

ELSA WINman (ELSA ȳ'è), ìfwf<fv

ELSA WINman (ELSA ȳ'è), í AELSA fOf%oftfBfbfN f{[fh, ÆELSA Windows fhf
%ofCfo, ðf, fjf^, É“K ȳ, ȳ, 1, é, 1/2, ß, ìfvf[Of%of€ , Å, · B

Ú, μ, ç, ±, Æ, í AŽŸ, ìfL[f[fh, ðfNfŠfbfN, ·, é, © Afwf<fv, ì ð^ ø, ðfNfŠfbfN, μ, Ä, , 3/4, ȳ, ç B

WINman <N“®f_fCfAf[fo

f, fjf^, ìfvf[fpfefB

fOf%oftfBfbfN f, [fh, ì C[AfJf%o[ffvfX/%oð'œ“x/f^fCf~f“fO, ì'2[®

fOf%oftfBfbfN f, [fh/f^fCf~f“fO

ELSA WINman (ELSA [Y]è)

ELSA WINman (ELSA [Y]è), í AELSA fOf%oftfBfbfN f{ [fh,Æ ELSA Windows fhf %ofCfo,ðf,fjf^,É“K[±,³,¹,é,½,ß,lfvf[Of%of€,Å,·[B [fffBfXfvfCfC.lfvf[fpfefB] ,lf_fCfAf[Of,ªŠ],ç,Ä,ç,È,¯,ê,î[A,±,±,ðNfŠfbfN,µ,Ä,,¾,³,ç [B ,Ü,½“~f_fCfAf[Of,ì‘t,Å[WINman]f_fCfAf[Of,ªŠ],ç,Ä,ç,È,ç,Æ,«,í[A [ELSA] Settings [B ,lf^fu,ðNfŠfbfN,µ,Ä,,¾,³,ç [B

[fXfL[f€](ff[f^ fzfbfg)

^É‘O,lfOf%oftfBfbfN f.[fh,ð•Ú‘¶,µ,Ä,ç,é[ê[±[A,»],f.[fh,É[Ø,è‘Ö,!,é,±,Æ,ª,Å,«,Ü,·[B

[f,fjf^]

Žg—p,·,éf,fjf^,ð“ü—í,µ,Ü,·[B[·í[X...],ðNfŠfbfN,µ[A“ü—í,µ,½‘l,ðŠm“F,µ,Ä,,¾,³,ç [B [Å,à[d—v,È,ì,í[Af,fjf^,ì[Å‘â[...·½‘-[-,Žü“g” (kHz),Å,·(f,fjf^ ff[f^,ìCè‘èŽQ[Æ)[B

[fjf%o[ffvfX]

256[F,©32768[F,©•K—v,Èfjf%o[ffvfX,ð‘l‘ð,µ,Ü,·[B[Ú,µ,ç,±,Æ,í[Affj %o[ffvfX,ðNfŠfbfN,µ,Ä,,¾,³,ç [B

[%oÅŽ<%oð‘œ“x]/[fo[f`fff<%oð‘œ“x]

1024 x 768,È,Ç[A•K—v,È%oæ-È%oð‘œ“x,ðNfŠfbfN,µ,Ü,·[B[Ú,µ,ç,±,Æ,í[A %oð‘œ“x,ðNfŠfbfN,µ,Ä,,¾,³,ç [B

[fŠftfCfbfVf... fC[f^g]

75 Hz,È,Ç[A•K—v,ÈfŠftfCfbfVf... fC[f^g,ð‘l‘ð,µ,Ü,·[B[Ú,µ,ç,±,Æ,í[AfŠftfCfbfVf... fC[f^g,ðŽQ[Æ,µ,Ä,,¾,³,ç [B [Ú[×...],ðNfŠfbfN,·,é,Æ[A,æ,è³Šm,È²[®,ð[s,±,Æ,ª,Å,«,Ü,·[B

[OK]/[“K—p]

fefXfg fpf^ [f“ ,ª^À‘è,µ,½,ç[A,Ü,·[Y]è“à— e,ð•Ú‘¶,µ[AWindows,ð[Ä<N“® ,µ,Ä,©,ç[AfffBfXfvfCfC.lfTfCfY,Æ^É‘u,ì²[®,ðŽn,ß,Ü,·[B fffBfXfvfCfC.lfTfCfY,Æ^É‘u,ðf,fjf^,Å²[® ,µ,Ä,Ý,Ä,,¾,³,ç [B,±,Ü,,ç,©,È,ç[ê[±,í[AWINman (ELSA [Y]è),Åf,fjf^ f^fCf~f“fO,ð²[® ,·,é,±,Æ,à,Å,«,Ü,·[B

Žg—p,·,éf,fjf^ [“<y,Ñf,fjf^,ì•Å,Ñ,ì[Y]è(f)f<f fXfNfŠ [f“Žž,ì,Y):

1,Å^È[ã,ìELSAfOf%oftfBfbfNfXf{ [fh,ªRf“fsf... [f^,ÉfCf“fXfg [f<,³,é,Ä,ç

,é,ê,ë,É,ÉAf}f<f`fXfNfŠ[f“,đŽg—p,·,é,±,Æ,^a,Å,«,Ü,·B,ELSA,lf}f<f`fXfNfŠ[f“í
%ž,đfCf“fXfg[f<,·,é,ÆA^È%º,ì,æ,π,ÉŽg—p,·,éf,ffj^“,âAf,ffj^,ì•À,Ñ,đ'è<`,·,é,±
,Æ,^a,Å,«,Ü,·B

3'ä...•½,É ~~DEL~~ 3,Â,lf,ffj^,^a%
j,É3'ä•À,ñ,¾CE`,Å,·B

2'ä,¼,É ~~DEL~~ 2,Â,lf,ffj^,^ac,É•À,ñ,¾CE`,Å,·B
~~DEL~~

3'ä...•½A ~~DEL~~ c,É2—ñA%ºj,É3—

2'ä,¼,É ~~DEL~~ ñA±CEv6'ä,lf,ffj^,^a•À,ñ,¾CE`,Å,
B

,æ,è,ú,µ,ç,î•ñ(DirectX,âOpenGL,ì\$CEÀŽ—€É,Â,ç,Ä),ÍAf}f<f`fXfNfŠ[f“,ì€—Ú,đ,²—,-
,¾,³,çB

[f,ffj^,ì±~](f}f<f`fXfNfŠ[f“Žž,ì,Ý):

fRf“fsf...[f^,Éf}f<f`fXfNfŠ[f“í%ž,ì•j“,ìELSA fOf%oftfBfbfN f{[fh,ÆAELSA MULTIman
Windowsfhf%ofCfo,Æ,afCf“fXfg[f<,³,é,Ä,ç,ê,îA,±,±,Åf,ffj^,ì±~,Æ^É'u,đŽw'è,·,é,±
,Æ,^a,Å,«,Ü,·B

,½,ç,Ä,ç,ìê±,íÝ'è,ìK—v,í, ,è,Ü,¹,ñ,^aA^,ñ't,lf,ffj^,ÂDOS,đfu[fq,³,¹,½,çê±,ÉAf,ffj^
,ì•À,Ñ,í'1,2,3',ì±”Ô,Å,í,È,'2,1,3',ì±”Ô,É,È,è,Ü,·B
,±,ìÝ'è,^a%

,B,lf_fCfAfOf{fbfNfX,ÉCE©,Â,©,ç,È,çê±,íA'Ú×...}f^f“,đfNfŠfbfN,µ,Ä,,¾,³,çB

[fEfBf“fhfE\$CEä](f}f<f`fXfNfŠ[f“Žž,ì,Ý):

f}f<f`fXfNfŠ[f“,đŽg—p,µ,Ä,ç,Äxf_fCfAfO fEfBf“fhfE,đf,ffj^,ì<ŠE,É•\Ž!,µ,½,-
,È,çê±ADESKman,à,µ,ÍDeskTools“à,lfEfCf“fhfE\$CEä,đfAfNfefBfu,É,µ,Ä,,¾,³,çB

fOf%oftfBfbfN f, [fh, iC³ Afjf%o [ffvfX/%ođ'œ"x/f^fCf~f"fo, i'²®

•K—v, Èffj%o [ffvfX A%ođ'œ"x AfŠftfCfbVf... fC [fg, đ"ü—í, ·, é, é, ±, Æ, Åf, fjj^
f^fCf~f"fo, ² [q, ¬, ³, ê, Ü, ·B, ±, lf^fCf~f"fo, íV, µ, ç fOf%oftfBfbfN
f, [fh, Æ, µ, Ä, ·Ü'¶, Å, «, Ü, ·B

, » , ê, É, í Af, fjj^ , ÅŽg—p, Å, «, é Å'â ... •½'- [, Žü" g" (kHz), ² •², ©, Á, Ä, ç, é, ±, Æ, ² •K—
v, Å, ·(f, fjj^ ff [f^, ìC^'èŽQÆ) B

, Ü, , í •K—v, Èffj%o [ffvfX ('Ê í A8 bpp = 256 F), đ'l'đ, µ, Ü, ·Bffj%o [ffvfX, ² á, «, -
, È, é, Æ A Å'âsfNfZf< fNfjfbfN, íŽ © "® "l, ÉC, , è, Ü, ·B •K—v, È%ođ'œ"x, đ'²® , µ, Ü, ·B
%ođ'œ"x, í Af, fjj^ ftfCfY, ² 15", ì, Æ, «, í 800 x 600 A16", ©, ç 18", ì, Æ, «, í 1024 x
768 A19" ^ È ä, ì, Æ, «, í 1280 x 1024, ² ê"Ê "l, Å, ·B

•K—v, ÈŠftfCfbVf... fC [fg, đ Hz, Å"ü—í, µ, Ü, ·B
"wEi, ì, Ü, Æ, ñ, Ç, ² •, lfAvfŠfP [fvf†", ì ê [A60 Hz, Å \ ·², Å, ·B Windows, È, Ç "wEi, ì-
¾, é, ç fAvfŠfP [fvf†", í AfffBfXfvfCfC, ì, ç, Å, «, đ-h, ®, ½, ß, É Å'á 75 Hz ^ È ä, ÅŽÀ s, µ, Ä, -
, ¾, ³, ç B'Ê í A Å "K, ÈŠftfCfbVf... fC [fg, í 85 Hz, Å, ·B 100 Hz, đ%oz, ì, Ä, à-Ü, ÉC ©, ì, ½
%ü'P, ², È, ç, ì, ² •'Ê, Å, ·B

fefXfg fpf^ [f", ² À'è, µ, ½, ç A, Ü, , Ý'è"à—
e, đ •Ü'¶, µ A Windows, đ Ä<N"®, µ, Ä, ©, ç AfffBfXfvfCfC, ìTfCfY, Æ^Ê'u, ì'²® , đŽn, ß, Ü, ·B
ffBfXfvfCfC, ìTfCfY, Æ^Ê'u, đf, fjj^ , Å'²®, µ, Ä, Ý, Ä, , ¾, ³, ç B, x, Ü, , ç, ©, È, ç ê [í A [WINman
(ELSA Ý'è)], Åf, fjj^ f^fCf~f"fo, đ'²®, ·, é, ±, Æ, à, Å, «, Ü, ·B

fefXfg fXfNfŠ[]f“

WINman (ELSA[]Ý'è),Å,Í[]A[]V,μ,ϕf,fff^

f^fCf~f“fO,ª•Ú'¶,³,ê,é'O,É[]A[]V,μ,ϕf^fCf~f“fO,ªf,fff^,É“K,μ,Ä,ϕ,é,©,Ç,κ
,©,ªf`fFfbfN,³,ê,Ü,·[]B

,»;,ì,½,β,É[]A,í,_,©,ÈŽžŠÔ,Å,·,ªfefXfg fXfNfŠ[]f“,ª•\Ž!,³,ê,Ü,·[]B

fefXfg fXfNfŠ[]f“,ª•\Ž!,³,ê,Ä,à[]AfGfXfP[][fv fL[][(Esc),ð%öÿ,·,±,Æ,Å,ϕ,Â,Â,à[]Á,·,±
,Æ,ª,Â,«,Ü,·[]B

Žÿ,É[]AfefXfg fpf^[]f“,É-â'è,ª,È,ϕ,©,Ç,κ,©[]q,Ë,ç,ê,Ü,·[]B

fefXfg fpf^[]f“,ª^À'è,μ,½,ç[]A,Ü,_,_Ý'è“à—

e,ð•Ú'¶,μ[]AWindows,ð[]Ä<N“®,μ,Ä,©,ç[]AfffBfXfvfçEfC,ìfTfCfY,Æ^Ê'u,ì'²[]®,ðŽn,β,Ü,·[]B

fffBfXfvfçEfC,ìfTfCfY,Æ^Ê'u,ðf,fff^,Á'²[]®,μ,Ä,Ý,Ä,¾,³,ϕ[]B,κ,Ü,.,ϕ,©,È,ϕ[]ê[]‡,Í[]A[WINman
(ELSA[]Ý'è)],Åf,fff^ f^fCf~f“fO,ð'²[]®,·,é,±,Æ,à,Â,«,Ü,·[]B

fOf%oftfBfbfN f, [fh(frfflf, [fh)] Af, fjj^ f^fCf~f"fo

fOf%oftfBfbfN f, [fh(,Ü,½,Írfflf, [fh), íA, ,éff%o[ffvfX%A%ø'œ"x[Af, fjj^
f^fCf~f"foA,»,ì¼,·,x,Ä,ì"®[f, [fh,ÉŠÖ~A,·,éfefNjjfj< ff[f^,ð<Lq,·,éff[f^ fZfbfg,Å,·B

f, fjj^ f^fCf~f"fo, íA, fjj^ M+ ,ì^èžž"®[i,ð'è< ,·,éff[f^ fZfbfg,Å,·B
Šî-{"I,É,ÍsfNfZf< fNf[fbfN[A...·½'-[. Žü"q" Af f€ ,lfŠftf€fbfVf... f€[fg,Å,·B
[...·½[,¼·\Ž;ŽžŠÔ[A'O·"f|[f` [A"~Šúpf<fX(Sync)[A€ã·"f|[f` ,Æ,ç,æ³⁄⁄—
t,Å,æ,è³Šm,É<Lq,³,ê,Ü,·B
·\Ž;ŽžŠÔ,Æ,í[A"džqfr[f€,æ%æ-É,ÉsfNfZf<,ð·`%æ,·,éžžŠÔ,ì,±
,Æ,Å,·B,»,ì€ã[A"džqfr[f€,ðÅ%o,ì^Ê'u,É-ß,·,É,Í, ,éžžŠÔ,ð—v,μ,Ü,·B,±,lfuf
%of"fNžžŠÔ,í[A'O·"f|[f` (·\
Ž;ŽžŠÔ,ª[i,í,Á,Ä,©,ç"~Šúpf<fX,ªžn,Ü,é,Ü,Å,ìžžŠÔ)[A"~Šúpf<fX("Šúpf<fX,ìž[±ŠúŠÔ)[A,
",æ,Ñ€ã·"f|[f` ("~Šúpf<fX,ª[i,í,Á,Ä,©,çžŸ,ì·\Ž;ŽžŠÔ,ªžn,Ü,é,Ü,Å,ìžžŠÔ),Å\
[¬,³,ê,Ü,·B,±,ê,í...·½[,¼—¼·û,lf^fCf~f"fo,É,Â,ç,Ä"~—l,Å,·B

ffvfX/ bpp

ffvfX, 'è'P^Ê, íbpp, ©AF, " , Å, ·B
 bpp (Bits Per Pixel), íSfsfNfZf<, ÉŽg—p, Å, «, éffffl fff, fŠ, ì—e—Ê, Å, ·B, ½, Æ, ì, íA8
 bpp, ìê#AŠfsfNfZf<, í8frfbfg, ðŽg—p, µA256 (= 2, ì8æ)F, ðŠi"[A·Ž!, Å, «, Ü, ·B
 , ±, ì", íA(æ—Êä, ì·Ž!, É\·ª, ÈfsfNfZf<,ª, , éê#)"~Žž, É·Ž!, Å, «, éF, ì", ì, ±, Æ, Å, ·B

Windows , ìê#A'ÊíA256F(= 8 bpp),ªŽg—p,ª,ê,Ü, ·B256F, íA·\
 Ž!, ì'‰ŽÀ"x, Æff, fŠÁ"i"·Ž! '—"x, Æ, ìŠÖEW, ÅÅ—Ç, ì'Ã<ì" _¾, ©, ç, Å, ·BFF, ì"Z,ª, ì""i,ª'á, ç
 , ÆA'æŽ,ª'á‰, µA'½,, ìê#AfffBfUfŠf"fo,ª·K—v, É, È, è, Ü, ·BFF, ì"Z,ª, ì""i,ª,, ç
 , ÆAfff, fŠ, ìÁ"i,ª', íA'Êí, íWindows fhf%ofCfo, ì'—"x,ª'x,, È, èA‰ð'æ"x, ð
 ‰, °, é, ©A" , ¶‰ð'æ"x, Å, àŠftfÆfbfVf... fÆ[fg, ð‰, °, È, ç, Æ·Ž!, Å, «, È,, È, è, Ü, ·B
 ^ê"Ê"i, É, íŽŸ, ìÝ'è, ð,, µ, Ü, ·B
 'Êí, ìffBfX fAfvfŠfP[ffvf" , É, í 256F(8 bpp)
 fffff, Ü, ½, í3-DfAfvfŠfP[ffvf" , É, í 32768, Ü, ½, í65536F(15, Ü, ½, í16 bpp), ìnfCfff%
 , "x, È‰æ'æ^—, É, í 1670—æF(24, Ü, ½, í32 bpp), ìtf<fff%[

^ê"Ê"i, ÈffvfX

F, ì"	bpp, Å·\ , í, µ, ½fff %[ffvfX	fRff"fg
2	1	"[·Af, fmfNf
16	4	VGA 640x480, È, Ç, ìpfÆfbfg
256	8	fpfÆfbfgA^ê"Ê"i, È, ‰, ð'æ "xfOf%ftfBfbfN f{[fh, ì·W€f, [fh
32768	15	fnfCfff%[5 + 5 + 5 bpg
65536	16	fnfCfff%[5 + 6 + 5 bpg
1670—æ	24, Ü, ½, í32	ftf<fff%[8 + 8 + 8 bpg

4, Ü, ½, í8 bpp, ìê#AF, ì", ìpfÆfbfg (RAM DACfff%[fe[fuf<), ðŽg, Å, Å·\
 Ž!,ª, é, éŽÀÜ, ìF, É·iš·,ª,ê,Ü, ·B, ±, ìpfÆfbfg, ÅA262144F, ìGf"fgfŠ(6 bpp, ìê#), à1670—
 æF, ìGf"fgfŠ(8 bpp, ìê#),ª‰Å"\, Å, ·B

bpg ,Æ bpp,đ□¬“˘,μ,È,ϕ,æ,κ,É,μ,Ä,,³/₄,³,ϕ□Bbppg,í□ARGB□F•^a”z,²,Æ,íjff
%o□[ffvfX,đŽ!,μ,Ü,·(bppg = Bits Per Gun)□B,¹/₂,Æ,!,î□A16 bppfnfCjff%o□[,ì□ê□#□A5 + 6 + 5
bppg,í 3□F•^a”z,ì□Ô□A—î□A□Â,ÉŽg—p,Å,«,éfrfbfg□”,Å,·□B

fXfNfŠ[f“ fTfCfY A%oÅŽ</fo[f`fff< fXfNfŠ[f“ ,ì%ođ‘œ“x

fXfNfŠ[f“ fTfCfY

f, fff^ fTfCfY, ì'ì, ì%oA<ÉüŠÇ(CRT), ì'îŠpü, ìCEöülfTfCfY, Å, ·B%oÅŽ<·\Ž!—
ì^æ, ì'îŠpüfTfCfY, æ, è, à, µ, å, «, È, ì, Å, ·B^ê”Ê“ì, È“ì, ìŽÿ, ì·\, ì, Æ, “, è, Å, ·B

‘îŠpü, ìCEöülf	‘îŠpü, ìCEöülf	, “, æ, »	^ê”Ê“ì, È%ođ‘œ“x
fTfCfY(inch)	TfCfY(cm)	%oÅŽ<—	ì^æ(cm)
-----	-----	-----	-----
14"	35,5	27 x 20	800 x 600
17"	43	32 x 24	1024 x 768
20"	51	38 x 29	1280 x 1024

ü"üv, ìfCf“f` A1 inch = 2.54 cmüB

%oÅŽ<%ođ‘œ“x

%ođ‘œ“x, Æ, ìA·\Ž!, Å, «, éfsfNfZf<ü”, ì, ±, Æ, Å, ·B, ½, Æ, ì, ìA1024 x 768, ìêü#üA...
·½, ìŠeüS, É 1024fsfNfZf<, a·\Ž!, ³, èüAü, ‘¼, ìŠe—ñ, É768fsfNfZf<, a·\Ž!, ³, è, Ü, ·B, µ, ½, a, Å, Å
%oæ-Êüã, ì‘üsfNfZf<ü”, ì1024 x 768 = 786432, É, È, è, Ü, ·B

‘ÊüüA13", Ü, Å, ìf, fff^, ì%ođ‘œ“x, ì 640 x 480, ÉüA14", ©, ç15", ìf, fff^, ì%ođ‘œ“x, ì800 x
600, ÉüA16", ©, ç 18", ìf, fff^, ì%ođ‘œ“x, ì1024 x 768, ÉüA19" ^Êüã, ìf, fff^, ì%ođ‘œ“x, ì1280 x
1024, ÉfZfbfg, ³, è, Ü, ·B, ½, ¾, µüAüü, %ođ‘œ“x, ìfhfbfg fsfbf` fTfCfY, âüÅ^âü...·½’=
ü, Žü”gü”, È, Ç, ì—v^ö, É, æ, Å, Å^Ü, È, è, Ü, ·B

%ođ‘œ“x, ì dpi (Dot Per Inch), Å, à·\Ž!, Å, «, Ü, ·B

fo[f`fff<fXfNfŠ[f“ ,ìfpf“)

fo[f`fff<fXfNfŠ[f“, üfAfNfefBfu, É, È, Å, Ä, ç, é, ÆüAWindows, ìü<Æ—ì^æ, ì·\Ž!, ³, è, Ä, ç, é
%oÅŽ<fXfNfŠ[f“, æ, è, à, å, «, „, È, è, Ü, ·B, (, Å, Ü, èüAfo[f`fff<%ođ‘œ“x, ì%oÅŽ<%ođ‘œ“x, æ, è, à, å, «, -
, È, é)üB

%oB,ê,½—î^æ,í□Af}fEfX fj□[fƒ<,³fXfNfŠ□[f“,ì<«ŠE,É—^,é,ÆCE©,!,é,æ,α,É,È,è,Ü,·□B,»,ìCEã
%oÂŽ<fXfNfŠ□[f“,ì“à—e,³fXfNf□□[f<,³,ê,Ü,·□B,±,ì“®□ì,đ,Â□ufpf“□v,Æ,àCE¾,ç,Ü,·□B

fsfNfZf< fNf□fbfN/MHz

fsfNfZf< fNf□fbfN, Ü, ½, ífsfNfZf< fCE□[fg, íMHz(f□fKfwf<fc), Å•\, í,³, ê, Ü, ·□B, ±
, ì'l, ì"í^í, í'Ê□í10, ©, ç250 MHz, Å, ·□B, ½, Æ, ì, í□A75 Hz, Å, ì%øđ'œ"x 1024 x 768, É, í□A79
MHz, ìfsfNfZf< fNf□fbfN, ¢•K—v, Å, ·□BfsfNfZf<
fNf□fbfN, ì'l, í□A1•b, É□', «□ž, Ü, ê, éfsfNfZf<□", ð•S-œ'P^Ê, ÅŽ!, μ, Ü, ·□B

□...•½'-□, Žü"g□"/kHz

□...•½'-□, Žü"g□"□A, ·, È, í, ž □A·ÍĀüŽü"g□", ì'ª'è'P^Ê, í kHz, Ā, ·□B, ±, ì'l, ì"í'í, í'Ê□í 30, ©, ç110
kHz, Ā, ·□B, ½, Æ, ¡, î □A75 Hz, Ā, ì%œ'œ"x 1024 x 768, ìê□†□A60 kHz, ì...•½'-□, Žü"g□",ª•K
—v, Ā, ·□B, ±, ì'l, í □AfsfNfZf< f%ofCf",ª□', «□ž, Ü, ê, é'¬,ª□A, Ā, Ü, è□A"džqfr□[f€ª,
%oA<É□üŠÇ, ì't, ð-^•b%½□ç%oñ□¶, ©, ç%oE, É"®,, ì, ©, ðž!, μ, Ü, ·□B

fŠftf€fbfvf... f€[fg/Hz

ftf€[f€ fŠftf€fbfvf...

f€[fg, ·, È, í, ž, '¼•î€üžü"g", ì'ª'è'P^Ê, íAHz, Å, ·B'ÊíA'l, ì"í^í, í60, ©, ç100 Hz, Å, ·BHz, Æ, íHertz(fwf<fc), ì—ª€è, Å, ·B75 Hz, È, çA-^•b 75, ìftf€[f€,ª•\Ž!,ª,è,é,Æ,ç,ª, ±,Æ,Å, ·B

"w€i, ì, Û, Æ, ñ, Ç,ª•, ìfAfvfŠfP[fVf#f", ìê#A60 Hz, Å\ª, Å, ·B, æ, è" w€i, ì-¾, é, çWindows, ì, æ,ª, ÈfAfvfŠfP[fVf#f", ìê#A, ž, ç, Å, «, ð-hŽ~, ·, é, ½, ß, ÈAÅ'á75 Hz^Èä, ÅŽÀs, µ, Ä,ª, ç,ª•B'ÊíAÅ"K, ÈŠftf€fbfvf... f€[fg, í85 Hz, Å, ·BfŠftf€fbfvf... f€[fg,ª100 Hz, ð%oz, ì, Ä, à-Ú, ÅŠm" F, Å, «, é%ü'P, í, , è, Û,ª, ñB

'Êí, ìfmf"fCf"f^ [f€[fX" ® ì, Å, íAftf€[f€, ìfŠftf€fbfvf... f€[fg, í, '¼•î€üžü"g", Æ" , ¶, Å, ·B 'á...•½'-, žü" g", Å, à, fŠftf€fbfvf... f€[fg, ð^óÛ•t, , é, ½, ß, ÈfCf"f^ [f€[fX fffBfXfvf€fC,ª%ß<Ž, È, æ, —p, ç, ç, è, Û, µ, ½B, ±, ìf, [fh, Å, íAŠeftf€[f€,ª2•ªŠ,,ª, è, Û, ·BÅª% , ì"¼•ª, ìftf€[f€, Å<ð" f%ofCf",ª•`ª%æ,ª, èA1f%ofCf" fV•ªfvftfg, µ, ÄŠi" , ìf%ofCf",ª•`ª%æ,ª, è, Û, ·B, µ, ½,ª, Å, Ä, '¼•î€üžü"g", ìftf€[f€ fŠftf€fbfvf... f€[fg, ì" {, È, È, è, Û, ·B , ±, ì•\Ž!žè-@, íAfef€fr, ÈŽg, í, è, Ä, ç, ÄAIBM 8514/A frfffi fAf_fvf^, È, à ì—p,ª, è, Ä, ç, Û, ·B , ½,¾, µA•\Ž!•îÊ,ª, ç, ì, ìfmf"fCf"f^ [f€[fX f, [fh, ì•ù, Å, ·B

ftf€[f€ fŠftf€fbfvf... f€[fg, ìf, fíf^, ðíŠÔHŠw"l, È€©, ½ê#A d—v, Å, ·B75 Hz, ð%ª%ñ, èfŠftf€fbfvf... f€[fg, àAfcf"f^ [f€[fX, ìžg—p, ííŠÔHŠw"l, ÈD, Û, µ, , È, ç, Æ,ª, è, Ä, ç, Û, ·B , à, ž, è, ñíŠÔHŠw"l, È, íA•úžËü,ª, È, ç, ±, Æ, àAf, fíf^ fTfCfY, , æ, Ñfhfbfg fsfbf` , È"K, µ, ½%ð'œ" x, È, Ç, ì"Á« , à ì—¶,ª, è, Û, ·B

f}f<f`fXfNfŠ[]f“(MULTIman)

fRf“fsf...[]f^,É ELSA MULTIman Windows fhf%ofCfo,afCf“fXfg[]f<,³,ê,Ä,ç
,ê,í[]AWindows,ð¹²fXfNfŠ[]f“(f}f<f`fXfNfŠ[]f”),ÅŽg,κ,±,Æ,³,Å,«,Ü,·[]BfRf“fsf...
[]f^,É,íELSA fOf%oftfBfbfN f{[]fh,³ 1-†^ÈãfCf“fXfg[]f<,³,ê,Ä,ç
,È,¯,ê,î,È,è,Ü,¹,ñ[]B,½,¾,μ¼,lf{[]fh,Æ”C^Ó,É’g,Ý[]†,í,³,Å,«,é,í,¯,Å,í, ,è,Ü,¹,ñ[]B”^è,lfOf
%oftfBfbfN f,[]fh,Å[]A”¯,¶—e—Ê,lf[]f,š,ðŽ[],Á,½[]A”¯™),ìELSAf{[]fh,afCf“fXfg[]f<,³,ê,Ä,ç
,é,±,Æ,³•K—v,Å,·[]BWindows 98<y,ÑWindows NT 5.0,É,¯,ç
,Ä,í[]AOSŽ©’ì,³^ù,È,éf^fCfv,lfOf%oftfBfbfNfXf{[]fhšÔ,Å,lf}f<f`fXfNfŠ[]f“,ðfTf|[]fg,·,é
—\’è,Å,·[]B

f}f<f`fXfNfŠ[]f“,ðŽg—p,·,é[]Û,É,í[]ADirect 3D,â[]AOpenGL,lfAfvfšfP[]fVf†“,É¹²[]-
,ì[]\$CEÀ,³[]¶,¶,Ü,·[]B<ì’ì“l,É,í[]Afn[]fhfEfffA fAfNfZf%ofCE[]fVf†“,í^è-†-ú,lfOf
%oftfBfbfNfXf{[]fh’κ,Å,μ,©[]s,í,ê,È,ç[]A,à,μ,,lf<f%œ-Ê,ÅŽÀ[]s,μ,½,Æ,«,μ,©[],’-
%o»,³,ê,È,ç[]A,È,Ç,Å,·[]B

fEfCf“fhfE,ì[]\$CEä,âf,ffj^,ì[]†”Ô,ì•ï[]X,ð[]s,κ,É,í[]A ELSA WINman (ELSA[]Ý’è),ðŽg—p,μ,Ä,-
,¾,¾,ç[]B

ftjHf“fg fTjCfY

Windows, ÅŽg—p, : éftjHf“fg fTjCfY, í² □ @ % Å “ \, Å, · □ BftjHf“fg fTjCfY, í □ A800x600, Ü, Å, ì
% ð ‘ œ “ x, Å, í 96dpi (□ ¬) □ A1024x768 ^ È □ ã, ì % ð ‘ œ “ x, Å, í 120dpi (‘ å), ¢ • □ ‘ ÊŽg—p, ¢, ê, Ü, · □ B

f, fjjf^ ff[]f^, ìCE^`è

ELSA fOf%oftfBfbfN f{[]fh, ðf, fjjf^, É“K[]#, ³, ¹, é, É, Í[]Af, fjjf^“ @[], ìff[]f^, Æ”Í^Í, ðCE^`è, ·, é, ±, Æ, º·K—v, Å, ·[]B
·, ±, ±, Å, Í[]Af, fjjf^, ì[]Å’â[]...·½’-[], Žü”g[]”(kHz), º“Á, É[]d—v, Å, ·[]B, ±, ì[]ãCEÀ, ð’´, ·, é, Æ[]A[]Å^«, ì[]ê[]#f, fjjf^, ÉCEì[]á, ð—^, ·, ±, Æ, º, , è, Ü, ·[]B

f, fjjf^, ìf[][]fj[][]Af, fjjf^, ì@Ží-¼

’É[]í[]Af[][]fj[][], ·, æ, ÑCE^ -¼, ìf, fjjf^, ì”w-Ê, É, , è, Ü, ·, º[]A, È, ç[]ê[]#, ìf, fjjf^ f}fjf...
fAf<, ðŽQ[]Æ, µ, Ä, , ¾, ³, ç[]B

CEö[]ìf, fjjf^ fTfCfY

f, fjjf^ fTfCfY, ì’I, Í[]A%oA<ÉüŠÇ(CRT), ì’ÍŠp[]ü, ìCEö[]ìfTfCfY, Å, ·[]B, ±, è, Í[]A%oAŽ<·\Ž|—
ì^æ, ì’ÍŠp[]ü, ìfTfCfY, æ, è, à[], µ’â, «, È’I, Å, ·[]B^ê”É“I, È’I, Í[]A14" (35.5 cm)[]A17" (43 cm)
[]A, Ü, ½, ì20" (51 cm), Å, ·[]B<L[]+[]u"[]v, ìfCf“f` (2.54 cm), ð·\, µ, Ü, ·[]B

[]...·½’-[], Žü”g[], ì”Í^Í(kHz)[]A
[], ¼fŠftfCEfbfVf... fCE[]fg, ì”Í^Í(Hz)

[]Å’â, ·, æ, Ñ[]Å’á, ì[]...·½’-[], Žü”g[], ÆfŠftfCEfbfVf... fCE[]fg, Í[]A, “Žè<- , ìf, fjjf^ f}fjf...
fAf<, É<L[]Ú, ³, è, Ä, ç, Ü, ·[]B
·, ±, ±, Å, Í[]Af, fjjf^, ì[]Å’â[]...·½’-[], Žü”g[]”(kHz), º“Á, É[]d—v, Å, ·[]B, ±, ì[]ãCEÀ, ð’´, ·, é, Æ[]A[]Å^«, ì[]ê[]#f, fjjf^, ÉCEì[]á, ð—^, ·, ±, Æ, º, , è, Ü, ·[]B, » , ì¼, ì’I, ºCE^, Ü, ç, È, ç[]ê[]#
[]Af[f[], ì, Ü, Ü, É, µ, Ä, ·, ç, Ä, ©, Ü, ç, Ü, ¹, ñ[]B

f, fjjf^, ìfvf[]fpfefB, ìCE^`è

f, fjjf^, ìfvf[]fpfefB, ðCE^`è, ·, é, É, Í[]AZŽ, ÉŽI, ·, ç, , Å, ©, ì·û-@, º, , è, Ü, ·[]B

f, fjjf^ f}fjf...fAf<:

f, fjjf^, ì<Z[]pŽd—I, Í[]Af, fjjf^, É·t’®, ·, éf}fjf...fAf<, É<L[]Ú, ³, è, Ä, ç, Ü, ·[]B

VESA DDC:

f,ffj^,ÉVESA DDC fRfifNf^,a'•"ö,³,êAfOf%oftfBfbfN f{[]fh,a VESA DDC
ÆÝŠ,ìê[]Af,ffj^ ff[]f^,Íf,ffj^ fP[]fuf<,ð%ôî,µ,ÄfOf%oftfBfbfN f{[]fh,ÉŽ©"®"I,É'—
[]M,³,ê,Ü,·[]B

VESA VDIF f,ffj^<L[]qftf@fCf<(*.VDA):

f,ffj^,ÉVESA VDIFf,ffj^<L[]qftf@fCf<(*.VDA),ª"Y•t,³,ê,Ä,ç,éê[]A•K—v,Èff[]f^,Í,±
,ê,©,ç"Ç,Ý[]ž,Ü,ê,Ü,·[]Bf,ffj^ ff[]f^,ð"ü—Í,·,é,Æ,«[]AWINman (ELSA[]Ý'è)
,É[]AVDIFftf@fCf<,ð"Ç,Ý[]ž,þ,½,ß,ìf{f^f",ª•\Ž!,³,ê,Ü,·[]B

ELSA f,ffj^<L[]qftf@fCf<WINman.MON:

ELSA f,ffj^<L[]qftf@fCf<WINman.MON,ÉŽg—p,·,éf,ffj^,ª<",ª,Á,Ä,ç,ê,Î[]A,»,±,©,çf,ffj^
ff[]f^,ªŽæ"¾,³,ê,Ü,·[]B,±,ê,Í[]Af,ffj^ ff[]f^"ü—Í,ì[]Ù,Éf,ffj^,ìf[][]fj[][,Æ<@Ží-¼,ð'I'ð,·,é,±
,Æ,ÅŽ©"®"I,É[]s,í,ê,Ü,·[]B

f, fjjf^ f} fjjf... fAf<

ELSA fOf%oftfBfbfN

f{ [fh, ðf, fjjf^, ÉÅ“K, Èó’Ô, Å“K‡, ³, ¹, é, ½, ß, ÉAŽŸ, ÉŽ!, .ff [f^, ðf, fjjf^, ìf} fjjf... fAf<, Å’T, µ, Ä, -, ¾, ³, ç B

f, fjjf^ f [fj [Af, fjjf^, ì<@Ží-¼ AfCf“f` ,Ü, ½, ÍZf“f` ‘P^Ê, ìîŠpü, ìŒö [f, fjjf^ fTfCfY (= fCf“f` ,Ü, ½, ÍZf“f` ‘P^Ê, ìCRT, ìîŠpü fTfCfY) AKHz’P^Ê, ìÅ’á, ”, æ, ÑÅ’â... •½’- [Žü”g [(= [... •½ •ÎŒüŽü”g [= ‘-[fŒ [fg) AHZ’P^Ê, ìÅ’á, ”, æ, ÑÅ’â, ¼ftfŒ [fŒfŠftfŒfbfVf... fŒ [fg (= [, ¼ •ÎŒüŽü”g [) B

, ±, ±, Å, Í Af, fjjf^, ì<—e Å’â... •½’- [Žü”g [(kHz), a“Á, É d—v, Å, · B, ±, ìãŒÈ, ð’ , ì, é, Œ A Å^ «, ìê‡f, fjjf^, ÉŒ ì á, ð—^ , ·, ±, Œ, a, , è, Ü, · B

WINman.MON

ELSA f,ffj^<L□qftf@fCf<WINman.MON,ÉŽg—p,·,éf,ffj^,ª<“,ª,Á,Ä,ç,ê,î□A,»±,©,ç“®□í^í,ª•ª,©,è,Ü,·□B,±,ìftf@fCf<,É,í□Af|fsf...f%□□,Èf,ffj^,ìŽǎ,È“Á□«,Æ□\$CEÀ,ª<L%□□,ª,è,Ä,ç,Ü,·□B

,±,ìASCIIfefLfXfg ftf@fCf<,É,íf,ffj^,ìff□[f^,ª<L□q,ª,è,Ä,ç,Ü,·□B,»ì<L□q,ìfGf“fgfŠ,íŽŸ,ì,Æ,“è,Á,·□B
f,ffj^,ìf□□[f]□□Af,ffj^,ì<@Ží-¼□AfCf“f`P^Ê,ì'îŠp□ü,ìCEö□ìf,ffj^
fTfCfY□AKHz'P^Ê,ì□Á'á,“æ,Ñ□Á'á□...•½'-□,Žü”g□□□AHz'P^Ê,ì□Á'á,“æ,Ñ□Á'á□,¼ftfCE□[f€
fŠftfCEfbfVf... fCE□[fg□Af~fŠ'P^Ê,ìfsfNfZf< fTfCfY/fhfbfg fsfbf` □B

,±,ìftf@fCf<,Á,íf,ffj^,ì<L□q,í—á,!,îŽŸ,ì,æ,α,É,È,è,Ü,·□B
LSA, GDM-17E40, 17", 29-82kHz, 50-150Hz, 0.26mm

%ođ'œ"xAHorFrequency = ...•½'-,Žü"g"AVerFrequency = ,¼fŠftfĚfbfVf...
fĚ[fgAPixelClock = fsfNfZf< fNf[fbfN fĚ[fgATotalTime = ŽžŠÔ‡ĚvAAddrTime = •\
Ž!ŽžŠÔABlankStart = •Ž!,žŽn,Ü,Á,Ä,©,çuf%of"fLf"fo,žŽn,Ü,é,Ü,Å,ìžžŠÔABlankTime =
fuf%of"fLf"foŽžŠÔASyncStart = •\
Ž!,žŽn,Ü,Á,Ä,©,ç"Šúfpf<fX,žŽn,Ü,é,Ü,Å,ìžžŠÔASyncTime =
"Šúfpf<fX,ìž'±ŠúŠÔ,È,Ç,ìf,jjf^ f^fCf~f"fo,ìff[f^ fZfbfgB

VESA VDI f, fff^<L qftf@fCf<, i“Ç, YŽæ, è

ELSA fOf%oftfBfbfN f{[]fh, ðf, fff^, É“K[]±, ³, ¹, é, ½, ß, É[]Af, fff^“ @[]ì, ìff[]f^, Æ”í^í, ðCE^è, , é, ±, Æ, ², K—v, Å, ·[]BŽg—pf, fff^, ÉŠY“—, , é VESA VDI f, fff^<L qftf@fCf<(*.VDA)
, ², , è, î[]A, » , ìftf@fCf<, ðŽg—p, µ, Ä, , ¾, ³, ç[]B, » , ì’¼, ì·û—@, í[]Af, fff^ ff[]f^, ìCE^è, Æ, ç, æCE@[]o, µ, Å[]à—¾, ³, è, Ä, ç, Ü, ·[]B

[WINman (ELSA[]Y’è)], ì[VESA VDI f, fff^<L qftf@fCf<, ð“Ç, YŽæ, é], ìf_fCfAf[]fO, Å[]A, Ü, , ·K—v, Èffj%[]ffvfX (‘É[]í[]A8 bpp = 256[]F), ð’í’ð, µ, Ü, ·[]Bffj%[]ffvfX, ², , ç, Æ[]A’í’ð, Å, «, éf, fff^ f^fCf~f“fO, ì’í, ÌŽ©“ @“í, É[]¬, ³, , È, è, Ü, ·[]BŽY, É·K—v, Èf, fff^ f^fCf~f“fO, ð’í’ð, µ, Ü, ·[]B[]Å[]% , Ì, Å, ì’í, íX, ÆY, ì%ð’œ“x ([]... ·½, Æ[], ’¼, ì%ð’œ“x), ð·\, í, µ, Ü, ·[]B%ð’œ“x, ìf, fff^ ftfCfY, ² 15", Ü, Å, ìf, fff^, É, í 800 x 600[]A16", ©, ç18", Ü, Å, ìf, fff^, É, í 1024 x 768[]A19" ^È[]ä, ìf, fff^, É, í 1280 x 1024, ², ·[]É, Å, ·[]BŽY, ì’í, ìftfCE[]f€, ìfŠftfCEfbfVf... fCE[]fg(ftfCE[]f€/·b), ð Hz’P^É, Å·\, í, µ, Ä, ç, Ü, ·[]B

“wCEi, ì, Ü, Æ, ñ, Ç, ², ·[]fAfvfŠfP[]fVfj“, ì[]ê[]±[]A60 Hz, Å[]\, ², Å, ·[]B, æ, è”wCEi, ì—¾, é, çWindows, ì, æ, æ, ÈfAfvfŠfP[]fVfj“, ì[]ê[]±[]A, ç, ç, Å, «, ð—hŽ~, , é, ½, ß, É[]A[]Á’á75 Hz^È[]ä, ÅŽÀ[]s, µ, Ä, -¾, ³, ç[]B’É[]í[]A[]Á“K, ÈfŠftfCEfbfVf... fCE[]fg, í85 Hz, Å, ·[]BfŠftfCEfbfVf... fCE[]fg, ²100 Hz, ð%oz, ì, Ä, à—Ü, ÅŠm”F, Å, «, é%ü’P, í, , è, Ü, ¹, ñ[]B
—²CEê[]ui[]v, , æ, Ñ[]uni[]v, í[]A, » , è, ¾, èfCf“f^[]fCE[]fX, , æ, Ñfmf“fCf“f^[]fCE[]fX, ð·\, í, µ, Ä, ç, Ü, ·[]B

kHz, ì’í, í[]... ·½’—[]_Žü”g[]”, ð·\, í, µ, Ü, ·[]B, ±, è, ²f, fff^, ì[]Å’å[]... ·½’—[]_Žü”g[]”, ð’í, ì, Å, í, ç, , Ü, ¹, ñ(VDI ftf@fCf<, Å’í, , é, ±, Æ, í, , è, Ü, ¹, ñ)[]BMHz, ì’í, ìfsfNfZf< fNf[]fbfN, ð·\, í, µ, Ü, ·[]BfOf%oftfBfbfN f{[]fh, í[]A, » , ìfsfNfZf< fNf[]fbfN, ð[]¬[]¬, Å, «, é, ±, Æ, ², K—v, Å, ·(WINman, ²f`fFfbfN, µ, Ü, ·)[]B

f, fff^ f^fCf~f"fo, ð VESA VDIF ftf@fCf<, Æ, µ, Ä•Ü'¶, ·, é

[WINman (ELSA ð'è)], ìf_fCfAf[]fO[VESA VDIF f, fff^<L[]qftf@fCf<, Æ, µ, Ä•Ü'¶]
, Ä, í[]A[]V, µ, çf, fff^ f^fCf~f"fo, ð VESA VDIF f, fff^<L[]qftf@fCf<(*.VDA), É•Ü'¶, ð, è, Ü, ·[]B

, ±, ±, Ä, í[]AWindows, í[]V, µ, çfOf%oftfBfbfN f, []fh, É, í[]Ø, è'Ö, í, è, Ü, ð, ñ[]B

VDIF, í[]Af, fff^ "Á[]«, ð<L[]q, ·, é, ½, ß, ìff[]f^Æ'Ž® , ð'è<` , ·, éVESA<KŠi, Ä, ·[]BVDIFftf@fCf<, É, í
%oæ-É, ì'íŠpüfTfCfY, È, Ç, ìf, fff^ "Á[]«, â[]A[]Á'â<-—e[]... •½'-[], Žü" g[]" (kHz)
, È, Ç, ìf, fff^, ì"®[]"í^í, É, Ä, ç, Ä, ìff[]f^, ðŠÜ, Ü, è[]A, » , ì[PREADJUSTED_TIMING]
, ìfZfNfVfjf" , É, íŠY"- , ·, éf, fff^, É"K, µ, ½f, fff^ f^fCf~f"fo, É, Ä, ç, Ä, ìff[]f^ fZfbfg, ð<L[]q, ð, è, Ä, ç
, Ü, ·[]B

VDIFftf@fCf<, ðŽg—p, ·, é, Æ[]Af, fff^ fff[]f^, ì•Ü'¶[]A^ø"n, µ[]A[]Ä—~—p, ð, Ä, «, Ü, ·[]B

[WINman (ELSA ð'è)], í[]A[]V<KVDIFftf@fCf<—

p, ìfef"fvfÆ[]fg, ð[][]—, µ, Ü, ·[]BWINTM, Ä, í, ·, x, Ä, ì[]€—Ü, ð"ü—í, ð, è, é, í, ·, Ä, È, []Aftf@fCf<, ð—~—
p, ·, é, ì, É[]Ä"Ç, Ý[]ž, Ý, ·, é•K—v, ì, ·, é[]€—Ü, ¾, ·, Ä, ·[]Bftf@fCf<, ð'¼, ìfvf[]Of%o€ , ÄŽg—
p, ·, é[]è[]#[]A'¼, ì[]€—Ü, à"ü—í, µ, È, ·, è, ì, È, è, Ü, ð, ñ[]BfL[]f[]fh, ð, ·, é, ì, É[]A[]u= []v<L[]t, ì%oÉ'x
, ð<ó" , ì[]ó'Ö, Ä, ·, è, ì[]A•s'« , µ, ½[]î•ñ, ð<L"ü, µ, È, ·, è, ì, È, è, Ü, ð, ñ[]B*.VDA VDIF, í[]f^ , È
ASCIIftf@fCf<, È, ì, Ä[]A^È[]ä, ì[]i<Æ, í•W[]€, ìfefLfXfg fGfffBf^ , Ä[]s, ì, Ü, ·[]B
WINman, í, ·, x, Ä, ìf, fff^ f^fCf~f"fo, É'í, µ, Ä[]V<Kftf@fCf<, ð[][]—, µ, Ü, ·[]B"~^éf, fff^ , É•i[]" , ìf, fff^
f^fCf~f"fo, ð'®, µ[]A, » , è, ç, ð, ð, Æ, Ä, É, ·, é[]è[]#[]AfefLfXfg
fGfffBf^ , ðŽg, Ä, Ä[]A'¼, ìftf@fCf<, ì[PREADJUSTED_TIMING]fZfNfVfjf" , ð[]Ä[]%o
, ìftf@fCf<, ì[]í, è, É'Ç%oÄ, µ, È, ·, è, ì, È, è, Ü, ð, ñ[]B

VDIFftf@fCf<-¼

VDIFftf@fCf<, ì[]Ä[]%o, ì 3•¶Žš, ìf, fff^ f[][]f[][-¼, Ä[]A'±, 5, Ä, ì•¶Žš, Ü, ½, í[]"Žš, ìf, fff^, ì<@Ží-
¼, Ä, ·[]Bftf@fCf<-¼, ìŠg'ÉŽq, í.VDA, É, µ, Ä, ·, ¾, ð, ç[]B"ü—í, ð, è, ½fPfX-
¼, í[]A, Ä, «, è, ìftf[]fbfs[][fffBfXfN, Ä, È, fn[]fh
fffBfXfN, ÉŽw'è, µ, Ü, ·[]Bftf[]fbfs[][fffBfXfN, ÉŽw'è, ·, é, Æ[]A•Ü'¶, É, ©, È, è'·, çŽžŠÖ, ð—
v, µ, Ü, ·[]B

Æö[]f, fff^ ftfCfY

f, fff^ ftfCfY, ì'í, í[]A%oA<É[]üŠÇ(CRT), ì'íŠpü, ìÆö[]fTfCfY, Ä, ·[]B, ±, è, í[]A%oÄŽ<•Ž|—
ì'æ, ì'íŠpüfTfCfY, æ, è, à, µ'â, «, È'í, Ä, ·[]B^è"É"í, È'í, í[]A14" (35.5 cm)[]A17" (43 cm) []A20"

(51 cm), Å, ·□B<L□+□u"□v, ífCf" f` (2.54 cm), ì, ±, Æ, Å, ·□Bfvf□fOf%of€, ðŽg—
p, ·, é, ì, ífCf" f` , ì' l, ¾, ¯, Å, ·, ð□A, ±, ì' l, ðCE^ , ß, é, ì, É□A' ÍŠp□ü, ìfTfCfY, ðfZf" f` , Å·\, í, μ, Ä□A
%oÅŽ<%oæ-Ê—ì^æ, ðfZf" f` , Å' æ' è, μ, ½, Ý, Ä, à, æ, ç, Å, μ, å, x□B

kHz□...·½'-□, Žü" g□" " í^ í□A

HZ□, '¼fŠftfCEfbfVf... fCE□[fg, ì" í^ í

□Å' á, Æ□Å' á, ì□...·½'-□, Žü" g□" , ÆftfCE□[f€, ìfŠftfCEfbfVf... fCE□[fg, íf, fjf^ f} fjf... fAf<.

, É, à<L□Ú, ³, ê, Ä, ç, Ü, ·□B

, ±, ±, Å, í□Af, fjf^ , ì□Å' á□...·½'-□, Žü" g□" (kHz), ð" Á, É□d—v, Å, ·□B, ±

, ì□ãCEÀ, ð' , ì, é, Æ□A□Å^ «, ì□ê□#f, fjf^ , ÉCEì□á, ð—^ , ·, ±, Æ, ð, , è, Ü, ·□B

VESA DDC (•Ž!ff[]f^ f`fff“fj<)

f,jjf^,ªVESAs DDC,ðfTf[]fjg,µ[]Af,jjf^ fP[]fuf<,ª DDC,É“K,µ[]AfOf%oftfBfbfN f{[]fh,ªVESAs DDCÉÝŠ·,ì[]ê[]#[]Af,jjf^ ff[]f^,ðfOf%oftfBfbfN f{[]fh,Éf,jjf^ fP[]fuf<,ð%oî,µ,ÄŽ©“®“l,É’— []M,Å,«,Ü,·[]B

ŽŸ,ÉŽ!,·,Æ,“,è[]ADDC1[]ADDC2B[]ADDC2AB,Æ,ç,α 3,Â,î^ù,È,Á,½<KŠi,ª, ,è,Ü,·[]B

DDC1

f,jjf^ fP[]fuf<,lf%ofCf“,í[]Af,jjf^,©,çfOf%oftfBfbfN,Ö‘P•ûCEü,î~A’±,µ,½ff[]f^ fXfgfŠ[]f€ ,ð’—[]M,·,é,ì,ÉŽg—p,ª,è,Ü,·[]B•W[]€,ì IBM VGACEÝŠ· 15-fsf“ f,jjf^ fRflfNf^,ì[]ê[]#[]Afsf“ 12 (^È‘O[]Af,jjf^ IDfrfbfg 1,Æ,µ,ÄŽg—p),Íff[]f^’—[]M,ÉŽg—p,ª,è[]Afsf“ 14,ì,¼“~Šú[]M[]t,í’— []MfNf[]fbfN(VCLK),Æ,µ,ÄŽg—p,ª,è,Ü,·[]B128fofCfjg,ìEDID ff[]f^ fZfbfg(Šg’£fffBfXfvfCfCID),í[]EJ,è•Ô,µ’—[]M,ª,è[]A,»,±,©,çfRf“fsf...[]f^,ÍŽå—v,Éf,jjf^ ff[]f^,ð“Ç,ÝŽæ,é,±,Æ,ª,Å,«,Ü,·[]B,±,ìff[]f^,ì[]\—v’f,í[]A3•¶Žš,ìf[][]fj[][,ìEISA-CFG fL[][]Af,jjf^ fTfCfY[]ADPMSfTfj[]fjg,ì”í^í[]Afjf%o[][“Á[]<[]AfTfj[]fjg,ª,è,Ä,ç,é VESA f,jjf^ f^fCf~f“fO,ìfŠfXfg[]A,ç,.,Â,©,ìŽ©—R,É’è<`,ì,Å,«,é,f,jjf^ f^fCf~f“fO,È,Ç,Å,·[]B

DDC2B

12Cfvf[]fgfRf<,ÉŠî,Ã,‘o•ûCEüff[]f^ f`fffj<,ª[]Af,jjf^,ÆfOf%oftfBfbfN f{[]fhŠÔ,ì^È[]M,ÉŽg— p,ª,è,Ä,ç,Ü,·[]B•W[]€,ì IBM VGACEÝŠ· 15-fsf“ f,jjf^ fRflfNf^,ì[]ê[]#[]Afsf“ 12 (^È‘O[]Af,jjf^ IDfrfbfg 1,Æ,µ,ÄŽg—p),Íff[]f^’—[]M,ÉŽg—p,ª,è(SDA)[]Afsf“ 15(^È‘O[]Af,jjf^ IDfrfbfg 3,Æ,µ,ÄŽg—p),í’—[]MfNf[]fbfN(SCL),Æ,µ,ÄŽg—p,ª,è,Ü,·[]BfOf%oftfBfbfN f{[]fh,í’Z,çEDID[]î•ñ(DDC1ŽQ[]Æ) ,Æ[]A,æ,è•îŠ†“l,ÈVDIF[]î•ñ(VESAfffBfXfvfCfCŽ~•Éftf@fCf<),ð<α,É—v<[],Å,«,Ü,·[]B

DDC2AB

DDC2B,ìŽŸ,ìDDC2AB,Å,í[]A%oæ-É,ì^É‘u,â-¾,é,ª,ì’²[]®,È,Ç[]Af,jjf^[]\$CEä,ìfRf}f“fh,ðfRf“fsf... []f^,©,ç’—[]M,·,é,±,Æ,ª,Å,«,Ü,·(ACCESSfofX,É<β,ç)[]B

VESA DPMS

ffBfXfvfCfC,ì“d—ÍŠÇ—M

VESA DPMS<KŠi,íAf,ffj^—çŽg—pŽž,ìÈ“d—Íf,[]fh,É[]Ø,è‘Ö,í,é•û-@,đ<L[]q,μ,Ä,ç,Ü,·[]B,±,ì•û-@,ÍfXfNfš[]f“ fZ[]fo[] fvf[]Of%of€,È,Ç,É,æ,èŽ©“®“I,É<N“®,Å,«,Ü,·[]B,±,è,ÍfL[]f{[]fh,Æf}fEfX,ª, ,é^è‘è,ìžžŠÔŽg—p,³,è,È,ç,Æ[]Af,ffj^,đÈ“d—Íf,[]fh,É,μ,Ü,·[]BfL[],đ%öÿ,·,©f}fEfX,đ“®,©,·,Æ[]Af,ffj^,Í[]í,È“®[]ì,É[]Ø,è‘Ö,í,è,Ü,·[]B

,±,±,Å‘è<` ,³,è,éDPMS[]ó‘Ô,ÍŽÿ,ì4,Â,Â,·[]B

ON

“d—Í,ì[]β-ñ,È,μ[]A³[]í“®[][]AffBfXfvfCfC,ÍfAfNfefBfu[]B

fXf^f“fofC

“d—Í,ì[]β-ñ,í,í,,©[]A•œ<AŽžŠÔ,Í‘Z,ç[]B

%œ-Ê,đfuf%of“fN,É,μ[]A[]...•½“~Šú[]M[]t,đflft,É,·,é,±,Æ,Åf,ffj^,É‘—[]M,³,è,Ü,·[]B,±,ìf,[]fh,Í[]í,ÉfTf[]f[]fg,³,è,Ä,ç,é,í,~,Å,Í, ,è,Ü,¹,ñ[]B

fTfXfyf“fh

,©,È,è,ìÈ“d—Í[]A•œ<AŽžŠÔ,Í‘,ç[]B

%œ-Ê,đfuf%of“fN,É,μ[]A[],'¼“~Šú[]M[]t,đflft,É,·,é,±,Æ,Åf,ffj^,É‘—[]M,³,è,Ü,·[]B

OFF

[]Å‘â,ìÈ“d—Í[]A•œ<AŽžŠÔ,Í[]Å‘·[]B

%œ-Ê,đfuf%of“fN,É,μ[]A[]...•½[],'¼,ì“~Šú[]M[]t,đflft,É,·,é,±,Æ,Åf,ffj^,É‘—[]M,³,è,Ü,·[]B

fCefWfXfgfŠ,ift[fU fAfJfEf“fgC —~

fCefWfXfgfŠ,Ö,ì,«ž,ÝC —~,đŽ,Á,Ä,ç,È,ç,½,ß,É[A[OK],Ü,½,í[“K—p]f{f^f“,đ
%oÿ,μ,½Cã,É[AfOf%oftfBfbfN f,[fh,đØ,è'Ö,!,é,±,Æ,ì,Ä,«,È,çŽ,đ'm,ç,¹,éfgf
%o[ffbfZ[fW,ºo,½ê#AZÿ,ÉŽ!,·,Æ,“,èAŞÇ—ŽÒ,É,»,ìC —~,đ—v<[μ,Ä,,¾,³,çB

fCefWfXfgfŠ,Å[A[HKEY_LOCAL_MACHINE]AZÿ,É[System\CurrentControlSet\Services\
WINNER],Æi,ñ,ÅfL[,đ'l'đ,μ,Ü,·B[Security]x[Permissions],đ'l'đ,μ,Ä[Af_fCfAf]fO[Registry
Key Permissions],đŠ,«,Ü,·B
,±,ìfL[,É'í,μ,ÄA•K—v,Èft[fU fOf<[fv('Éí[AçUsers£,Ü,½,ÍçPower User£),ì[Registry Key
Permissions],đŠg'£,μ,Ü,·B,Â,Ü,è,±,ìfOf<[fv,É'í,μ,ÄA[Special Access...],ì,Æ,±
,ë,ÅA[Query Value]A[Set Value]A[Create Subkey]A[Enumerate Subkeys]A[Delete]
,ìŠefAfNfZfXC ,đ—^,!,ÄA[Type of Access],đC³,μ,Ü,·Bf_fCfAf]fO[Registry Key
Permissions],Åf`fFfbfNf{fbfNfX[Replace Permission on Existing Subkeys]
,đfAfNfefBfu,É,μ,Ü,·B

