8)5
,QIUDURWWKHUPRPHWHU
%HGLHQXQJVDQOHLWXQJ

,QKDOWVYHU]HLFKQLV

(LQOHLWXQJ
.RQIRUPLWWVHUNOIUXQJ
6SH]LILNDWLRQHQ
6\PEROH
:LFKWLJH 6LFKHUKHLWVKLQZHLVH
(UNOIUXQJ GHU (LQ]HOWHLOH
(LQOHJHQ GHU %DWWHULH
hEHU GLH 1RUPDOWHPSHUDWXU)LHEHU
(LQVWHOOXQJ GHV *HUIWV
%HGLHQXQJ
)HKOHUPHOGXQJHQ
*DUDQWLH
(09

'DQNH GDVV 6LH GLHVHV DXWRPDWLVFKH :DQGWKHUPRPHWHU 0DUGHQ 8)5 HUZRUEHQ KDEHQ
'LHVHV 7KHUPRPHWHU ZLUG YHU]HQGHQ XP GLH 7HPSHUDWXU YRQ ,QGLYLGXHQ DOOHQ $OWHUV]X
PHVVHQ 8P GLH NRUUHNWH 9HUZHQGXQJ GHV 7KHUPRPHWHUV VLFKHU]XVWHOOHQ OHVHQ 6LH GLH ELWWH GLH
%HGLHQXQJVDQOHLWXQJ VRUJIIOWLJ GXUFK XQG EHDDKUHQ VLH GLH JIUILHEHUH DXI

.RQIRUPLWWVHUNOIUXQJ

v 'LHVHV 3URGXNW XQ JHPI GHU 6LFKHUKHLWLQ   (:* EHU 0HGL]LQSURGXNWHQ]XJHODVV
v 'LH YROOH 9HUDQWZRUWXQJ I U GLH .RQIRUPLWIW GLHVHV 3URGXQNWV PLW GHU 1RUP ZLUG

.ODVVLILNDWLRQ

,QWHUQ EHWULHEHEHQHV *HUIW
*HIWHW\S %)
*HVFK]WJHJHQ :DVVHU]XWULWW XQG]HLQVWXEH ,3
.HLQ (TXLSPHQW GHU .DWHJRULH $3 $3*
%HWULHEVPRGXV 'DXHUEHWULHEH

$PHUNXQJ HEHUSU IHQ 6LH GLH)XQNWLRQHQ GHV *HUIWV YRU GHU 9HUZHQGXQJ XQG VWHOOHQ 6LH
VLFKHU GDVV HV VLFK LQ EHWULHEEHUHLWHP =XVWDQG EHILQGHW

6SH]LILNDWLRQ

0HVVEHUHLFK	&a &)a) &) FP ± FP /(' 6HNXQGH 6WXQU
*HQDXLJNHLW	)DQJNDQNH GRSSHOSHLWJLHV .OHEHEDQG +DOWHUXQJ I
0HVVDEVWDQG	U HOLDQG 6WLQGKU
'LVSOD\	*U Q 7HPSHUDWXU &) 5RW 7HPSHUDWXU &)
hEHNRPSORJVD\	/LWKLXP &D J KRQK %DWWHULH PP PP [PP
0HVVDODOGXQJ	%LV 7HPSHUDWXUHQPVXQJHQ
/(' $EULGQLDWRU	JHSURPJRUV a WR
6WURP	8PJHEXQJVWHPSHUDWXEUHUHLFK &a &
*HZLFKW	5HODWLYHU)HXFKWLNHLWVHEHUHLFK a 5+
*HPHVVLRQHQ	0LW 9RUVLFKW EHKDQGHOQ +LWJH 6RQQHQOLFKW XQG :
%DWWHULHODXIGUN	DVVHU YHUPHLGHQ -DKUH
%HWULHEVSHEXQJ	
$XEHZDKUXQJ 7UDQVSRUW	
/JZURWUHWH /EHOHQVGDXHU	

6\PEROH

⚠ :$5181* 'LHV :DUQXQJ ZHQQHLFKHW 7HIDKUHQH GLH]X VFKZHUHQ 9HUOHW]XQJHQ
RGHU]XP 7RG I KUHQ N|QQWH

⚠ 9256,&+7 'LHV :DUQXQJ ZHQQHLFKHW 7HIDKUHQH GLH]X OHLFKWHUHQ 9HUOHW]XQJHQ
RGHU 3URGRXNWVFKGGH RGHU]X 6DFKVFKGGHQ I KUHQ N|QQWH

♻ 'HIEWHW\S %)

⊟ +HUVWHOOHU

SN 6HULHQQXPPHU

EC REP (8 5HSUIVHQWDQW

CE &(=HLFKHQ (QWVUXLFKW GHU JUXQGOHJHQGHQ $QIRUGHUXQJHQ GHU 5LFKWOLQLH
((I U GLH 0HGL]LQSURGXNWH

⊠ (17625'81* (QWVRUJHQ 6LH GLHVHV *HUIW LP XQWUWLHWWWHQ +DXVV OO 'V
VUROOWH VHSDUDW JHKDQGHOW XQG VSHLHOO HQWVRUJHQ ZHUGHQ
*HOHFKWURP

☺ %HIROJHQ 6LH GLH %HGLHQXQJVDQOHLWXQJ

:LFKWLJH 6LFKHUKHLWVLQIRUPDWLRQHQ

/HVHQ 6LH GLH IROJHQGHQ $QZHLVXQJHQ ELWWH DXIPHUNVDP GXUFK EHYRU
6LH GDV *HUIW YHUZHQGHQ

⚠ :$5181*
v 'LHVHV 7KHUPRPHWHU LVW QLFKW DOV (UVDW] I U HLQHQ $U]EHVXFK JHGDFKW 'LH
  0HVVXQJ GHU 6WDQGDUGWHPSHUDWXU VROOWH QXU DOV 5HIHUHQ] YHUZHQGHQ ZHUGHQ
v 'LH JUXQGOHJHQGHQ 6LFKHUKHLWVYRUNHKUXQJHQ VROOOWHQ LPPHU EHIROJW ZHUGHQ
  EHKOLQGHUQHQ ZHQQ GDV 7KHUPRPHWHU DQ RGHU LQ *HJHQZDUW YRQ .LQGHUQ RGHU
  EHKLQGHUWHQ 3HUVRQHQ YHUZHQGHW ZLUG
v 9HUPHLGHQ 6LH GLH GLUHNWHQ 6RQQHQOLFKW
v)DVVHQ 6LH GLH /LQVH QLFKW DQ
v 0RGLIL]LHUHQ 6LH GDV *HUIW QLFKW
v $V 9HUVFKOXFNHQ YRQ .OHLQWHLOHQ ZLH GHU 9HUSDFNXQJ %DWWHULH %DWWHULHGHFNHOJ
  HWF NDQQ]X (UVWLFNXQJ I KUH

⚠ $&+781*
v &HQW\OHQ 6LH GLH ELWWH NHLQH WUHG QQJQQPLWWHOO $ONRKRO RGHU 5HLQLJXQJVEHVO]LQ XP
  GDV *HUIW]X UHLQLJHQ 'DV +NGGGHQ GHQ 6FKLUP I YHUZHQGHQ XP GDV *HUIW]X YRU
  6DPPHOVWHOOH]X JHVIFKHQ
v 7DXFKHQ 6LH HV ELWWH QLFKW LQ O VVLJNHLWHQ HLQ
v %LWWH HQWQHKPHQ 6LH GLH %DWWHULHQ ZHQQ 6LH GDV *HUIW I U 0RQDWHQ QLFKW
  YHUZHQGHQG
v (UVHWHQ 6LH GLH %DWWHULHQ GDVV 6LH GDV 6\PERO I U QLHGULJHQ /DGHVWDQG VHKHQ
v 0LVFKHQ 6LH NHLQH DOWH XQG QHXH %DWWHULHQ
v 1XWHQ 6LH 6LH GLH *DUDQWLH]LNXQXJH GHP 7UDQVSRUWHU
v *HERWROHQ 6LH GDV *HUIW QLFKW ZHQQ GLH +DXW YHUOHW]W LVW
  .QIHNWRU]XJ GHU *\S \ .DHLO 'LJHQWGH GDV SDUWHQ] GLH SDUWHQWHQ I NW
  9HUOHW]XQJHQ DXIY %HQWXQHV I KUH NDQN

(QWVRUJXQJ
v (QWVRUJHQ 6LH HOHNWULVFKH 7HLOH QLFKW LP +DXVP OO VRQGHUQ YHUZHQGHQ 6LH VHSDUDWH
  6DPPHOVWHOODWLRQHQ QRQWDNWJHQ 6LH LKUH /RNDOUHDXODWLRQ]XP ,QIRUPDWLRQHQ]X GHQ
  6DPPHOVWHOOHQ ZHQQ GLH DOOJHPHLQ JQQ[WLJH 6XEZDQGOQ LQ GDV 'UXQJGVZDVV VLFKHUQ

:DUWXQJ XQG 3IOHJH
v %HDKZDKUHQ 6LH GDV 7KHUPRPHWHU LQ HLQHQ WURFNHQHQ 8PJHEXQJ LQ VHLQHP %R[D[HU ZHQQ
v HV QLFKW YHUZHQGHV ZLUG
v 6LXEHUQ 6LH GHU *HUIW YRU MHGHP *HEUDXFK ZHLHKHVW 7XFK 9HUZHQGHQ 6LH NHLQH
v VFKNHUVHQXQD 3XLQLWWHOWR
7DYIXQJ 6LH GDV *HUIW QLFKW LQ L GOVVLJNHLW
$XE/(5.81* 'HU HMQWWUQOLVHV VFKLFWK YHUDEZRUWOLFK I U TXDOLWDWLYH RGHU
WHFKQLVFKHU GHKJGQ GLLH]X LQ LLGGHU GHYLDOHQ VLQOHLWXQJ DXIIKUW GXUFK GUXFN NQRUURQNW YHUZHQGHQG
XQG 3IOHJH HQWVWDQGHQ VLQG

(UNOIUXQJ GHU (LQ]HOWHLOH

*HIWW

,QIUDURWVHQVRU
$XWR 6HQVH 3UREH
0HVVVHQVRU
'LVSOD\
67$57 6723 .QRSI
%DWWHULHGHFNHO
7\S & $QVFKOXVV
(UVHW]HQ 6LH GLH %DWWHULH GDUG 6LH %HO I U QLHGULJHQ /DGHVWDQG VHKHQ
0LVFKHQ 6LH NHLQH DOWH XQG QHXH %DWWHULHQ
=EHUQ]HQXQJ G]X %HQWXQHV I UHQ NDQN

'LVSOD\

7HPSHUDWXUPHVVJHVW
/(' ,QGLNDWRU
&HOVLXV &
)DKUHQKHLW)
/DGHVWDQGDQ]HLJH

(UNOIUXQJ GHU %DWWHULH

(QWIHUQHQ 6LH GHQ 'HFNHO GHV %DWWHULHIDFKV LQ 5LFKWXQJ GHU 3IHLOV
) KUHQ 6LH HLQHQ 9 /LWKLXP %DWWHULH LQ GDV)DFK HLQ XQG VWHOOHQ 6LH
VLFKHU GDVV 9 GLH 3RODULWIWHQ LQ GLH ULFKWLJH 5LFKWXQJ VFKDXW ZLH DXI GHP)DFK
JHNHQQ]HLFKQHW LVW
6FKOLHH HQ 6LH GDV %DWWHULHIDFK

:HQQ GDV /DGHVWDQGVEPERO DXI GHP 'LVSOD\ DXIOHXFKWHQ P VVHG 6LH GLH %DWWHULH
GHP PLWJHOLHIHUWHQ /DGHNDEHO DXIODGHQ 6WHFNHQ 6LH GDV .DEHO LQ HLQHQ 7\S &
$QVFKOXVV 6WHFNEHQRV YRQ HQHJLH YRUJHVFKWOLFK :LUXHQ GHV /DGHYRUJDQJV
]X IDFK WXWXQJ XP GHQ YROODGHQ /DGHVWDQGJ]X HUUHLFKHQ :KUHQG GHV /DGHYRUJDQJV
GDV %DWWHULHV\PERO 'LVSOD\ XQG JU QHU GLH IUHLHQ GHU VLFK QDFK $EVFKOXVV GHV
/DGHYRUJDQJV URW I ULWZ

⚠ :$5181*
(QWVRUJHQ 6LH GLH %DWWHULHQ LP (LQNODQJ PLW GHQ ORNDOHQ *HVHW]HQ XQG EHUEHQKHQGXQ
QLFKW XP)HXHU RGHU :UPH XQG ([SORVLRQVJHIDKUHQ]X YHUPHLGHQ

9HUZHQGXQJ GHV $GDSWHUV 2SWLRQDO

'HU 2SWLRQDOHQ :HFKVHOVWURPDGDSWHU VROO GLH $QIRUGHUXQJHQ YRQ ,(&
'DU EHU KLQDXV P YVQ GDV 2XWSXW GHU $QIRUGHUXQJHQ GHV $QIRUGHUXQJV]XJIQJ I U KRHQWZLUNOLFK
6\VWHPH HU OOHQ VLHHLQ ,(&   E]Z $EVFKLQW GHU YRQ ,(&   -HGHU GHU
=XVIW]JHUIWHW YHUZHQGHW ZLUG GLH HOHNWULLKNHQ DXVJHVWDWWHW 7HLOH DQV ,QIRUPDWLRQHQ JHJHQ
6\VWHP XQG LVW GDKHU GD IU HUDDW]RUWOLFK GDV 6\VWHP GHQ $QIRUGHUXQJHQ KDEHQ ,(&
9RUVFKULIWHQ 9RUUDJ JHJHQ EHU RGHU EHQDG]HPQDHQ $QIRUGHUXQJHQ KDEHQ ,(&
=XU 9HUELQGXQJ PJOLFKHU 6FKGDHQ DP 0RQLWRU YHUZHQGXQJ 6LH HEL GHQ YHUKRQJHQ
:HFKVHOVWURP QXU GHQ H[NVWOVYH 1HWWHO RGHU GHQ $GHNZDVW GLH DXVJHDRUL HKL HLQHQ
6WHFNHQ 6LH GDV $GDSWHUVWHFNHU ZHLH DEJHELOGHW LQ GDV /RFK DXI GHU 5 FNVHLW
6WHFNHQ 6LH GLH DQGHUHQ 6HLWH GHV $GDSWHUVWHFNHUV PLW
=XP (QWQHKPHQ GHV :HFKVHOVWURPDGDSWDWHU]LHKHQ 6LH]XHUVW GHQ $GDSWHUV
6WHFNRVFKHV XQG]LHKHQ 6LH GDQQ GDV .DEHO DXV GHU *HIWHV

---

hEHU GLH 1RUPDOWHPSHUDWXU)LHEHU

'LH 7HPSHUDWXU GLH DQ GHQ 6WLUQ RGHU 6FKOIIH JHPHVVHQ ZLUG XQWHUVF
VFKHLGHW VLFK YRQ GHU YRQ
LQWHUQHQ 7HPSHUDWXU GLH RUDO RGHU UHNWRO JHPHVVHQ ZLUG ,Q GHQ
HUVWHQ GHV 6WDEGDHV
)LHEHUV NDQQ HV]X HLQHU)HWW YHUIROJHQJ NRPPHQ GLH GOXVJHII H YHUHQJH
)DOO GHU SHULSKHUHUHQ
$XWRWHPSHUDWXU VHQNW ,Q GLHVHP)DOO N|QQWH GLH 0HVVXQJ GHV ,QIUDUR
WZHP]
VFKQLFK QLHGULJ DXV 6ROOWH GLH 0HVVXQJ GDKHU QLFKW PLW GHU :
UWHQ GHU
3DWLHQWHQ EHUHLQVWLPPHQ RGHU XQJHZKQOLFK QLHGULJ DXVIDOOHQ VR
ZLHGHUKROHQ 6LH $OV)LHEHU] NQQQOQ 6LH DXFK PLW +LOIH HLQHQ
7KHUPRPHWHUV GLH LQWHUQH 7HPSHUDWXU PHVVHQ 'LH .|USHUWHPSHUDWX
3HUVRQ]X GHU QGFVVHQ XQWHUVFKHLGHQ 6LH NDQQ EHL PLW HLQHQ HLQ]HOQH
3HUVRQ GXUFK 2XU YROOHQ
XQG 7DJHV]HLWHQ DEKQJLJ VHLQ 'LH IROJHQGH 7DEHOOH]HLJW GLH VWDGDVVWU
GHU HLQ]HOQHQ ,JSUVWHUVWHOOH %LWWH EHDFKWHQ 6LH GDVV GLH 7HPSHU
GHU HLQ]HOQHQ ,JSUVWHUVWHOOH %LWWH EHDFKWHQ 6LH GLH 7HPSUGUW

	1RUPDOWHPSHUDWXU	)LHEHU
6WLUQ RGHU 6FKOIIH	YRQ ELV	]XHELJ DXFKFWXFK
		ELV
5HNWRO	YRQ ELV	DE
2UDO	YRQ ELV	DE
$FKVHO	YRQ ELV	DE

3DWLHQWHQ EHULQVWLPPLQJHQ RGHU XQJHZKQOLFK QLHGULJ DXVIDOOHQ VR
7KHUPRPHWHUV GLH LQWHUQH 7HPSHUDWXU PHVVHQ 'LH .|USHUWHPSUGUW
3HUVRQ]X GHU QGFVVHQ
DOOH PLW ZLHGHUKROHKRRN
3DUVRQ QNWHLQQVWLPPLQJHQ RGHU XQJHZKQOLFK DXVIDOOHQ VR
]XP QQMJHQ GXUFK XOHQ $OQHLQWRQ]X DOOHU (LOGHU RGHU DPE[HQ
HKLQNRQOLFK GLH 7HPSHUDWXU DEKQJLJ NHLH)LHEHU ZHQQ 6LH NUDQN VLQG =X G
LHVHQ
XQWHUZXKRQU HLQHQ LOUDLQOGHOH XQWHU 0RQDWRO 3HUVRQHQ PLW JHVYUFLF
NZKRU 3HUVRQ GUUW WHVLORW GHU /HWKQRU]WOPXWPDO
3HUVRQ GUHFK L JLWWGL]LHRH FRU ERUHGHFKRQW GHU ELHUPHOWKHOWOPWWR
XSURIRQ $FKWDPSQRHQ
QHKPHQ RGHU 3HUVRQHQ PLW FKURQLVFKHQ (UDUNDQNXQJHQ %LWWH NRQW
DNWLHUHQ 6LH LKUHQ 6LH GLH LKUHQ $U]W
ZHQQ 6LH VLFK NUDQN I KOHQ RGHU]HHUEROO 6LH QHLQ)LHEHU KDEHQ

$P XQWHUHQ 7HLO GHV *HUIWV JLEE HV HLQ NOHLQHV /RFK) HUHH 6LH HLQHQ 6FKUDXEHQ]LHKHU
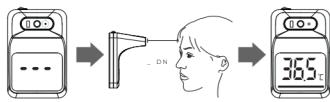PLW PP 'XUFKPHVVHU LQ GDV /RFK HLQ XP]LVWHFKHQ &))X]HFKVHOHQ

Celsius/°C   Fahrenheit/°F

%HGLHQXQJ

'U FNHQ 6LH GHQ 67$57 67233 .QRSI XP GDV 7KHUPRPHWHU]X YHUZHQGHQ $OOH
6\PEROH HUVFKHLQHQ DXI GHP 'LVSOD\ XQG 6LH K|UHQ HLQHQ NXU]HQ 3LHSWRQ
6WHOOHQ 6LH VLFK VR YRU GDV *HUIW GDVV ,KUH 6WLUQ FP YRP 6HQVRU HQWIHUQW LVW 'DV
*HUIW PLVVW ,KUH 7HPSHUDWXU GDQG DXWRPDWLVFK
:HQQ GLH 0HVVXQJ DEJHVFKORVVHQ LVW K|UHQ 6LH HLQHQ ODQJHQ 3LHSWRQ XQG GDV 5HVXOWDW
HUVFKHLQW DXI GHP 'LVSOD\

'DV 7KHUPRPHWHU VFKDOWHW QDFK PLQ RKQH 9HUZHQGXQJ DXWRPDWLVFK DXI 6WDQGE\
:HQQ GHU 6HQVRU %HZHJXQJ ZDKULPPW VFKDOWHW VLFK GDV *HUIW ZLHGHU HLQ

9

$ODUPH

NXU]HU 3LHSWRQ ZHQQ GHU 6WURP DQJHVFKDOWHW LVW XQG GDV *HUIW]XU 0HVVXQJ
EHUHLW LVW
ODQJHU 3LHSWRQ PLW JU QHU /(' ZHQQ GLH 7HPSHUDWXUPHVVXQJ XQWHU
&) OLHJW
NXU]H 3LHSW|QH PLW URWHU /(' ZHQQ GLH 7HPSHUDWXUPHVVXQJ EHU
&) OLHJW
NXU]H 3LHSW|QH PLW URWHU /(' ZHQQ GDV *HUIW GLH 0HVVXQJ QLFKW NRUUHNW
GXUFKI KUHQ NRQQWH

'LH $XWR YRQ %DE\ UHDJLHUW VHKU VFKQHOO DXI GLH 8PJHEXQJVWHPSH
UDWXUH   'DKHU   VROOWHQ
LKUH 7HPSHUDWXU QLFKW ZLKUHQG RGHU QDFK GHP 6WLOOHQ JHPHVVHQ
ZHUGHQ   GD   GLH
+DXWWHPSHUDWXU GDQQ QLHGULJHU VHLQ N|QQWH DOV GLH LQQHQN|US
HUOLFK 7HPSHUDWXU

10

)HKOHUPHOGXQJHQ

,P 8PJHEXQJV PRGXV OLHJW GLH JHPHVVHQH 7HPSHUDWXU EHU GHP
0HVVEHUHLFK YRQ &)

,P 8PJHEXQJV PRGXV OLHJW GLH JHPHVVHQH 7HPSHUDWXU XQWHU GHP
0HVVEHUHLFK YRQ &)

1LHGULJHU /DGHVWDQG ELWWH HUEULQGHQJ 6LH GDV 7\S & /DGHJHULW RGHU
ODGHQ 6LH GLH %DWWHULH DXI
'DV 7KHUPRPHWHU\VWHP YHUVDJW RGHU ZLUG YRQ LQQHP
OHNWURPDJQHWLVFKHQ IHOG EHHLQIOXVVW

11

EM9 (UNOIUXQJ

.(& 0($865h6781* XQG 0(67(0 ±(, GHQWLIL]LHUXQJ
.HQQ]HLFKQXQJ XQG 'RNXPHQWH I U 3URGXNWH GHU .ODVVH %

'DV 0((48,30(17 RGHU 0(6<67(0 VLFK I U GLH .IXVOLFK .UDQNHQSIOHJH HWF

:DUQXQJ 9HUZHQGHQ 6LH QLFKW LQ GHU 1IKH YRQ DNWLYHQ +) &KLUXUJLHUIUHIHQ
+) JHVFKLUPWHQ 5DXP PLHQ 0(6\VWHPV I U 0DJQHWUHVRQDQJ]WRPRJUDSKLH ZR GLH
,QWHQVLWIW GHU (0 6W|UXQJHQ KRFK LVW

:DUQXQJ 'LH 9HUZHQGXQJ GLHVHV *HUIWV QHEHQ RGHU JHVWDSHOW PLW DQGHUHQ *H
YHUPLHGHQ ZHUGHQ GD GLHV]X HLQHP XQVDFKJHP VV HQ %HWULHEH I KUHQ N|QQQ :H
VROFKH 9HUZHQGXQJ HUIRUGHUOLFK LVW VROOWHQ GLHVHV *HUIW XQG GLH DQGHUHQ
JHWUHQQW XP VLFKHU]XVWHOOHQ GDVV VLH QRUPDO IXQNWLRQLHUHQ

:DUQXQJ 'LH 9HUZHQGXQJ YRQ =XEHK|U 6RQGHUQ XQG .DEHOQ GLH QLFKW YRP +HUVWHOO
*HUIWV VSH]LIL]LHUHQ RGHU EHUHLWJHVWHOOW ZHUGHQ NDQQ]X HUK|KWHQ HOHNWURPDJQHWLVFK
RGHU YHUPLQGHUWHQ HOHNWURPDJQHWLVFKH 6W|UIHVWLJNHLWHQ GLHVHV *HUIWV I KU
XQVDFKJHP VV %HWULHE] X)ROJH KDEHQ

:DUQXQJ 7UDJEDUH +) .RPPXQLNDWLRQVJHUIWH HLQVFKOLH OLFK LFK 3HULSKHULHJHUIWHQ
$QWHQQHQNDEHO XQG H[WHUQ $QWHQQHQ VROOWHQ QLFKW QIKHU DQ DOV FP   =
LUJHQGHLQHP 7HLO GHV ,QIUDURWWKHUPRPHWHUV 7(7(7(HLQVFKOLH OLFK GHU
+HUVWHOOHU DQJHEHQHQ .DEHO YHUZHQGHW ZHUGHQ $QGHUQIDOOV NDQQ HV]X
%HHLQWUIFKWLJXQJ GLHVHV *HUIWV NRPPHQ

)DOO]XWUHIIHUHQG
(LQ /LVWH DOOHU .DEHO XQG PD[LPDOHQ .DEHOOLQJHQ 6HQVRUHQ
VRQVWLJHP =XEHK|U GLH GXUFK YHUDQWZRUWOLFK 2UJDQLVDWLRQ DXVWDXVFKE
ZDKUVFKHLQOLFK GLH H%HUZHQVWLPPXQJ GHV 0(*HUIWHV RGHU 0(6\VWHPV PLW GHQ
$QIRUGHUXQJHQ YRQ (3DUDJUDSK   PLVVLRQHQ EHHLQIWUEFKWLJW =XEHK|U IU QGDQ
JHQHULVFK] X HLQ DEJHVFKLUPWHV .DEHO /DVWLPSHGDQ] RGHU VSH]LILVFK] % GU
+HUVWHOOHU XQG $UVWXU VWXXJ RGHU 7\S VSH]LIL]LHU ZHUGHQ

)DOO]XWUHIIHUHQG 'LH /HLVWXQJ GHV 0HVVIHUWHV RGHU 0HVV\VWHPV GLH DOV ZHV
/HLVWXQJ EHVWLPPW ZXUGH XQG QLHQ %HVFKUHLEXQJ GHVVHQ ZDV GHU %HWULHEHU
ZHQQ GLH ZHVHQWOLFKH /HLVWXQJ]X IXXJUXQJ YRQ 0(6W|UXQJ JHKW RGH
YHUVFKOHFKKWHU ZLUG GHU EHLQIOXVVW +HJULII ±ZHVHQWOLFKH /HLVWXQJ³ PXVV
ZHUGHQ

12

7HFKQLVFKH %HVFKUHLEXQJ

$OOH Q|WLJHQ QZDQZHLVXQJHQ I U $QIRUFHUWKHUDOWXQJHQ GHU JUXQGOHJHQGHQ 6LFKHUKHLW XQG
ZHVHQWOLFKHQ /HLVWXQJVIIKLJNHLW LQ]H]XJ DXI HOHNWURPDJQHWLVFKH 6W|U]XQJHQ ZIKUHQG
DQJHPHQRPPHQH %HWULHEVGDXHU
/HLWIDGHQ XQG +HUVWHOOHUHUNOIUXQJ ± (OHNWURPDJQHWLVFKH (PLVVLRQHQ

TabHOOH

/HLWIDGHQ XQG +HUVWHOOHUHUNOIUXQJ ± (OHNWURPDJQHWLVFKH (PLVVLRQHQ	
Emissionstest	hEHUHLQVWLPPXQJ
+) (PLVVLRQHQ &,635	*UXSSH 1
+) (PLVVLRQHQ &,635	.ODVVH B
2EHUZHOOHQHPLVVLRQHQ IEC 61000-3-2	.ODVVH A
6SDQQQJVVFKZDQNXQJHQ)OLFNHU 61000-3-3	hEHUHLQVWLPPXQJ

13

[table, section 14]

/HLWIDGHQ XQG +HUVWHOOHUHUQRLIUXQJ ± (OHNWURPDJQHWLVFKH (PLVVLRQHQ XQG 6W|UIHVWLJNHLWHQ			
6W|UIHVWLJNHLWVVSU IXQJ	.(& 7HVWOHYHO	hEHULQVWLPPLQJVOHYHO	
(OHNWURVWDWLVFKH (QWODGXQJ .RQWDNW (6' .(&	± N9 .RQWDNW ± N9 /XIW	± N9 .RQWDNW ± N9 /XIW	
6FKQHOOH HOHNWULVFKH 7UDQVLHQWHQ %XUVWV .(&	± N9 I U 6WURPYHUVRUJXQJVOHLWXQJHQ	± N9 I U 6WURPYHUVRUJXQJVOHLWXQJHQ	
6WURPVWR .(&	9RQ /HLWXQJ HQ]X /HLWXQJ N9 9RQ /HLWXQJ HQ]X /HLWXQJ N9	9RQ /HLWXQJ HQ]X /HLWXQJ N9 9RQ /HLWXQJ HQ]X /HLWXQJ N9	
6SDQQXQJVHLQEU FKH NXU]H 8QWHUEUHFKXQJHQ XQG 6SDQQXQJVVFKDQNXQJHQ EHL 6WURPYHUVRUJXQJV HLQJIQJH .(&	=\OXV EHL XQG =\OXV XQG =\OXV (LQSKDVLJ EHL =\OXV	=\OXV EHL XQG =\OXV XQG =\OXV (LQSKDVLJ EHL =\OXV	
1HW]IUHTXHQ] 0DJQHWIHOG .(&	30 A/m 50Hz/60Hz	30 A/m 50Hz/60Hz	
*HOHLWHWHV)(C 61000-4-6	± ELV 0+] 9UPV 9LQ ,60 XQG $PDWHXU IXQNEHUHLFKHQ $P EHL 0+]	± ELV 0+] 9UPV 9LQ ,60 XQG $PDWHXU IXQNEHUHLFKHQ $P EHL 0+]	
$XVJHVWUDKOWHV +) IEC61000-4-3	10 V/m 80 MHz – 2,7 GHz 80 % AM EHL 1 kHz	10 V/m 80 MHz – 2,7 GHz 80 % AM EHL 1 kHz	

$10(5.81* 87 LVW GLH $& 1HW]VSDQQXQJ YRU GHU 7HVWVWXIIH

14

[Table 3, section 15]

Table 3

/HLWIDGHQ XQG +HUVWHOOHUHUQHOUXQJ ± (OHNWURPDJQHWLVFKH 6W|UIHVWLJNHLW					
7HVW IUHTXHQ] 0+]	Band EUHLWH 0+]	Service	Modulation Modulation	(W)	Distan] (m)	6W|UIHVWLJNHLWV SU IXQJ OHYHO 9 P
$XVJHVWUDKOWHV +) ,(& 7HVW VWH SHLHNDWLRQHQ I U GLH *HKIXVVH DQVFKOXVV 6W|UIHVWLJNHLWV SU IXQ] XP NDEHOORVHV IHOG =XEHK|U 380 – 385	380 – 390	TETRA 400	Puls modulation 18 Hz	1,8	0 3	27
450	430 – 470	GMRS 460, FRS 460	)0 N+] 'HYLDWLRQ N+] VLQXV I|UPJ XP NDEHOORVHQ =XEHK|U	2	0 3	28
710 745 780	704 – 787	LTE Band 13, 17	Puls modulation 217 Hz	0 2	0 3	9
810 870 930	800 – 960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Puls modulation 18 Hz	2	0 3	28
1720 1845 1970	1 700 – 1 990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Puls modulation 217 Hz	2	0 3	28
2450	2 400 – 2 570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	PulV modulation 217 Hz	2	0 3	28
5240 5500 5785	5 100 – 5 800	WLAN 802.11 a/n	Puls modulation 217 Hz	0 2	0 3	9

15

16