



Varde Kommune
Teknik & Miljø
Team Byg
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6818 Årre

Dato: 12-05-2016
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Anmeldelse af byggearbejde Opsætning af ekstra sektion (forhøjelse) samt nyt udstyr på eksisterende TDC mast.

I henhold bygningsreglementet skal mobilantenner pr. 1/7-2011 byggeanmeldelses.

Sagsnavn: 1090 Blåvand Satellit - TDC

Placering: Fyrvej 36
6857 Blåvand

Matrikel: 13 a, Vandflod by, Oksby

Bygherre: TDC

Ansøger: KPR Consult AS
Sct. Leonis Gade 14
8800 Viborg
Att.: Flemming Jensen

På vegne af bygherre byggeanmeldelse hermed opsætning af ekstra sektion (forhøjelse) samt nye antenner på ny sektion, på eksisterende TDC mast.

Etableringen omfatter: (Datablade vedhæftet)

- Opsætning af 7 m ekstra sektion på top af mast (forhøjelse)

På ny sektion ønsker følgende bygherrer at opsætte følgende:

AIRNET:

- Opsætning af 6 stk. antenner MA-WD55-16 i kote 56,0 m over terræn
- Opsætning af 1 stk. Ø30 link i kote 56,6 m over terræn

NAVIAR:

- Opsætning af 1 stk. piskantenne i kote 54,5 m over terræn
- Opsætning af 2 stk. antenner KAT 716405 i kote 54,5 m over terræn



TDC:

- Opsætning af 3 stk. antenner ATR4518R4 i kote 52,0 m over terræn

Vedlagt:

- Opstalt af masteforhøjelse
- Datablad på diverse udstyr, herunder antenner og link
- Fuldmagt

Ved al korrespondance oplyses sags navn.

Betaling af byggesagsgebyr sker af undertegnet. Anfør venligst sagsnavn.

Spørgsmål eller kommentarer for yderlig belysning af sagen er altid velkomne og bedes rettet til undertegnede på telefon 3118 6317.

Ønsker i uddybelse af fremsendte eller andet i sagen er i naturligvis meget velkomne til at kontakte mig.

Med venlig hilsen
KPR Consult A/S

Flemming Jensen
Projektleder

Carl C. A/S

Att.: Birthe Højgaard

Dato: 01-04-2016
Init: MDK
Tlf: +45 8660 3505

Masteforlængelse – Nydesignet 7,0 m topsektion

Eksisterende 49,5 m TDC-mast skal forlænges med en ny topsektion på 7,0 m.
Masten er beliggende på adressen: Fyrvej 36, 6857 Blåvand.
TDC-sitenavn: 1090 Blåvand.

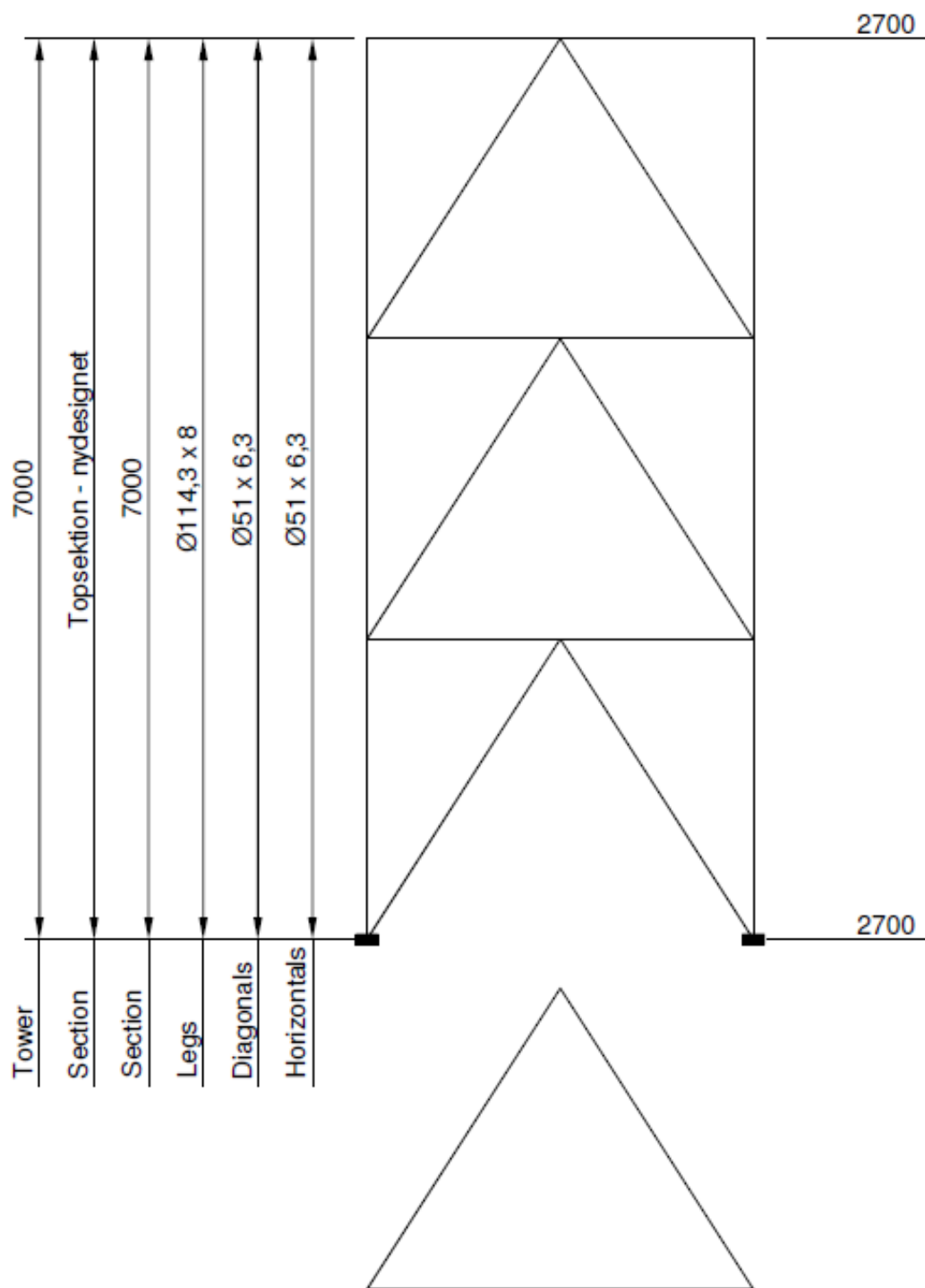
Forudsætninger

- Stålkvaliteter:
 - Hjørnejern: S235
 - Diagonaler: S235

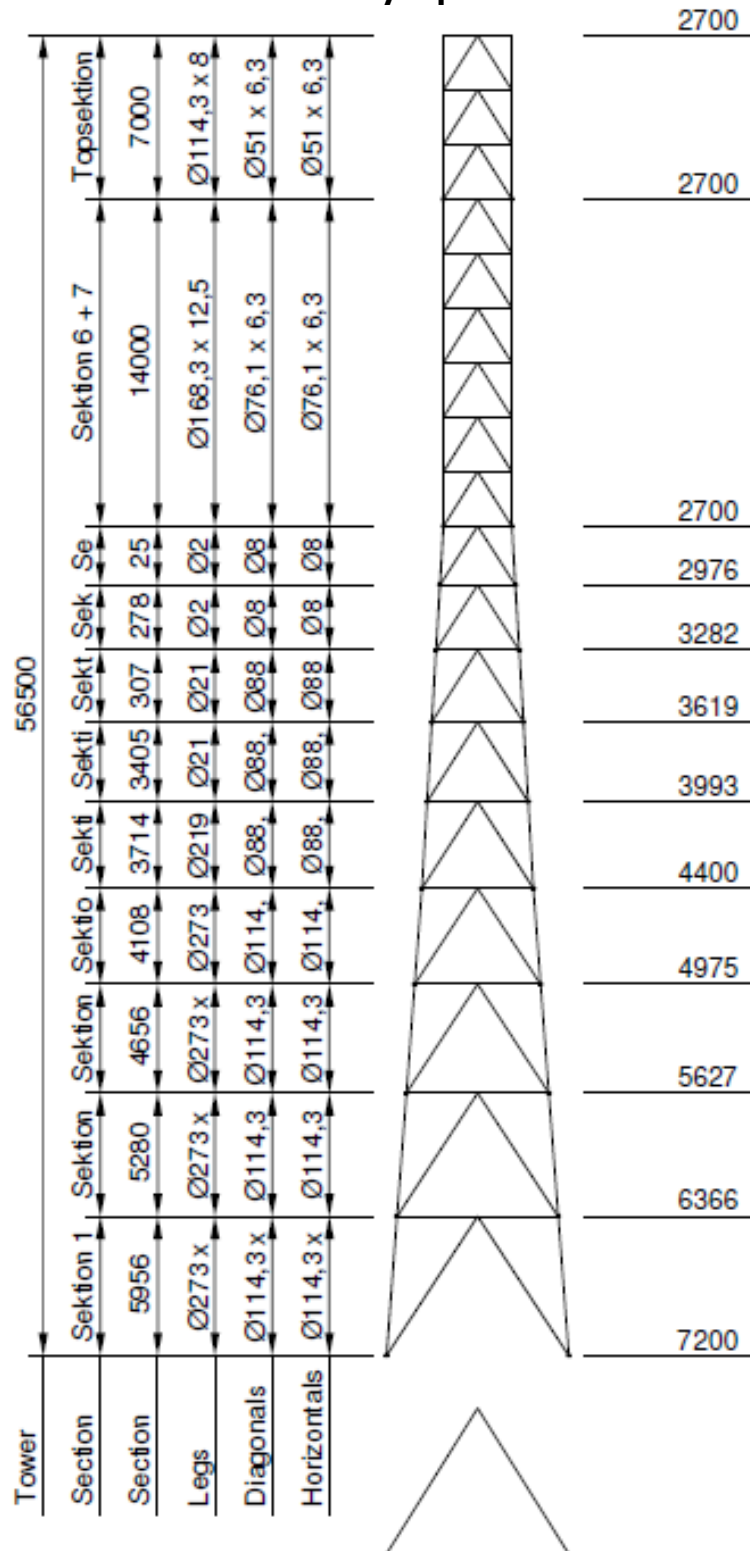


Eksisterende 49,5 m gittermast

Nydesignet 7,0 m topsektion:



Eksisterende mast inkl. ny topsektion:

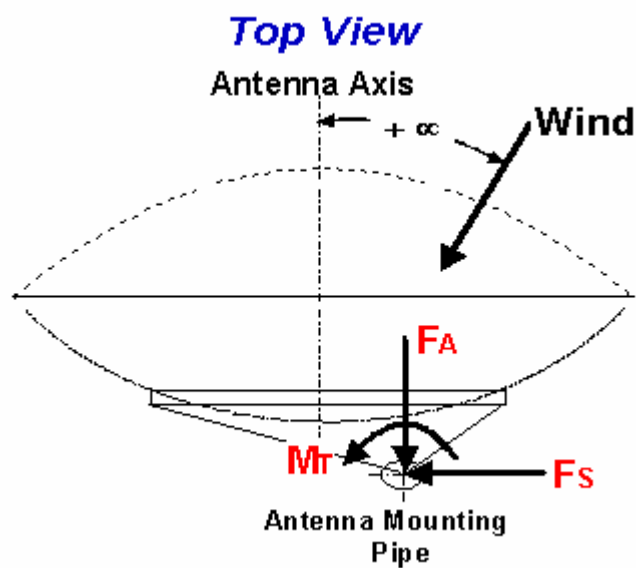


Calculated wind forces at 200km/h

Antenna Type	FA Max. (N)	FS Max. (N)	MT Max (N*m)	Wind area - m ² Included formfactor
MC 34	159	71	11	0,18
MC 45	339	146	19	0,31
MC 62	644	242	50	0,57
MC 86	1255	456	125	1,09

The forces produced by the MC antennas are calculated from the axial, side and twisting moment forces tabulated upon. The forces are the maximum values exerted on a supporting structure. They are the result of wind from the most critical directions for each parameter.

The components are: Axial Force FA Side Force FS Twisting Moment MT



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MICROWAVE CONCEPTS

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Moonblink Communications

>Products by Manufacturer>Mars Antennas>5 Ghz Antennas>Sector

Mars 5 GHz Base Station (Sector) Antenna, 90° - MA-WD55-16B



click to see more/larger images

Name: **Mars 5 GHz Base Station (Sector) Antenna, 90° - MA-WD55-16B**

Your Price: \$375.00

Model **MA-WD55-16B**

Number:

Description

MA-WD55-16

MARS 90° Broadband Sector (Base Station) Antenna provides a cost effective solution for large scale WLL, WLAN, H-LAN, ISM, UNII, Public Safety, Municipal MESH Networks and Point-to-Multi-Point applications.

Additional Features:

- stable performance with 16 dBi of gain
- small size allowing for easy blending with any environment
- tilt mount allowing for quick and easy installation
- UV protected radome suitable for harsh environment installations

Specifications:

Electrical

Frequency range	4.9 - 6.1 GHz
Gain,typ.	16 dBi
VSWR, max.	1.8:1
3 dB Beam-Width, H-Plane, typ.	90 °
3 dB Beam-Width, E-Plane, typ.	8 °
Side Lobes, min.	ETSI EN 302 085 V1.2.3 – CS1
Polarization	Linear Vertical
Cross Polarization, min.	ETSI EN 302 085 V1.2.3 – CS1
Front to Back Ratio, min.	ETSI EN 302 085 V1.2.3 – CS1
Input power, max	50 Watt
Input Impedance	50 Ohm
Lightning Protection	DC Grounded

Mechanical

Dimensions (HxWxD)	573 x 95 x 53 mm (22.6"x3.7"x2.1")
Weight	700 gr.
Connector	N-Type,Female
Back Plane	Aluminum protected through chemical passivation
Radome	UV Protected, Plastic
Mount	MNT-22

Environmental

Operating Temperature Range	- 40°C to + 65°C
Vibration	According to IEC 60721-3-4
Wind Load	200 km/h (survival)
Flammability	UL94
Water Proofing	IP-65
Humidity	ETS 300 019-1-4, EN 302 085 (annex A.1.1)
Ice and Snow	25mm radial (survival)
Salt Fog	According to IEC 68-2-11
Service Life	>10 years

Standard Compliance

ETSI EN 302 085 V1.2.3 – CS1

Ordering Options

Antenna with mount	MA-WD55-16 B
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The 4240 Series colinear antenna is designed for ADS-B ground station applications where a durable and high performance colinear antenna is required. The decoupled centre fed dipole design and parallel feed network gives a stable radiation pattern across a wide bandwidth, and allows tilted beam designs to be effectively employed without large pattern distortions. The antenna has been designed to withstand lightning strike and has a conductor through its centre to allow a finial to be fitted to its top cap, and is supplied as standard with an 'N' female connector. Please note high wind survivability of this type, verified by independent tests.

Electrical, Mechanical & Environmental Specifications



ELECTRICAL:

Frequency range	1000 - 1100 MHz
Input impedance	50Ω
VSWR	<1.8:1
H Plane ripple	< ±1 dB
Maximum input power	350 W CW - 1000W Peak with 5%
Duty Cycle	
Polarisation	Vertical
Forward gain	6.0dBd (8.0dBi +/- 0.5dBi)
3 dB Beamwidth	E Plane 16° (+/- 2°)
Vertical pattern up tilt	4° (+/- 0.5°)
Lightning protection	To withstand 2.5 x 10 ⁶ A ² pulse
	All metallic parts DC grounded
Connection	Fixed 'N' Female socket in base

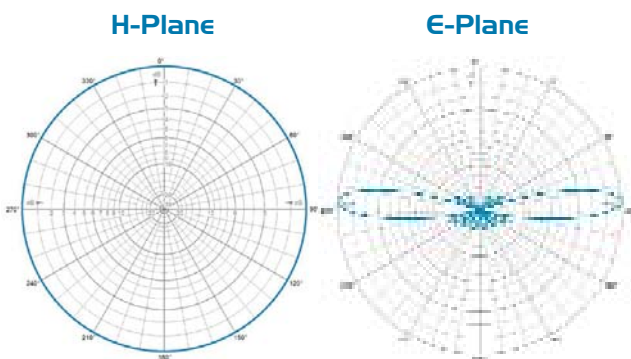
CONSTRUCTION:

Dipoles	38mm dia. brass tube
Dipole feeds	PTFE dielectric coaxial cable
Shroud	GRP tube (grey,RAL7035) 53mm dia.
Mounting section	Aluminium alloy tube 48.4mm dia.
Weight	4.5kg
Dimensions	1300mm (L) x 53mm (max. diameter)

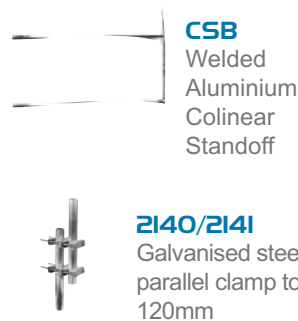
ENVIRONMENTAL:

Wind loading @ 45m/s	103N
Survival wind speed	350km/h
Effective wind area	0.083m ²
Ice/Snow	25mm (1 inch) Radial Ice.
Hail	Up to 30mm diameter
Rain	Up to 120mm per hour
Temperature Range	- 40° - +70°C (operational) - 55° - +70°C (storage)
Humidity	97% for 24 hrs
MTBF	105,000 hrs
MTTR	Not field repairable.
Shipping Dimensions	1 tube 1350mm x 110mm dia. GW 5.5kg.
NATO Stock No.	TBA.


Free space radiation patterns



Mounting accessories



Standard stock models

Stock code	Gain
4240.06	8dBi (6dBd)
4240.09	10.5dBi (9dBd)
4240.09	Provisional July 2012
 This product is RoHS compliant	

Directional Antennas Vertical Polarization

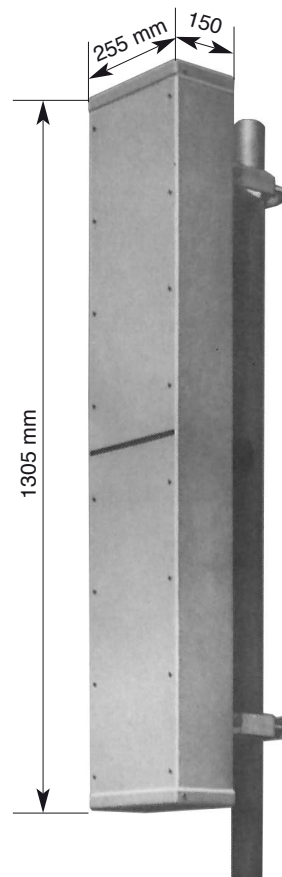
960–1215

V

KATHREIN
Antennen · Electronic

The directional antennas 716 405 and 880 10003 have been specially designed for DME ground beacons and particularly for DMS-ILS colocation. The antenna provides a pattern with a cosecant-squared shaping. The antenna is equipped with two monitoring probes inside.

Type No.	716 405	880 10003
Inputs (antenna and monitoring probes)	N female connector (protected by a rubber cap)	
Connector positions	Rearside	
Frequency range	960 – 1215 MHz	
VSWR	< 1.6 (antenna input)	
Gain (ref. $\lambda/2$ dipole)	14 dBd	
Impedance	50 Ω	
Coupling attenuation	25 \pm 3 dB	20 \pm 3 dB (antenna/monitoring probes)
Beam tilt	+ 4° \pm 0.5°	
R. F. peak power	10 kW; duty cycle 2%	
Polarization	Vertical	
Temperature range	–30 °C to +60 °C ambient	
Weight	12 kg	
Wind load	600 N (at 160 km/h)	
Max. wind velocity	200 km/h (incl. $1/2$ " radial ice)	
Packing size	1420 x 360 x 250 mm	
Height/width/depth	1305 / 255 / 150 mm	

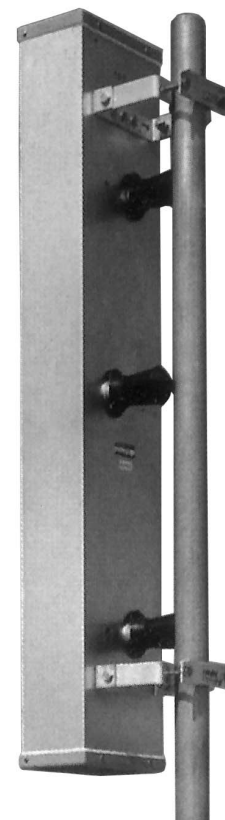


Material: Radiators: Brass. Reflector screen: High strength aluminum alloy sheet. Cover: Fiberglass. Clamps: Hot dip galvanized steel. All screws and nuts: Stainless steel.

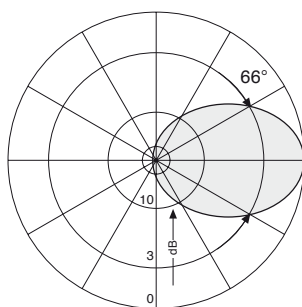
Mounting: To pipes of 40 – 95 mm OD by means of mounting clamps, supplied. Clamps for thicker masts see second page.

Grounding: The antenna is DC grounded via mounting clamps. The inner conductors are also DC grounded.

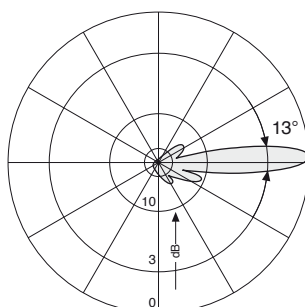
Scope of supply: Antenna including clamps and three weather protective rubber caps for the connectors.



Radiation Pattern (at mid-band)

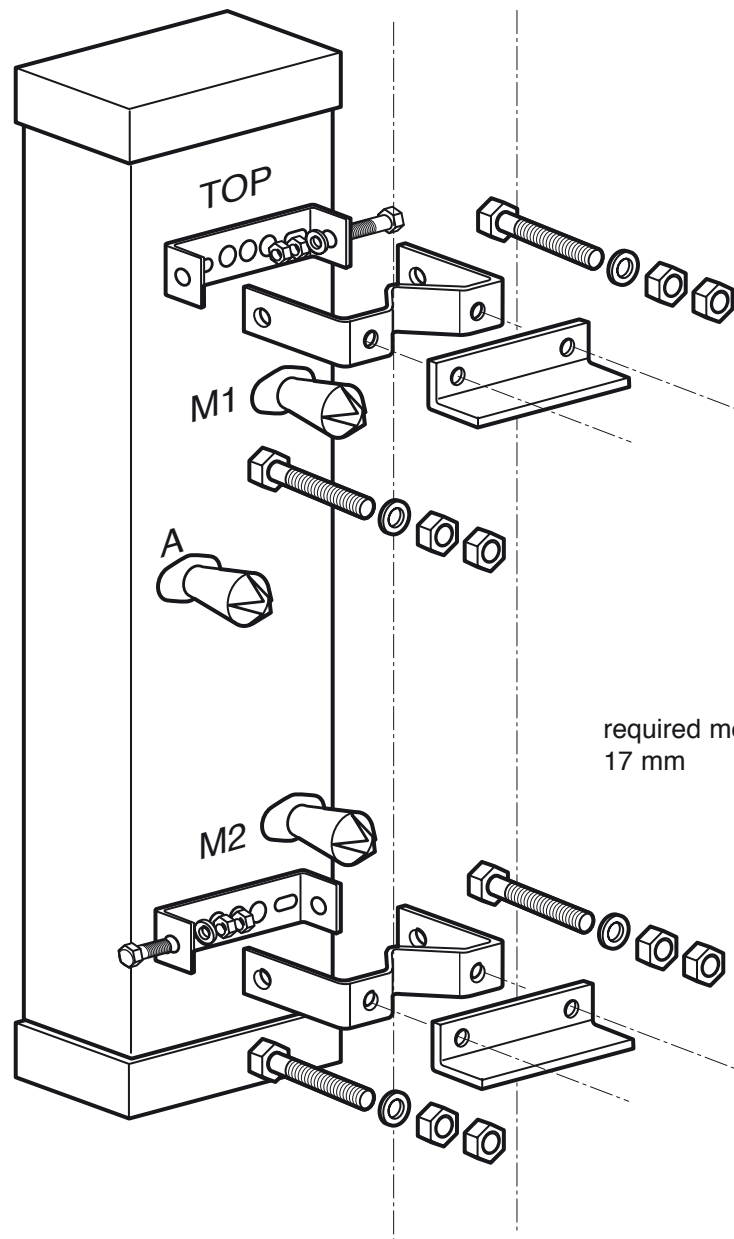


Horizontal Pattern



Vertical Pattern

936.2013/b Subject to alteration.

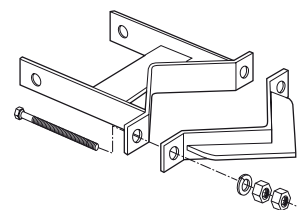


M1, M2 = connectors
monitoring system
A = connector RF input

required metric wrenches:
17 mm

Accessories (order separately)

Type No.	Description	Remarks	Weight appr.	Units per antenna
K 61 14 02	2 clamps	Mast: 60 – 115 mm diameter	1.6 kg	1
K 61 14 03	2 clamps	Mast: 116 – 210 mm diameter	4.0 kg	1
K 61 14 04	2 clamps	Mast: 210 – 380 mm diameter	7.2 kg	1



K 61 14 03

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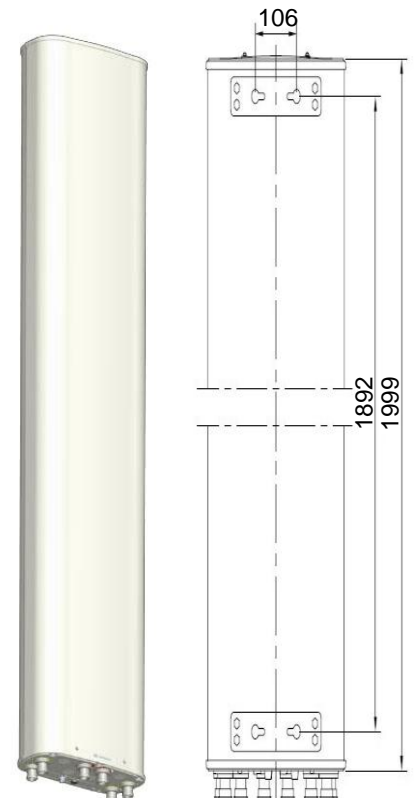
DXXX-790-960/1710-2690/1710-2690-65/65/65-16i/18i/18i-M/M/M-R
EasyRET Tri-Band Antenna with 3 Integrated RCUs - 2.0m



Antenna Specifications

Electrical Properties																					
Frequency range (MHz)	790 - 960									2 x (1710 - 2690)											
	790 - 862			824 - 894			880 - 960			1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690		
Polarization	+45°, -45°																				
Electrical downtilt (°)	0 - 10, continuously adjustable									0 - 10, continuously adjustable											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	15.7	15.9	15.6	16.0	16.1	15.6	16.1	16.3	15.8	17.5	17.3	17.0	17.8	17.8	17.3	18.0	18.0	17.6	17.8	18.2	17.7
Side lobe suppression (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	18	18	18	18	18	18	18	18	18	16	16	17	17	17	17	17	18	18	17	18	18
-for first side lobe above main beam	17	17	16	17	17	16	17	17	17	15	15	15	16	16	16	16	16	16	15	15	15
-within 0° - 15° sector above horizon																					
Horizontal 3dB beam width (°)	65			64			62			65			62			60			60		
Vertical 3dB beam width (°)	10.1			9.8			9.3			5.8			5.4			4.8			4.3		
VSWR	< 1.5																				
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																				
Front to back ratio, copolar (dB)	Typ. 28																				
Cross polar ratio (dB)	0°	Typ. 18																			
	±60°	Typ. 10																			
Max. power per input (W)	500 (at 50°C ambient temperature)									250 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)																				
Impedance (Ω)	50																				
Grounding	DC Ground																				

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1999 x 349 x 166
Packing dimensions (H x W x D) (mm)	2350 x 415 x 240
Antenna weight (kg)	25
Clamps weight (kg)	3.56 (2 units)
Antenna packing weight (kg)	39.8 (Included clamps)
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 705 (at 150 km/h) Lateral: 230 (at 150 km/h) Rear side: 730 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom



Accessories

Item	Model	Description	Weight	Units per antenna
Downtilt kit	ASMDT0D01	Mechanical downtilt: 0 - 12 °	2 kg	1 (Separate packing)

ATR4518R4

DXXX-790-960/1710-2690/1710-2690-65/65/65-16i/18i/18i-M/M/M-R
EasyRET Tri-Band Antenna with 3 Integrated RCUs - 2.0m



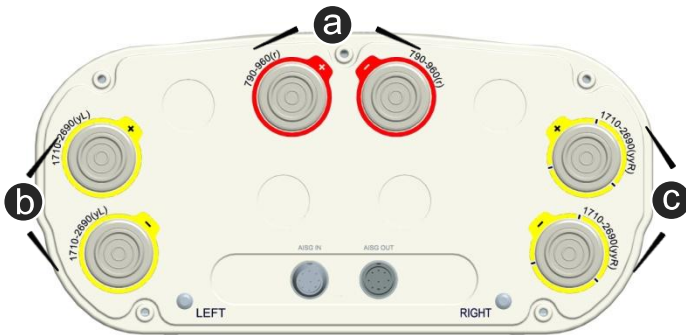
Integrated RCU Specifications

Properties								
RET type	Integrated RET							
RET protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET connector	2 x 8 pin connector according to IEC 60130-9 Daisy chain in: Male / Daisy chain out: Female							
Pin assignment according AISG	1	2	3	4	5	6	7	8
	DC	n/c	RS-485B	n/c	RS-485A	DC	DC return	n/c
Lightning protection (kA)	3 (10/350 μ s) 10 (8/20 μ s)							

* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

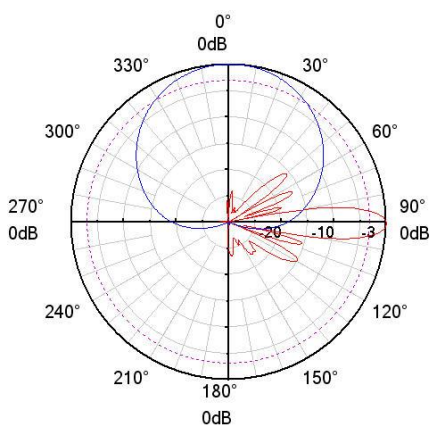


Integrated RCU S/N:

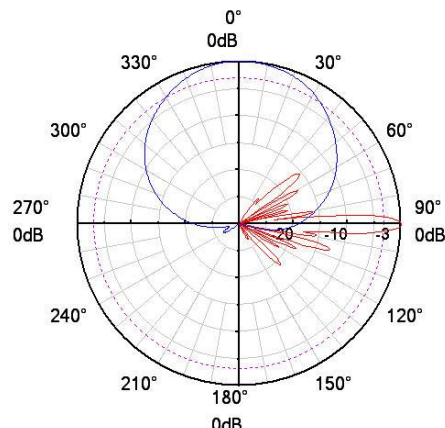
- a** HWMxxx.....r
- b** HWMxxx...yL
- c** HWMxxx..yyR

r - Red
L - Left array

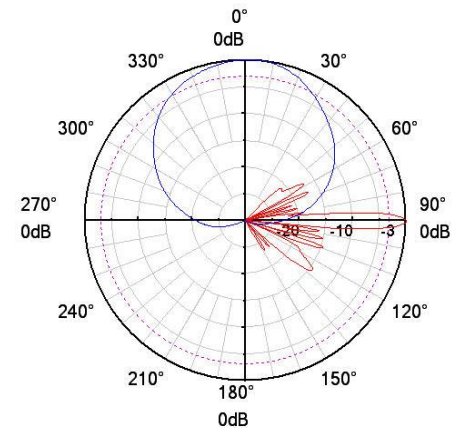
y - Yellow
R - Right array



790 - 960 MHz



1710 - 2690 MHz
(Left)



1710 - 2690 MHz
(Right)

Til rette vedkommende!

Fuldmagt

I forbindelse med udbygning, ombygning og vedligehold af TDC's mobilnet i Danmark udsteder TDC hermed bemyndigelse til:

Navn:	Flemming Jensen
Firma:	KPR Consult A/S
CVR:	27510531
Adresse:	Sct. Leonis Gade 14 8800 Viborg
Telefon:	86603505
Gyldighedsperiode:	1. januar 2016 til 30. december 2016

til på vegne af TDC, at:

Nyetablering:

- rette henvendelse til ejere og brugere af bygninger, virksomheder, erhvervsejendomme, arealer og anden fast ejendom med henblik på forhandling om indgåelse af lejeaftale.
- at ansøge myndighederne om byggetilladelse og andre offentlige tilladelser i forbindelse med nyetablering af en TDC antenneposition.

Ombygning:

- rette henvendelse til myndighederne i forbindelse med udskiftning / opsætning / nedtagning af antenner på en eksisterende TDC antenneposition.
- at ansøge myndighederne om nødvendig(e) myndighedstilladelse(r) i forbindelse med ombygning af mast / konstruktion / areal / kabine til teknisk udstyr på en eksisterende TDC antenneposition.

Fælles udnyttelse:

- rette henvendelse til teleoperatører samt andre konstruktions- og masteejere med henblik på forhandling om indgåelse af aftale om indplacering af TDC antenneposition.
- rette henvendelse til Dong Energy i Danmark med henblik på indgåelse af aftale for indplacering af TDC antenneposition.
- anmode om løbende statusopdateringer på ikke etablerede antennepositioner samt forhandle eventuel overtagelse af en sådan antenneposition.

Generelt:

- rette henvendelse til forsyningsselskaber og øvrige ledningsejere.

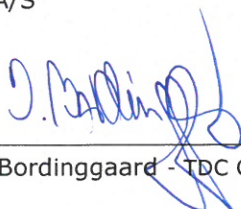
Alle aftaler er betinget af TDC's endelige godkendelse.

Fuldmagten er gældende i gyldighedsperioden medmindre denne tilbagekaldes forinden.

Ophører fuldmagtsnaver med at arbejde for TDC A/S returneres den originale fuldmagt til TDC.

Aarhus den 7. januar 2016

TDC A/S



Inge Bordinggaard - TDC Group, Operations - OTMC