	83.6	2.2
45°	82.5	80.4	2.1	81.4	79.3	2.1
75°	90.7	88.6	2.1	89.7	87.6	2.1
105°	90.0	87.9	2.1	88.1	85.9	2.2
135°	81.4	79.3	2.1	78.2	75.9	2.3
165°	85.6	83.4	2.2	86.1	83.9	2.2

Operational performance – DBS-R-14 (DBS1224FW)

Minimum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	69.2	67.0	2.2	69.1	66.9	2.2
45°	65.7	63.5	2.2	65.8	63.6	2.2
75°	74.7	72.4	2.3	73.6	71.3	2.3
105°	73.4	71.2	2.2	71.5	69.3	2.2
135°	64.4	62.2	2.2	60.6	58.4	2.2
165°	69.6	67.4	2.2	70.1	67.9	2.2

Tone I

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	81.3	79.2	2.1	83.5	81.4	2.1
45°	82.4	80.4	2.0	80.8	78.8	2.0
75°	88.2	86.1	2.1	88.2	86.2	2.0
105°	88.0	85.9	2.1	87.6	85.6	2.0
135°	81.5	79.6	1.9	78.9	76.9	2.0
165°	81.5	79.5	2.0	83.1	81.1	2.0

Operational performance – DBS-R-14 (DBS1224FW)						
Minimum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	70.8	68.6	2.2	72.7	70.6	2.1
45°	71.8	69.5	2.3	70.5	68.2	2.3
75°	77.7	75.4	2.3	77.3	75.0	2.3
105°	77.1	74.8	2.3	76.8	74.6	2.2
135°	71.5	69.2	2.3	68.5	66.3	2.2
165°	71.4	69.2	2.2	72.7	70.5	2.2

Tone J

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	83.7	82.5	2.2	86.1	83.4	2.7
45°	81.6	79.4	2.2	82.0	79.8	2.2
75°	90.9	88.7	2.2	89.9	87.7	2.2
105°	90.1	87.9	2.2	88.2	85.9	2.3
135°	80.0	77.8	2.2	76.0	73.7	2.3
165°	85.5	83.3	2.2	86.4	84.2	2.2

Operational performance – DBS-R-14 (DBS1224FW)

Minimum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	70.6	68.4	2.2	71.5	69.4	2.1
45°	66.6	64.4	2.2	68.0	65.7	2.3
75°	76.8	74.5	2.3	75.9	73.7	2.2
105°	75.5	73.3	2.2	73.9	71.7	2.2
135°	65.1	63.0	2.1	64.1	61.8	2.3
165°	71.9	69.6	2.3	72.6	70.5	2.1

Tone K

Operational performance – DBS-R-14 (DBS1224FW)

Maximum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	81.1	78.0	2.1	81.5	79.4	2.1
45°	78.9	76.8	2.1	78.7	76.7	2.0
75°	87.1	84.9	2.2	86.1	83.1	2.0
105°	86.6	84.4	2.2	83.6	82.5	2.1
135°	78.5	76.4	2.1	76.7	73.7	2.0
165°	81.8	79.7	2.1	82.5	80.4	2.1

Operational performance – DBS-R-14 (DBS1224FW)

Minimum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	68.0	65.7	2.3	67.9	65.7	2.2
45°	66.0	63.7	2.3	65.4	63.3	2.1
75°	74.0	71.8	2.2	73.4	71.2	2.2
105°	73.1	70.9	2.2	71.4	69.2	2.2
135°	65.4	63.1	2.3	62.7	60.4	2.3
165°	69.0	66.8	2.2	69.4	67.3	2.1

Tone L

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	79.1	77.1	2.0	80.5	79.4	2.1
45°	80.0	78.0	2.0	78.4	76.5	1.9
75°	85.7	83.7	2.0	85.8	83.9	1.9
105°	85.7	83.7	2.0	85.4	83.4	2.0
135°	79.9	78.0	1.9	76.5	74.7	1.8
165°	79.7	77.6	2.1	80.8	79.7	2.1

Operational performance – DBS-R-14 (DBS1224FW)						
Minimum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	72.1	69.8	2.3	73.7	71.4	2.3
45°	72.3	70.0	2.3	70.7	68.5	2.2
75°	78.2	76.0	2.2	77.6	75.3	2.3
105°	78.1	75.8	2.3	77.3	75.0	2.3
135°	72.4	70.2	2.2	70.1	67.9	2.2
165°	72.4	70.1	2.3	74.2	72.0	2.2

Tone M

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	81.1	79.0	2.1	81.7	79.6	2.1
45°	81.1	79.0	2.1	80.2	78.1	2.1
75°	87.9	85.7	2.2	87.8	85.6	2.2
105°	87.3	85.2	2.1	86.8	83.6	2.2
135°	79.5	77.2	2.3	78.4	76.2	2.2
165°	81.5	79.4	2.1	82.5	80.3	2.2

Operational performance – DBS-R-14 (DBS1224FW)

Minimum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	70.3	68.0	2.3	70.9	68.6	2.3
45°	69.6	67.3	2.3	68.6	66.3	2.3
75°	76.9	74.6	2.3	76.4	74.1	2.3
105°	76.2	73.9	2.3	75.6	73.3	2.3
135°	68.1	65.9	2.2	67.2	64.9	2.3
165°	71.0	69.4	1.6	71.6	69.6	2.0

Tone M (10V – 14V range)

Operational performance – DBS-R-14 (DBS1224FW)

Maximum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 14V	Min 10V	Difference	Max 14V	Min 10V	Difference
15°	69.94	63.94	3.0	69.44	66.44	3.0
45°	71.64	68.64	3.0	71.14	68.64	2.5
75°	79.34	76.24	3.1	79.64	76.34	3.3
105°	79.34	76.14	3.2	79.94	76.54	3.4
135°	73.24	69.94	3.3	73.24	70.94	3.3
165°	72.04	68.84	3.2	72.54	69.74	2.8

Operational performance – DBS-R-14 (DBS1224FW)

Minimum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 14V	Min 10V	Difference	Max 14V	Min 10V	Difference
15°	59.04	56.14	2.9	59.54	56.64	2.9
45°	60.04	56.84	3.2	59.44	56.34	3.1
75°	66.94	64.04	2.9	67.54	64.24	3.3
105°	67.84	65.14	2.7	68.34	65.24	3.1
135°	59.04	56.14	2.9	61.94	58.74	3.2
165°	60.84	58.04	2.8	60.34	57.34	3.0

Tone N

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	83.0	80.9	2.1	86.5	83.4	2.1
45°	83.9	81.9	2.0	82.7	80.7	2.0
75°	89.6	87.6	2.0	89.2	87.2	2.0
105°	89.3	87.3	2.0	88.9	86.8	2.1
135°	83.9	81.9	2.0	80.9	79.1	1.8
165°	83.5	81.5	2.0	85.7	83.7	2.0

Operational performance – DBS-R-14 (DBS1224FW)						
Minimum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	72.5	70.2	2.3	76.1	73.8	2.3
45°	73.6	71.3	2.3	72.1	69.8	2.3
75°	78.8	76.4	2.4	78.4	76.1	2.3
105°	78.5	76.2	2.3	78.2	75.9	2.3
135°	72.8	70.4	2.4	70.9	68.6	2.3
165°	73.5	71.3	2.2	74.9	72.6	2.3

Tone O

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	81.0	78.8	2.2	83.1	81.1	2.0
45°	80.9	78.8	2.1	81.0	78.9	2.1
75°	88.0	85.9	2.1	88.2	86.0	2.2
105°	88.2	86.0	2.2	88.1	86.0	2.1
135°	80.9	78.7	2.2	78.3	79.1	2.2
165°	81.1	78.0	2.1	82.6	80.5	2.1

Operational performance – DBS-R-14 (DBS1224FW)						
Minimum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	70.7	68.2	2.5	73.5	71.3	2.2
45°	69.8	67.5	2.3	71.2	69.0	2.2
75°	77.2	74.9	2.3	78.2	75.9	2.3
105°	77.4	75.1	2.3	77.9	75.7	2.2
135°	69.7	67.4	2.3	66.8	64.6	2.2
165°	70.7	68.5	2.2	72.8	70.6	2.2

Tone P

Operational performance – DBS-R-14 (DBS1224FW)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	84.5	82.3	2.2	85.4	83.2	2.2
45°	80.0	77.9	2.1	81.5	79.4	2.1
75°	90.4	88.1	2.3	89.7	87.5	2.2
105°	89.6	89.6	0	88.0	85.8	2.2
135°	80.6	78.4	2.2	76.0	73.7	2.3
165°	85.1	82.9	2.2	86.2	84.0	2.2

Operational performance – DBS-R-14 (DBS1224FW)						
Minimum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	70.8	68.7	2.1	71.1	68.9	2.2
45°	66.9	64.9	2.0	67.6	65.5	2.1
75°	77.0	74.7	2.3	75.5	73.3	2.2
105°	75.5	73.4	2.1	73.6	71.4	2.2
135°	67.6	64.8	2.8	60.0	57.6	2.4
165°	72.1	70.0	2.1	71.9	69.6	2.3

DBS-R-4**Tone Q**

Operational performance – DBS-R-4 (DBS1224B4W)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	83.0	77.8	5.2	80.0	78.0	2.2
45°	82.0	78.2	3.8	81.0	78.8	2.2
75°	88.0	84.4	3.6	87.3	85.0	2.3
105°	88.0	84.0	4.0	86.3	83.9	2.4
135°	81.0	77.4	3.6	75.7	73.3	2.4
165°	81.0	78.7	2.3	81.6	79.3	2.3

Operational performance – DBS-R-4 (DBS1224B4W)						
Minimum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	72.7	70.3	2.4	76.3	74.0	2.3
45°	71.8	69.3	2.5	74.6	72.3	2.3
75°	78.9	76.4	2.5	79.9	77.4	2.5
105°	78.9	76.5	2.4	78.5	76.1	2.4
135°	73.4	71.0	2.4	67.3	65.0	2.3
165°	74.1	71.7	2.4	74.5	72.0	2.5

Tone M (10V – 14V range)

Operational performance – DBS-R-4 (DBS1224B4W)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 14V	Min 10V	Difference	Max 14V	Min 10V	Difference
15°	78.0	74.2	3.8	74.3	70.4	3.9
45°	76.9	73.1	3.8	67.0	62.7	4.3
75°	81.9	78.2	3.7	80.0	76.2	3.8
105°	80.8	77.1	3.7	80.3	76.5	3.8
135°	67.3	64.8	2.5	75.0	71.4	3.6
165°	75.6	72.1	3.5	77.4	74.0	3.4

Operational performance – DBS-R-4 (DBS1224B4W)

Minimum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 14V	Min 10V	Difference	Max 14V	Min 10V	Difference
15°	74.0	70.2	3.8	70.6	66.8	3.8
45°	72.0	68.3	3.7	63.1	59.6	3.5
75°	77.1	73.5	3.6	75.9	72.2	3.7
105°	76.5	72.7	3.8	75.1	71.2	3.9
135°	62.8	59.0	3.8	70.5	66.9	3.6
165°	69.6	65.9	3.7	73.6	69.9	3.7

Tone R

Operational performance – DBS-R-4 (DBS1224B4W)

Maximum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	79.5	77.1	2.4	83.4	81.1	2.3
45°	80.6	78.2	2.4	80.7	78.3	2.4
75°	88.2	85.8	2.4	88.1	85.7	2.4
105°	88.1	85.6	2.5	87.6	85.1	2.5
135°	81.8	79.3	2.5	77.7	75.2	2.5
165°	80.9	78.6	2.3	82.5	80.2	2.3

Operational performance – DBS-R-4 (DBS1224B4W)

Minimum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	75.7	72.9	2.8	78.9	76.4	2.5
45°	76.6	74.1	2.5	76.2	73.6	2.6
75°	83.8	81.3	2.5	84.2	81.7	2.5
105°	84.1	81.6	2.5	83.8	81.3	2.5
135°	77.3	74.8	2.5	75.5	73.0	2.5
165°	76.9	74.4	2.5	78.9	76.4	2.5

Tone S

Operational performance – DBS-R-4 (DBS1224B4W)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	80.9	78.8	2.1	85.8	83.5	2.3
45°	82.6	80.5	2.1	81.3	79.0	2.3
75°	89.7	87.5	2.2	89.2	86.9	2.3
105°	89.6	87.3	2.3	89.0	86.8	2.2
135°	84.5	82.3	2.2	81.2	78.9	2.3
165°	83.7	81.4	2.3	85.3	83.0	2.3

Operational performance – DBS-R-4 (DBS1224B4W)						
Minimum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	76.7	74.2	2.5	81.7	72.2	2.5
45°	78.0	75.7	2.3	77.6	75.1	2.5
75°	85.3	82.7	2.6	84.9	82.5	2.4
105°	84.6	82.3	2.3	84.6	82.0	2.6
135°	79.8	77.3	2.5	75.9	73.5	2.4
165°	79.1	76.8	2.3	80.9	78.5	2.4

Tone T

Operational performance – DBS-R-4 (DBS1224B4W)						
Maximum Volume dB(A)						
Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	79.5	77.1	2.4	84.1	81.8	2.3
45°	78.8	76.3	2.5	81.2	79.1	2.1
75°	86.0	83.6	2.4	87.3	85.0	2.3
105°	85.9	83.6	2.3	86.5	84.2	2.3
135°	78.8	77.6	2.2	74.6	71.9	2.7
165°	80.4	78.2	2.2	81.7	79.1	2.6

Operational performance – DBS-R-4 (DBS1224B4W)

Minimum Volume dB(A)

Angle	Horizontal Plane			Vertical Plane		
	Max 27V	Min 21V	Difference	Max 27V	Min 21V	Difference
15°	75.4	73.1	2.3	80.0	77.5	2.5
45°	73.7	71.1	2.6	76.5	73.9	2.6
75°	81.5	81.5	0	82.4	80.0	2.4
105°	81.5	79.0	2.5	82.1	79.6	2.5
135°	75.7	73.2	2.5	70.7	68.3	2.4
165°	75.9	73.5	2.4	77.6	75.3	2.3