

HEXDF® DOCUMENTATION SUITE

HexDF® Product Guide

Product family, module data, array geometry and preliminary pattern concepts



SOMETHING NEW IS COMING...

HexDF

S E R I E S

NEXT GENERATION DIRECTION FINDING PLATFORM

0.5 GHz – 42 GHz
TOTAL FREQUENCY COVERAGE

 **MODULAR**
FRONTENDS

 **SCALABLE**
SOLUTIONS

 **BROADBAND**
PERFORMANCE

SYSTEM ARCHITECTURE & INTEGRATION BY MMT
POWERED BY STEATITE ANTENNA MODULES

 **mmt**
gmbh |  **Steatite**

Modular. Scalable. Broadband.

Direction-finding antenna platforms from 0.5 to 42 GHz with selectable RF switch, LNA, converter, RF over Fiber and optional omnidirectional monitoring channel.

Core RF options and extensions

Initial scope: RF switching, low-noise amplification, frequency conversion and RF over Fiber

RF SWITCH



**6:1 sector selection for a single ring;
dual 6:1 or combined matrix for
dual-band systems**

Selects the active sector and supports
sequential or receiver-controlled
scanning.

LNA



**Shared LNA after the switch or
distributed LNA per sector**

Improves sensitivity; distributed LNAs
minimize pre-amplifier feeder and switch
loss.

CONVERTER



**Optional block downconverter with RF
bypass and defined IF output**

Connects wideband HexDF arrays to
receivers that cannot directly process the
full RF range.

RF OVER FIBER



**Optical transmitter and receiver for RF
or IF transport**

Enables remote mast, maritime and
distributed installations with low cable
loss and galvanic isolation.

Configuration rule

The four extensions are selected independently according to receiver architecture, sensitivity, operating frequency, dynamic range and installation distance. Other electronics are deliberately not shown in this first option set.

Selectable RF signal chains

Simple, traceable building blocks for single-ring and dual-ring HexDF configurations

SWITCHED

Six sector antennas → 6:1 RF switch → RF output



ACTIVE - SHARED LNA

Six sector antennas → 6:1 switch → LNA → RF output



ACTIVE - DISTRIBUTED LNA

Antenna + LNA per sector → 6:1 switch → RF output



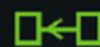
CONVERTED

Selected RF → LNA → mixer / LO → IF output



FIBER CONNECTED

Selected RF or IF → optical TX → fiber → optical RX → receiver

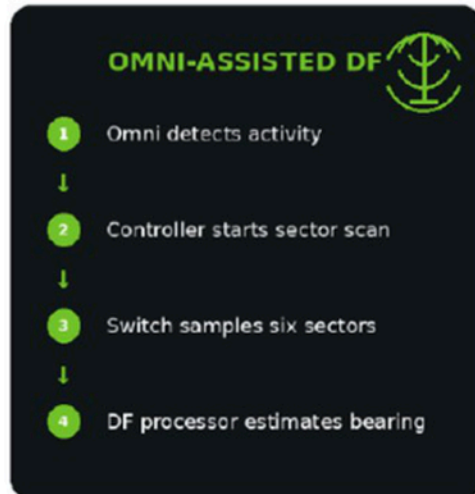


Dual-ring systems

Low-/mid-band and high-band rings use separate 6:1 switching paths unless a combined wideband matrix is selected. Conversion and fiber transport can be applied after each switch or after a band-combining stage.

Optional omnidirectional monitoring channel

Continuous 360° activity detection, triggering and reference monitoring alongside the six-sector DF array



Mechanical Integration

Preferred concept: central or slightly elevated Omni antenna above the RF core. A separate mast or offset mount remains an option when blockage, mutual coupling or high-frequency shadowing is critical.

Steatite option	Frequency	Pol.	Gain	Connector	Suggested HexDF role
QMS-00347 / QMS-00017	0.8-40 GHz	Vertical	-2.2 to 6.9 / 5.9 dBi	K type	Ultra-wideband monitoring for HexDF-40 / 40C
QMS-01189	0.9-20 GHz	Vertical	0 to 6.3 dBi	SMA	Low-/mid-band trigger for HexDF-18 / 18C / 22
QMS-00929	6-18 GHz	Vertical	3.7 to 9.5 dBi	SMA	Compact mid-band reference for HexDF-42
QMS-01018	23-42.5 GHz	Vertical	4.2 to 6.4 dBi	K type	High-band / Ka-band trigger for HexDF-42

Source: Steatite Antennas public Omnidirectional Antennas product page. The Omni antenna is an optional monitoring/reference channel and does not replace the six DF sector antennas. Final placement requires EM simulation and installed-pattern verification.

HexDF-08W

0.5-8 GHz

Wideband low-frequency DF frontend

SYSTEM FREQUENCY COVERAGE

0.5-8 GHz

0.5 GHz

42 GHz

PRODUCT POSITIONING

Broad lower-band configuration for COMINT, spectrum monitoring, public safety and Counter-UAS. QMS-00767 is the only supplied source that covers 0.5-8 GHz in one module; its mechanical dimensions and mass are not included in the available brochure.

APPLICATIONS

- COMINT and spectrum monitoring
- Public safety and Counter-UAS

MODULE BASIS

PRIMARY MODULE

QMS-00767 | 0.5-8 GHz RHCP

DEFINED ALTERNATIVE

QMS-01002 + QMS-00992 | system-limited to 8 GHz

CONFIGURATION

- Six sectors at 60° spacing
- Primary single-ring geometry pending ICD
- Split-band alternative is RHCP

CURRENT IMPLEMENTATION BASIS

GEOMETRY

Primary geometry open | alternative
6 x Ø151.4 mm + 6 x Ø30 mm

ANTENNA-MODULE MASS

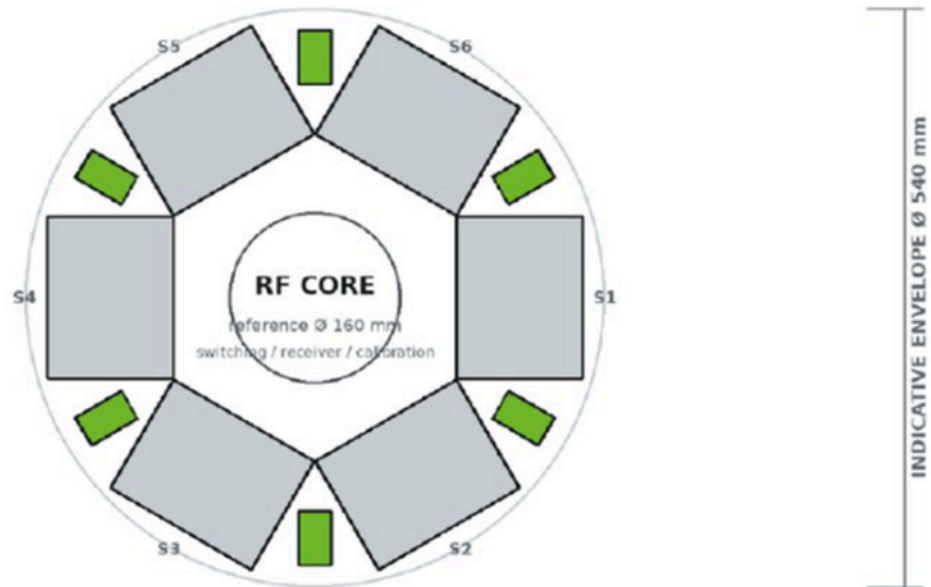
Primary mass open | alternative
approx. 3.888 kg

STATUS

Do not release final diameter until
QMS-00767 ICD / test report is
available

HexDF-08W - mechanical concept

Plan view only | actual supplier D x L footprints shown in proportion



PHYSICAL MODULE BASIS

PRIMARY BASELINE

QMS-00767 | 0.5-8 GHz | D x L and mass not supplied

DEFINED SPLIT-BAND ALTERNATIVE

6 x QMS-01002 + 6 x QMS-00992 | approx. 3.888 kg

INTEGRATION NOTES

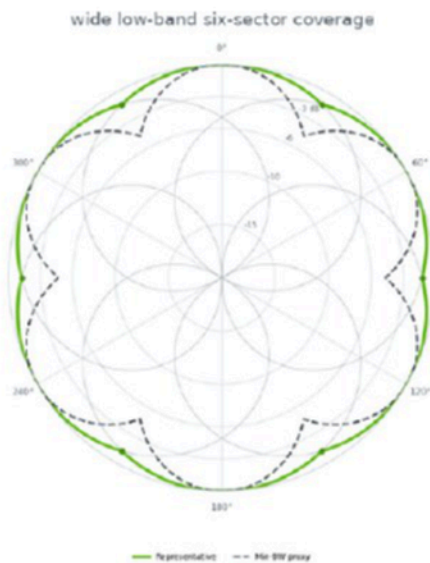
- The drawing shows the defined split-band alternative only.
- QMS-01002 covers 0.5-6 GHz; QMS-00992 covers 6-18 GHz and is system-limited to 8 GHz.
- Primary QMS-00767 geometry remains open.

HexDF-08W - pattern concept

Illustrative installed-sector response | not a released as-installed measurement

Azimuth estimates use six identical sector responses at 60° spacing and max-channel selection. Solid green shows the representative envelope; dashed grey is a conservative proxy using the minimum supplier BW3. No coherent summation is assumed. Elevation remains a representative normalized cut.

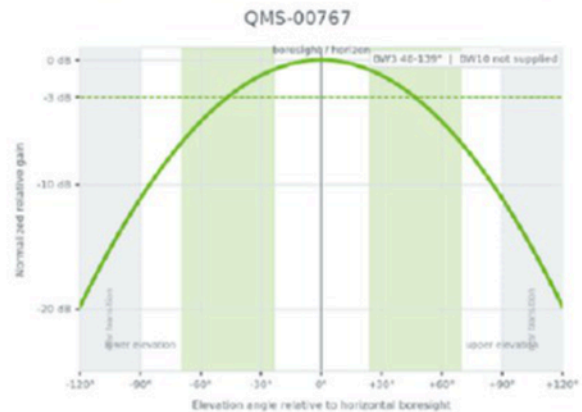
AZIMUTH - ESTIMATED ARRAY ENVELOPE



Representative BW3 93.5° | crossover ~ -1.2 dB

Min-BW proxy 48° | crossover ~ -4.7 dB

ELEVATION CUT - NORMALIZED dB



Representative cut | BW3 48-139° | BW10 not supplied

ARRAY COVERAGE ESTIMATE

0.5-8 GHz | QMS-00767

Representative BW3 93.5° -> adjacent-sector crossover approx. -1.2 dB; expected continuous 360° max-channel detection.

Conservative min-BW proxy 48.0° -> crossover approx. -4.7 dB | supplier BW3 span 48-139°.

BW3 range is brochure-derived; installed azimuth plane remains to be confirmed.

PRELIMINARY / ILLUSTRATIVE

HEXDF-00W - Steatite module data

Current preliminary module basis and representative supplier data-sheet view

QMS-00767

QSP-RC-0.5-8-S-SG

Polarisation: RHCP



Representative brochure view



TYPICAL MODULE SPECIFICATION

Frequency	0.5 to 8 GHz
Connector	SMA
VSWR	<1.4:1 typical
Gain	-6.5 to 1.4 dBiL
3 dB beamwidth	48 to 139 degrees
Power	2 W c.w.
Size / weight	Not supplied in brochure
Mounting	ICD / test report required
Environmental	Not supplied in brochure

SOURCE AND USE NOTE

Source: supplied Steatite product brochure. Values describe the individual antenna module. They are not installed HexDF system guarantees; final values depend on brackets, RF core, radome, cables, coupling and calibration.

HEXDF IMPLEMENTATION

- 6 x QMS-00767 primary single ring
- Supplier module geometry and mass remain open
- Catalogue data only; request Steatite ICD and detailed test report

HexDF-08

1-8 GHz

Compact mobile DF frontend

SYSTEM FREQUENCY COVERAGE



PRODUCT POSITIONING

Compact six-sector platform using the fully documented 1-18 GHz QMS-00457 / QMS-00458 module pair, operated as a 1-8 GHz system through RF and receiver bandwidth definition.

APPLICATIONS

- Mobile DF and Counter-UAS
- Border and infrastructure security

MODULE BASIS

- LHCP**
QMS-00457 | 1-18 GHz
- RHCP**
QMS-00458 | 1-18 GHz

CONFIGURATION

- One polarisation per six-sector ring
- System-limited to 1-8 GHz
- Common outer radome optional

CURRENT IMPLEMENTATION BASIS

GEOMETRY

6 x Ø68 mm x 47.8 mm | indicative envelope approx. Ø304 mm

ANTENNA-MODULE MASS

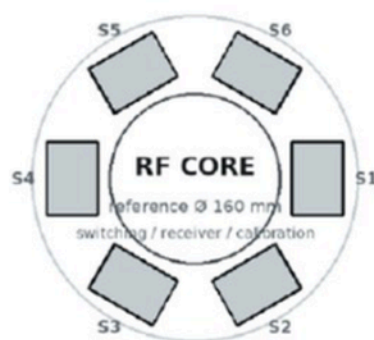
Approx. 0.900 kg antenna modules only

STATUS

Defined RHCP / LHCP pair; final system bandwidth controlled by RF chain

HexDF-08 - mechanical concept

Plan view only | actual supplier D x L footprints shown in proportion



INDICATIVE ENVELOPE Ø 304 mm

PHYSICAL MODULE BASIS

SIX-SECTOR RING

QMS-00457 LHCP or QMS-00458 RHCP

MODULE FOOTPRINT

68 mm D x 47.8 mm L | 150 g each

INTEGRATION NOTES

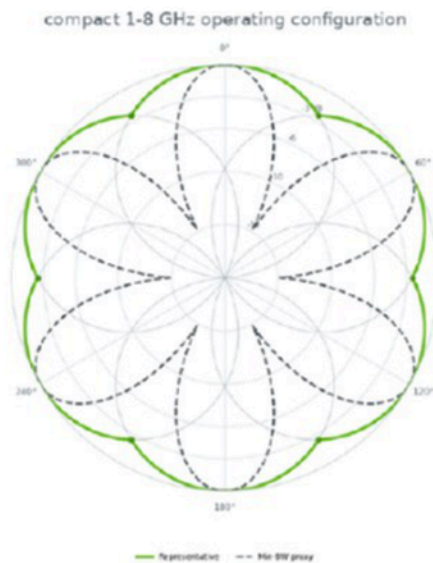
- All six modules use the same polarisation.
- The antenna hardware supports 1-18 GHz; the HexDF-08 RF chain is limited to 1-8 GHz.
- Envelope assumes a Ø160 mm reference RF core.

HexDF-08 - pattern concept

Illustrative installed-sector response | not a released as-installed measurement

Azimuth estimates use six identical sector responses at 60° spacing and max-channel selection. Solid green shows the representative envelope; dashed grey is a conservative proxy using the minimum supplier BW3. No coherent summation is assumed. Elevation remains a representative normalized cut.

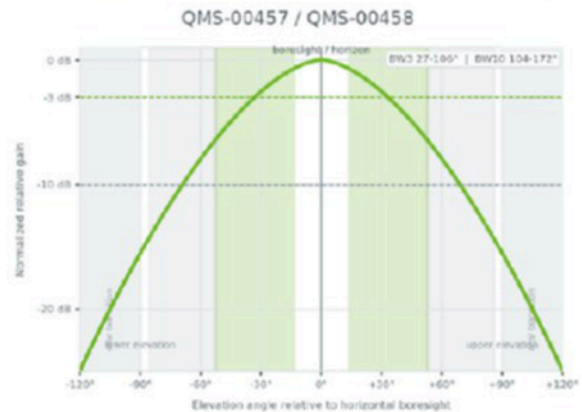
AZIMUTH - ESTIMATED ARRAY ENVELOPE



Representative BW3 66.5° | crossover ~ -2.4 dB

Min-BW proxy 27° | crossover ~ -14.8 dB

ELEVATION CUT - NORMALIZED dB



Representative cut | BW3 27-106° | BW10 104-172°

ARRAY COVERAGE ESTIMATE

1-8 GHz | QMS-00457 / QMS-00458

Representative BW3 66.5° -> adjacent-sector crossover approx. -2.4 dB; expected continuous 360° max-channel detection.

Conservative min-BW proxy 27.0° -> crossover approx. -14.8 dB | supplier BW3 span 27-106°.

PRELIMINARY / ILLUSTRATIVE

HEXDF-08 - Steatite module data

Current preliminary module basis and representative supplier data-sheet view

QMS-00457 (LHCP) / QMS-00458 (RHCP)

QSP-LC / RC-1-18-S-SG

Polarisation: LHCP or RHCP



Representative view from supplied Steatite test report



TYPICAL MODULE SPECIFICATION

Frequency	1 to 18 GHz (HexDF-08 system-limited to 8 GHz)
Connector	SMA female
VSWR	<2.4:1 typical; 3:1 maximum
Gain	0 to 6.2 dBi
Axial ratio	0.3 to 2.4 dB
3 dB beamwidth	27 to 106 degrees
10 dB beamwidth	104 to 172 degrees
Power	2 W c.w.
Size / weight	Ø68 x 47.8 mm; 150 g
Mounting	3 x M5 on Ø45.7 mm PCD
Environmental	MIL-STD-167-1A / DO160F vibration; shock data in report

SOURCE AND USE NOTE

Source: supplied Steatite QMS-00458 Typical Specification. Values describe the individual antenna module. They are not installed HexDF system guarantees; final values depend on brackets, RF core, radome, cables, coupling and calibration.

HEXDF IMPLEMENTATION

- 6 x LHCP or 6 x RHCP modules
- Antenna capability 1-18 GHz; HexDF-08 electronics limit operation to 1-8 GHz
- Representative source view uses QMS-00458 RHCP report

HexDF-18

1-18 GHz

Universal DF frontend

SYSTEM FREQUENCY COVERAGE



PRODUCT POSITIONING

Core HexDF configuration for wideband COMINT, SIGINT, electronic support and Counter-UAS applications. The QMS-00761 / QMS-00762 pair provides matching LHCP and RHCP radomed modules.

APPLICATIONS

- Universal COMINT and SIGINT
- EW, RWR and Counter-UAS

MODULE BASIS

- LHCP**
QMS-00761 | 1-18 GHz
- RHCP**
QMS-00762 | 1-18 GHz

CONFIGURATION

- One polarisation per six-sector ring
- Individual module radomes
- Central RF core and optional common radome

CURRENT IMPLEMENTATION BASIS

GEOMETRY

6 x Ø78 mm x 48 mm | indicative envelope approx. Ø307 mm

ANTENNA-MODULE MASS

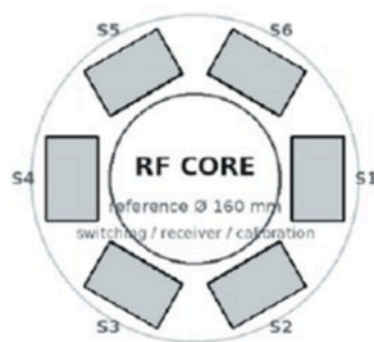
Approx. 1.020 kg antenna modules only

STATUS

Defined RHCP / LHCP pair with supplied environmental data

HexDF-18 - mechanical concept

Plan view only | actual supplier D x L footprints shown in proportion



PHYSICAL MODULE BASIS

SIX-SECTOR RING

QMS-00761 LHCP or QMS-00762 RHCP

MODULE FOOTPRINT

78 mm D x 48 mm L | 170 g each

INTEGRATION NOTES

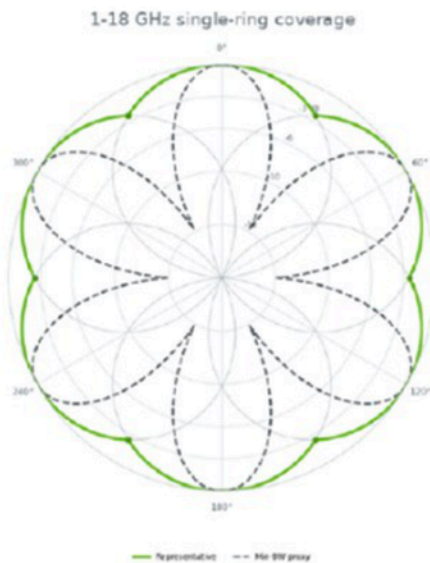
- Apertures face radially outward.
- Short and equal RF paths support channel calibration.
- Envelope assumes a Ø160 mm reference RF core.

HexDF-18 - pattern concept

Illustrative installed-sector response | not a released as-installed measurement

Azimuth estimates use six identical sector responses at 60° spacing and max-channel selection. Solid green shows the representative envelope; dashed grey is a conservative proxy using the minimum supplier BW3. No coherent summation is assumed. Elevation remains a representative normalized cut.

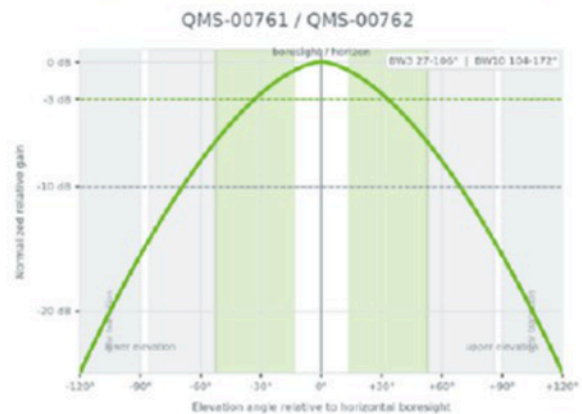
AZIMUTH - ESTIMATED ARRAY ENVELOPE



Representative BW3 66.5° | crossover ~ -2.4 dB

Min-BW proxy 27° | crossover ~ -14.8 dB

ELEVATION CUT - NORMALIZED dB



Representative cut | BW3 27-106° | BW10 104-172°

ARRAY COVERAGE ESTIMATE

1-18 GHz | QMS-00761 / QMS-00762

Representative BW3 66.5° -> adjacent-sector crossover approx. -2.4 dB; expected continuous 360° max-channel detection.

Conservative min-BW proxy 27.0° -> crossover approx. -14.8 dB | supplier BW3 span 27-106°.

PRELIMINARY / ILLUSTRATIVE

HEXDF-10 - Steatite module data

Current preliminary module basis and representative supplier data-sheet view

QMS-00761 (LHCP) / QMS-00762 (RHCP)

QSP-LC / RC-1-18-S-SG-R

Polarisation: LHCP or RHCP



Representative view from supplied Steatite test report



TYPICAL MODULE SPECIFICATION

Frequency	1 to 18 GHz
Connector	SMA jack
VSWR	<2.5:1 typical from 1.5 to 18 GHz; 3.2:1 maximum
Gain	-0.3 to 5.6 dBi
Axial ratio	0.3 to 2.4 dB
3 dB beamwidth	27 to 106 degrees
10 dB beamwidth	104 to 172 degrees
Power	2 W c.w.
Size / weight	Ø78 x 48 mm; 170 g nominal
Mounting	3 x M5 x 10 mm tapped holes
Environmental	MIL-STD-167-1A / DO160F; -40°C to +70°C storage; altitude 50,000 ft

SOURCE AND USE NOTE

Source: supplied Steatite QMS-00762 Typical Specification. Values describe the individual antenna module. They are not installed HexDF system guarantees; final values depend on brackets, RF core, radome, cables, coupling and calibration.

HEXDF IMPLEMENTATION

- 6 x QMS-00761 or 6 x QMS-00762
- Antenna-module mass: approx. 1.020 kg per six-module ring
- Radomed 1-18 GHz baseline

HexDF-18C

2-18 GHz

Compact high-band DF frontend

SYSTEM FREQUENCY COVERAGE



PRODUCT POSITIONING

Reduced-size configuration for vehicle, mast and UAV integration when the 1-2 GHz octave is not required. A light non-radomed baseline and a rugged radomed RHCP/LHCP option are both fully defined.

APPLICATIONS

- Vehicle, mast and UAV integration
- Compact tactical DF

MODULE BASIS

LIGHT BASELINE

QMS-00769 LHCP /
QMS-00309 RHCP

RUGGED OPTION

QMS-01138 LHCP /
QMS-01126 RHCP

CONFIGURATION

- One polarisation per six-sector ring
- Light or rugged module family
- Common outer radome optional

CURRENT IMPLEMENTATION BASIS

GEOMETRY

Baseline 6 x Ø70 mm | rugged 6 x
Ø71 mm

ANTENNA-MODULE MASS

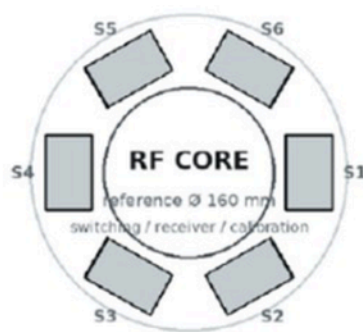
Approx. 0.660 kg baseline | 1.020
kg rugged

STATUS

Both LHCP and RHCP pairings are
source-defined

HexDF-18C - mechanical concept

Plan view only | actual supplier D x L footprints shown in proportion



INDICATIVE ENVELOPE Ø 295 mm

PHYSICAL MODULE BASIS

LIGHT BASELINE

6 x QMS-00769 / QMS-00309 | 70 x 43 mm | 0.660 kg

RUGGED OPTION

6 x QMS-01138 / QMS-01126 | 71 x 50 mm | 1.020 kg | envelope approx. Ø309 mm

INTEGRATION NOTES

- The scaled drawing shows the light baseline.
- Rugged modules add individual radomes and environmental qualification.
- Both options use a common six-sector architecture.

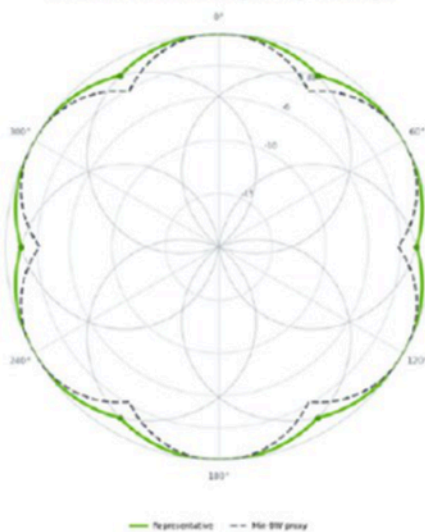
HexDF-18C - pattern concept

Illustrative installed-sector response | not a released as-installed measurement

Azimuth estimates use six identical sector responses at 60° spacing and max-channel selection. Solid green shows the representative envelope; dashed grey is a conservative proxy using the minimum supplier BW3. No coherent summation is assumed. Elevation remains a representative normalized cut.

AZIMUTH - ESTIMATED ARRAY ENVELOPE

compact 2-18 GHz single-ring coverage

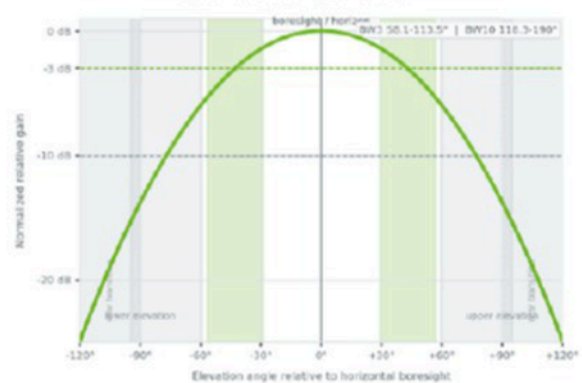


Representative BW3 85.8° | crossover ~ -1.5 dB

Min-BW proxy 58.1° | crossover ~ -3.2 dB

ELEVATION CUT - NORMALIZED dB

QMS-00769 / QMS-00309



Representative cut | BW3 58.1-113.5° | BW10 118.3-190°

ARRAY COVERAGE ESTIMATE

2-18 GHz | QMS-00309 / QMS-00769

Representative BW3 85.8° -> adjacent-sector crossover approx. -1.5 dB; expected continuous 360° max-channel detection.

Conservative min-BW proxy 58.1° -> crossover approx. -3.2 dB | supplier BW3 span 58.1-113.5°.

PRELIMINARY / ILLUSTRATIVE

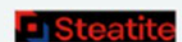
HexDF-18C - Steatite module data I

Baseline or first module set

QMS-00769 (LHCP) / QMS-00309 (RHCP)

QSP-LC / RC-2-18-S-SG

Polarisation: LHCP or RHCP



SUPPLIER VIEW



TYPICAL SPECIFICATION

FREQUENCY

2 to 18 GHz

CONNECTOR

SMA female

VSWR

<2.5:1 typical; 3:1 maximum

GAIN

-1.1 to 4.5 dBi

AXIAL RATIO

0.2 to 5.8 dB

3 DB BEAMWIDTH

58.1 to 113.5 degrees

10 DB BEAMWIDTH

118.3 to 190 degrees

POWER

1 W c.w.

SIZE / WEIGHT

Ø70 x 43 mm; 110 g

MOUNTING

3 x M3 through on Ø38.1 mm PCD

ENVIRONMENTAL

MIL-STD-810G; -54°C to +70°C storage;
thermal shock and vibration in report

Source: Steatite QMS-00769 Typical Specification. Individual-module data; installed-array performance remains preliminary.

HexDF-18C - Steatite module data II

Alternative, rugged or high-band module set

QMS-01138 (LHCP) / QMS-01126 (RHCP)

QSP-LC / RC-2-18-S-SG-R

Polarisation: LHCP or RHCP



SUPPLIER VIEW



TYPICAL SPECIFICATION

FREQUENCY

2 to 18 GHz

CONNECTOR

SMA female

VSWR

<2.0:1 typical; <2.5:1 maximum

GAIN

0.2 to 4.8 dBi

AXIAL RATIO

0.2 to 4.2 dB

3 DB BEAMWIDTH

60 to 117.5 degrees

10 DB BEAMWIDTH

106 to 217.6 degrees

POWER

1 W c.w.

SIZE / WEIGHT

Ø71 x 50 mm; 170 g nominal

MOUNTING

4 x M4 tapped holes; refer to ICD

ENVIRONMENTAL

MIL-STD-883C / DO160F; -80°C to +70°C storage; fixed-wing and helicopter vibration

Source: Steatite QMS-01126 Typical Specification. Individual-module data; installed-array performance remains preliminary.

HEXDF IMPLEMENTATION

- Light baseline: 6 x QMS-00769 or QMS-00309 = approx. 0.660 kg
- Rugged option: 6 x QMS-01138 or QMS-01126 = approx. 1.020 kg
- Select one complete polarisation set per array

HexDF-22

0.5-22 GHz

Extended-band DF frontend

SYSTEM FREQUENCY COVERAGE

0.5-22 GHz

0.5 GHz

42 GHz

PRODUCT POSITIONING

Single-module-per-sector architecture extending from lower communications bands into microwave monitoring. The lighter QMS-00315 / QMS-00314 pair is the baseline; QMS-01160 / QMS-01113 is the rugged radomed option.

APPLICATIONS

- Wideband COMINT
- ELINT, radar and spectrum monitoring

MODULE BASIS

LIGHT BASELINE

QMS-00315 LHCP /
QMS-00314 RHCP

RUGGED OPTION

QMS-01160 LHCP /
QMS-01113 RHCP

CONFIGURATION

- One polarisation per six-sector ring
- Light or rugged module family
- Large-format mast / vehicle platform

CURRENT IMPLEMENTATION BASIS

GEOMETRY

Baseline 6 x Ø151.4 mm | rugged 6 x Ø154 mm

ANTENNA-MODULE MASS

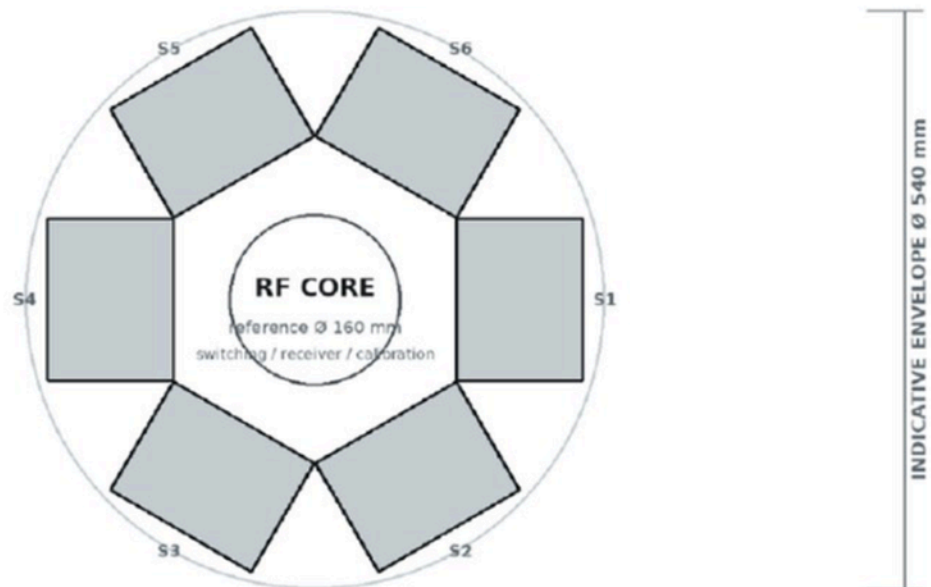
Approx. 3.600 kg baseline | 4.800 kg rugged

STATUS

Both module families are source-defined; rugged option adds 1.200 kg

HexDF-22 - mechanical concept

Plan view only | actual supplier D x L footprints shown in proportion



PHYSICAL MODULE BASIS

LIGHT BASELINE

6 x QMS-00315 / QMS-00314 | 151.4 x 117 mm | 3.600 kg

RUGGED OPTION

6 x QMS-01160 / QMS-01113 | 154 x 122 mm | 4.800 kg | envelope approx. Ø554 mm

INTEGRATION NOTES

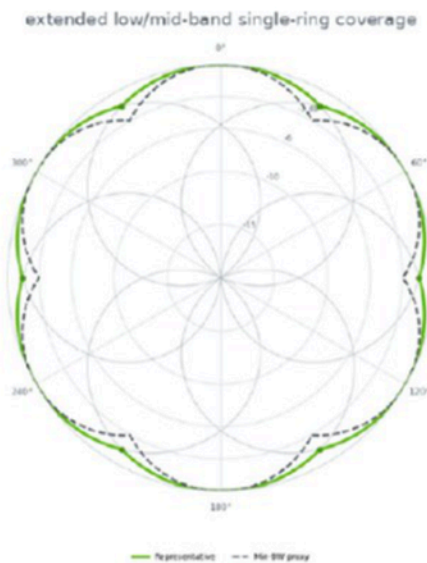
- The scaled drawing shows the light baseline.
- Rugged modules include individual radomes.
- Envelope assumes a Ø160 mm reference RF core.

HexDF-22 - pattern concept

Illustrative installed-sector response | not a released as-installed measurement

Azimuth estimates use six identical sector responses at 60° spacing and max-channel selection. Solid green shows the representative envelope; dashed grey is a conservative proxy using the minimum supplier BW3. No coherent summation is assumed. Elevation remains a representative normalized cut.

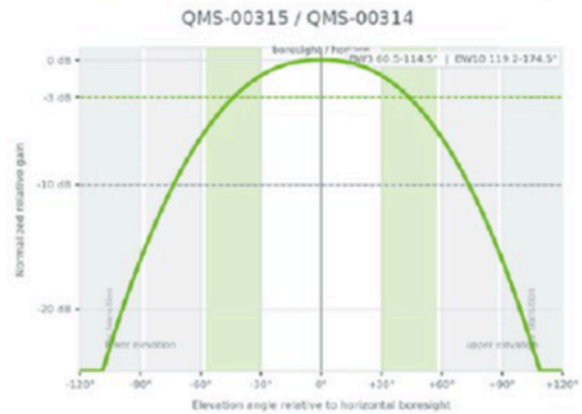
AZIMUTH - ESTIMATED ARRAY ENVELOPE



Representative BW3 87.5° | crossover ~ -1.4 dB

Min-BW proxy 60.5° | crossover ~ -3.0 dB

ELEVATION CUT - NORMALIZED dB



Representative cut | BW3 60.5-114.5° | BW10 119.2-174.5°

ARRAY COVERAGE ESTIMATE

0.5-22 GHz | QMS-00315 / QMS-00314

Representative BW3 87.5° -> adjacent-sector crossover approx. -1.4 dB; expected continuous 360° max-channel detection.

Conservative min-BW proxy 60.5° -> crossover approx. -3.0 dB | supplier BW3 span 60.5-114.5°.

PRELIMINARY / ILLUSTRATIVE

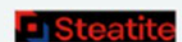
HexDF-22 - Steatite module data I

Baseline or first module set

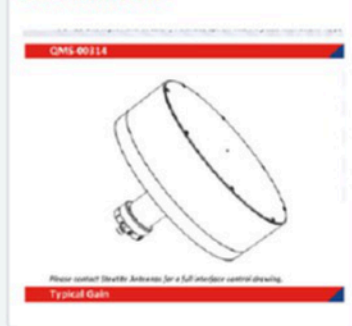
QMS-00315 (LHCP) / QMS-00314 (RHCP)

QSP-LC / RC-0.5-22-S-SG

Polarisation: LHCP or RHCP



SUPPLIER VIEW



TYPICAL SPECIFICATION

FREQUENCY

0.5 to 22 GHz

CONNECTOR

SMA female

VSWR

<1.5:1 typical above 0.8 GHz

GAIN

-8.5 to 4.4 dBi

AXIAL RATIO

0 to 7.4 dB

3 DB BEAMWIDTH

60.5 to 114.5 degrees

10 DB BEAMWIDTH

119.2 to 174.5 degrees

POWER

2 W c.w. typical

SIZE / WEIGHT

Ø151.4 x 117 mm; 0.6 kg

MOUNTING

4 x M5, 8.2 mm deep, on Ø137 mm PCD

ENVIRONMENTAL

MIL-STD-810F; MIL-HDBK-216A; -40°C to +70°C storage

Source: Steatite QMS-00314 Typical Specification. Individual-module data; installed-array performance remains preliminary.

HexDF-22 - Steatite module data II

Alternative, rugged or high-band module set

QMS-01160 (LHCP) / QMS-01113 (RHCP)

QSP-LC / RC-0.5-22-S-SG-R

Polarisation: LHCP or RHCP



SUPPLIER VIEW



TYPICAL SPECIFICATION

FREQUENCY

0.5 to 22 GHz

CONNECTOR

SMA jack

VSWR

<2.0:1 typical above 0.8 GHz

GAIN

-7.9 to 4.9 dBi

AXIAL RATIO

0.2 to 7.5 dB

3 DB BEAMWIDTH

52.5 to 119.5 degrees

10 DB BEAMWIDTH

110.5 to 180 degrees

POWER

2 W c.w.

SIZE / WEIGHT

Ø154 x 122 mm; 800 g nominal

MOUNTING

5 x M5 x 8 mm deep on Ø130 mm PCD

ENVIRONMENTAL

MIL-STD-883C / DO160F; -40°C to +70°C
storage; 50,000 ft altitude

Source: Steatite QMS-01113 Typical Specification. Individual-module data; installed-array performance remains preliminary.

HEXDF IMPLEMENTATION

- Light baseline: six-module ring approx. 3.600 kg
- Rugged radomed option: six-module ring approx. 4.800 kg
- Select one complete LHCP or RHCP set

HexDF-40E

0.5-40 GHz

Extended dual-band DF frontend

SYSTEM FREQUENCY COVERAGE



PRODUCT POSITIONING

Extended lower-band dual-ring configuration using a 0.5-22 GHz primary ring and ultra-compact 18-42 GHz high-band modules. Antenna hardware covers 0.5-42 GHz; the released HexDF-40E system range is limited to 40 GHz.

APPLICATIONS

- Wideband COMINT, ELINT and radar
- Extended lower-band coverage

MODULE BASIS

LOW / MID BASELINE

QMS-00315 LHCP /
QMS-00314 RHCP

HIGH BAND

QMS-00961 LHCP /
QMS-00962 RHCP

CONFIGURATION

- Two interleaved six-sector rings
- Matching polarisation in both rings
- 18-22 GHz overlap for cross-calibration

CURRENT IMPLEMENTATION BASIS

GEOMETRY

6 x Ø151.4 mm + 6 x Ø20 mm |
envelope approx. Ø540 mm

ANTENNA-MODULE MASS

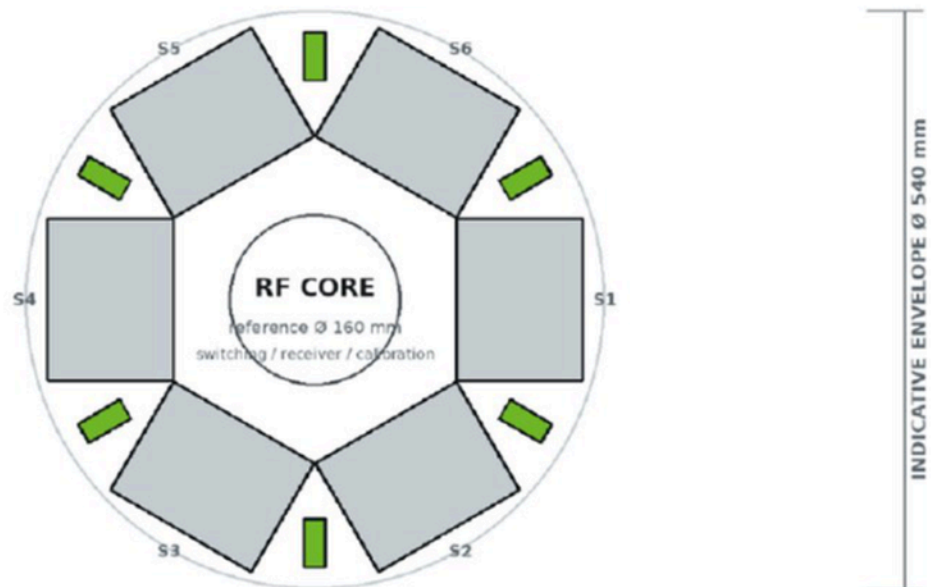
Approx. 3.756 kg baseline | 4.956
kg rugged low-band option

STATUS

Hardware capability 0.5-42 GHz;
published system range 0.5-40
GHz

HexDF-40E - mechanical concept

Plan view only | actual supplier D x L footprints shown in proportion



PHYSICAL MODULE BASIS

LOW / MID RING

6 x QMS-00315 / QMS-00314 | 151.4 x 117 mm | 3.600 kg

HIGH-BAND RING

6 x QMS-00961 / QMS-00962 | 20 x 45 mm | 0.156 kg

INTEGRATION NOTES

- High-band modules are offset 30 degrees between the primary sectors.
- Outer apertures are aligned in the reference layout.
- Rugged low-band option raises antenna mass to approx. 4.956 kg.

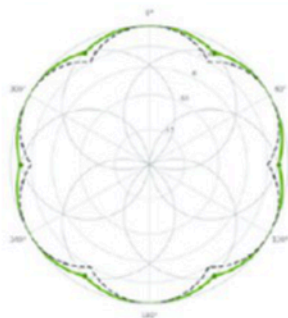
HexDF-40E - pattern concept

Illustrative installed-sector response | not a released as-installed measurement

Azimuth estimates use six identical sector responses at 60° spacing and max-channel selection. Solid green shows the representative envelope; dashed grey is a conservative proxy using the minimum supplier BW3. No coherent summation is assumed. Elevation remains a representative normalized cut.

LOW / MID BAND - ARRAY ENVELOPE

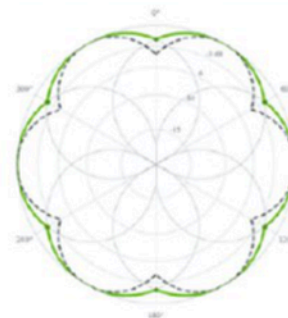
0.5-22 GHz | QMS-00315 / QMS-00314



Rep. 87.5° / -1.4 dB | min 60.5° / -3.0 dB

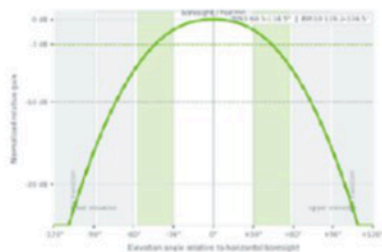
HIGH BAND - ARRAY ENVELOPE

18-42 GHz | QMS-00961 / QMS-00962

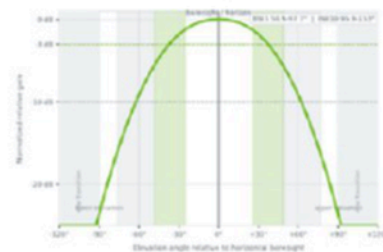


Rep. 74.3° / -2.0 dB | min 50.9° / -4.2 dB

LOW-BAND ELEVATION



HIGH-BAND ELEVATION



ARRAY COVERAGE ESTIMATE

LOW / MID 0.5-22 GHz | QMS-00315 / QMS-00314

Rep. BW3 87.5° -> crossover -1.4 dB | min-BW proxy 60.5° -> -3.0 dB

HIGH 18-42 GHz | QMS-00961 / QMS-00962

Rep. BW3 74.3° -> crossover -2.0 dB | min-BW proxy 50.9° -> -4.2 dB | ring offset 30°

PRELIMINARY / ILLUSTRATIVE

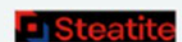
HexDF-40E - Steatite module data I

Baseline or first module set

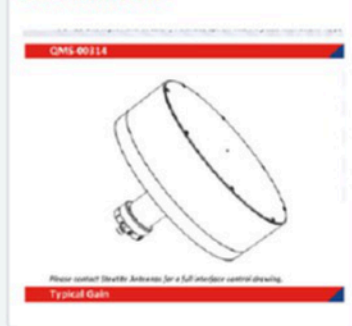
QMS-00315 (LHCP) / QMS-00314 (RHCP)

QSP-LC / RC-0.5-22-S-SG

Polarisation: LHCP or RHCP



SUPPLIER VIEW



TYPICAL SPECIFICATION

FREQUENCY

0.5 to 22 GHz

CONNECTOR

SMA female

VSWR

<1.5:1 typical above 0.8 GHz

GAIN

-8.5 to 4.4 dBi

AXIAL RATIO

0 to 7.4 dB

3 DB BEAMWIDTH

60.5 to 114.5 degrees

10 DB BEAMWIDTH

119.2 to 174.5 degrees

POWER

2 W c.w. typical

SIZE / WEIGHT

Ø151.4 x 117 mm; 0.6 kg

MOUNTING

4 x M5, 8.2 mm deep, on Ø137 mm PCD

ENVIRONMENTAL

MIL-STD-810F; MIL-HDBK-216A; -40°C to +70°C storage

Source: Steatite QMS-00314 Typical Specification. Individual-module data; installed-array performance remains preliminary.

HexDF-40E - Steatite module data II

Alternative, rugged or high-band module set

QMS-00961 (LHCP) / QMS-00962 (RHCP)

QSP-LC / RC-18-42-K-SG

Polarisation: LHCP or RHCP



SUPPLIER VIEW



TYPICAL SPECIFICATION

FREQUENCY

18 to 42 GHz

CONNECTOR

2.92 mm K-type female

VSWR

<2.5:1 typical

GAIN

0.5 to 3.7 dBi

AXIAL RATIO

0.4 to 2.1 dB

3 DB BEAMWIDTH

50.9 to 97.7 degrees

10 DB BEAMWIDTH

95.9 to 153 degrees

POWER

2 W c.w. typical

SIZE / WEIGHT

Ø20 x 45 mm; 26 g

MOUNTING

Clamping to external cavity

ENVIRONMENTAL

DO160F / MIL-STD-810H; -40°C to +70°C storage

Source: Steatite QMS-00962 Typical Specification. Individual-module data; installed-array performance remains preliminary.

HEXDF IMPLEMENTATION

- Low/mid ring: 6 x 0.5-22 GHz modules
- High ring: 6 x 18-42 GHz ultra-compact modules
- Combined antenna capability 0.5-42 GHz; HexDF-40E system release limited to 40 GHz
- Combined antenna-module mass: approx. 3.756 kg

HexDF-40

1-40 GHz

Wide tactical dual-band DF frontend

SYSTEM FREQUENCY COVERAGE



PRODUCT POSITIONING

Dual-ring platform combining the proven 1-18 GHz radomed module pair with ultra-compact 18-42 GHz high-band modules. Antenna hardware covers 1-42 GHz; the released HexDF-40 system range is limited to 40 GHz.

APPLICATIONS

- Universal SIGINT and EW
- Radar, SatCom and Counter-UAS

MODULE BASIS

LOW / MID BAND

QMS-00761 LHCP /
QMS-00762 RHCP

HIGH BAND

QMS-00961 LHCP /
QMS-00962 RHCP

CONFIGURATION

- Two interleaved six-sector rings
- Matching polarisation in both rings
- 18 GHz crossover and calibration region

CURRENT IMPLEMENTATION BASIS

GEOMETRY

6 x Ø78 mm + 6 x Ø20 mm |
envelope approx. Ø307 mm

ANTENNA-MODULE MASS

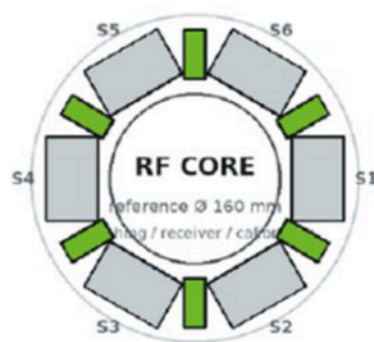
Approx. 1.176 kg antenna
modules only

STATUS

Hardware capability 1-42 GHz;
published system range 1-40 GHz

HexDF-40 - mechanical concept

Plan view only | actual supplier D x L footprints shown in proportion



PHYSICAL MODULE BASIS

LOW / MID RING

6 x QMS-00761 / QMS-00762 | 78 x 48 mm | 1.020 kg

HIGH-BAND RING

6 x QMS-00961 / QMS-00962 | 20 x 45 mm | 0.156 kg

INTEGRATION NOTES

- High-band modules are offset 30 degrees between the main sectors.
- Both rings use the same selected circular polarisation.
- Envelope assumes a Ø160 mm reference RF core.

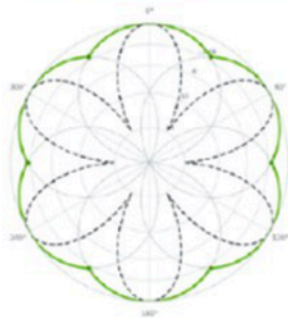
HexDF-40 - pattern concept

Illustrative installed-sector response | not a released as-installed measurement

Azimuth estimates use six identical sector responses at 60° spacing and max-channel selection. Solid green shows the representative envelope; dashed grey is a conservative proxy using the minimum supplier BW3. No coherent summation is assumed. Elevation remains a representative normalized cut.

LOW / MID BAND - ARRAY ENVELOPE

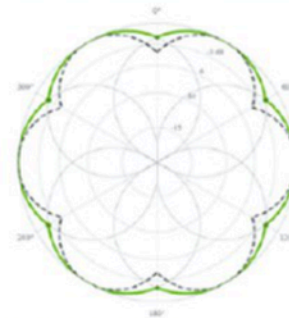
1-18 GHz | QMS-00761 / QMS-00762



Rep. 66.5° / -2.4 dB | min 27° / -14.8 dB

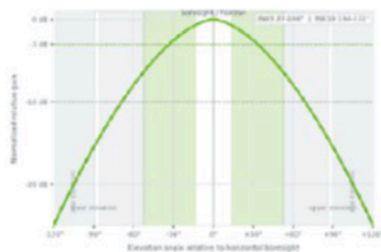
HIGH BAND - ARRAY ENVELOPE

18-42 GHz | QMS-00961 / QMS-00962

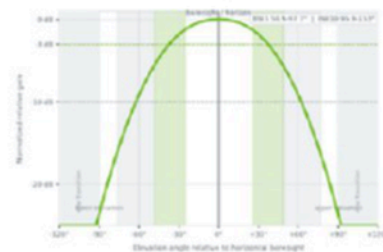


Rep. 74.3° / -2.0 dB | min 50.9° / -4.2 dB

LOW-BAND ELEVATION



HIGH-BAND ELEVATION



ARRAY COVERAGE ESTIMATE

LOW / MID 1-18 GHz | QMS-00761 / QMS-00762

Rep. BW3 66.5° -> crossover -2.4 dB | min-BW proxy 27° -> -14.8 dB

HIGH 18-42 GHz | QMS-00961 / QMS-00962

Rep. BW3 74.3° -> crossover -2.0 dB | min-BW proxy 50.9° -> -4.2 dB | ring offset 30°

PRELIMINARY / ILLUSTRATIVE

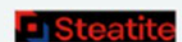
HexDF-40 - Steatite module data I

Baseline or first module set

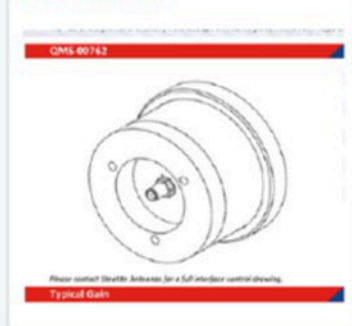
QMS-00761 (LHCP) / QMS-00762 (RHCP)

QSP-LC / RC-1-18-S-SG-R

Polarisation: LHCP or RHCP



SUPPLIER VIEW



TYPICAL SPECIFICATION

FREQUENCY

1 to 18 GHz

CONNECTOR

SMA jack

VSWR

<2.5:1 typical from 1.5 to 18 GHz; 3.2:1 maximum

GAIN

-0.3 to 5.6 dBi

AXIAL RATIO

0.3 to 2.4 dB

3 DB BEAMWIDTH

27 to 106 degrees

10 DB BEAMWIDTH

104 to 172 degrees

POWER

2 W c.w.

SIZE / WEIGHT

Ø78 x 48 mm; 170 g nominal

MOUNTING

3 x M5 x 10 mm tapped holes

ENVIRONMENTAL

MIL-STD-167-1A / DO160F; -40°C to +70°C

storage: altitude 50.000 ft

Source: Steatite QMS-00762 Typical Specification. Individual-module data; installed-array performance remains preliminary.

HexDF-40 - Steatite module data II

Alternative, rugged or high-band module set

QMS-00961 (LHCP) / QMS-00962 (RHCP)

QSP-LC / RC-18-42-K-SG

Polarisation: LHCP or RHCP



SUPPLIER VIEW



TYPICAL SPECIFICATION

FREQUENCY

18 to 42 GHz

CONNECTOR

2.92 mm K-type female

VSWR

<2.5:1 typical

GAIN

0.5 to 3.7 dBi

AXIAL RATIO

0.4 to 2.1 dB

3 DB BEAMWIDTH

50.9 to 97.7 degrees

10 DB BEAMWIDTH

95.9 to 153 degrees

POWER

2 W c.w. typical

SIZE / WEIGHT

Ø20 x 45 mm; 26 g

MOUNTING

Clamping to external cavity

ENVIRONMENTAL

DO160F / MIL-STD-810H; -40°C to +70°C storage

Source: Steatite QMS-00962 Typical Specification. Individual-module data; installed-array performance remains preliminary.

HEXDF IMPLEMENTATION

- Low/mid ring: 6 x 1-18 GHz modules
- High ring: 6 x 18-42 GHz ultra-compact modules
- Combined antenna capability 1-42 GHz; HexDF-40 system release limited to 40 GHz
- Combined antenna-module mass: approx. 1.176 kg

HexDF-40C

2-40 GHz

Compact direct-wideband DF frontend

SYSTEM FREQUENCY COVERAGE



PRODUCT POSITIONING

Compact single-ring solution using direct 2-40 GHz spiral modules. The radomed QMS-00934 / QMS-00933 pair is the baseline; QMS-00936 / QMS-00935 is the non-radomed alternative.

APPLICATIONS

- Compact SIGINT and EW
- Vehicle, mast and UAV integration

MODULE BASIS

RADOMED BASELINE

QMS-00934 LHCP /
QMS-00933 RHCP

NON-RADOMED OPTION

QMS-00936 LHCP /
QMS-00935 RHCP

CONFIGURATION

- Single six-sector ring
- No band-split crossover
- One polarisation per ring

CURRENT IMPLEMENTATION BASIS

GEOMETRY

6 x Ø50.5 mm x 45 mm | envelope
approx. Ø295 mm

ANTENNA-MODULE MASS

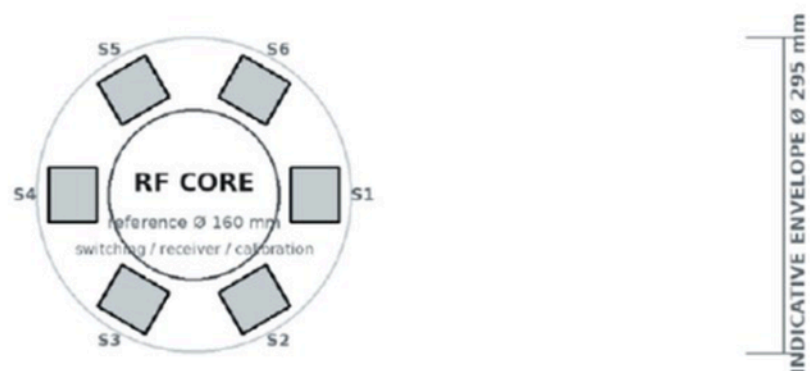
Approx. 0.840 kg antenna
modules only

STATUS

Direct 2-40 GHz coverage with
radomed and non-radomed pairs

HexDF-40C - mechanical concept

Plan view only | actual supplier D x L footprints shown in proportion



PHYSICAL MODULE BASIS

RADOMED BASELINE

6 x QMS-00934 / QMS-00933 | 50.5 x 45 mm

NON-RADOMED OPTION

6 x QMS-00936 / QMS-00935 | 51 x 44.9 mm

INTEGRATION NOTES

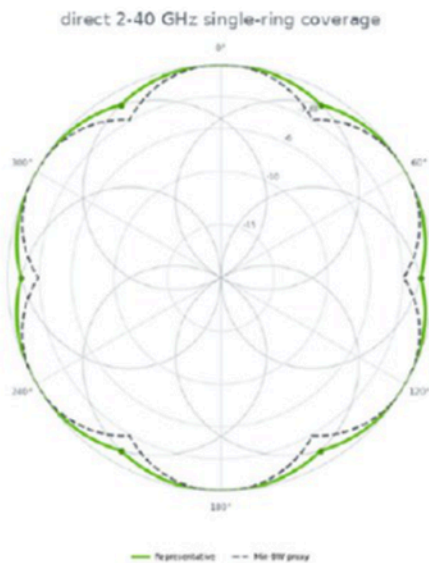
- Both module families weigh approx. 140 g each.
- Direct-wideband architecture avoids an Inter-ring crossover.
- Envelope assumes a Ø160 mm reference RF core.

HexDF-40C - pattern concept

Illustrative installed-sector response | not a released as-installed measurement

Azimuth estimates use six identical sector responses at 60° spacing and max-channel selection. Solid green shows the representative envelope; dashed grey is a conservative proxy using the minimum supplier BW3. No coherent summation is assumed. Elevation remains a representative normalized cut.

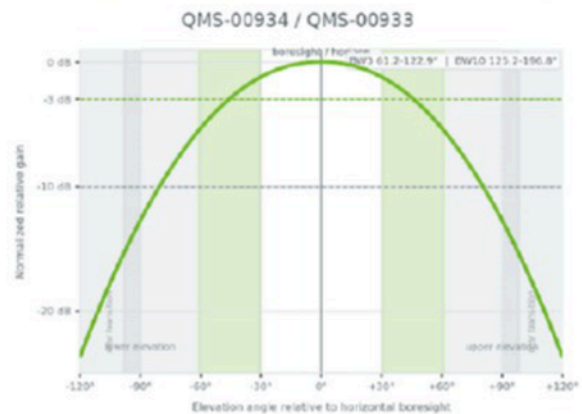
AZIMUTH - ESTIMATED ARRAY ENVELOPE



Representative BW3 92.1° | crossover ~ -1.3 dB

Min-BW proxy 61.2° | crossover ~ -2.9 dB

ELEVATION CUT - NORMALIZED dB



Representative cut | BW3 61.2-122.9° | BW10 125.2-196.8°

ARRAY COVERAGE ESTIMATE

2-40 GHz | QMS-00934 / QMS-00933

Representative BW3 92.1° -> adjacent-sector crossover approx. -1.3 dB; expected continuous 360° max-channel detection.

Conservative min-BW proxy 61.2° -> crossover approx. -2.9 dB | supplier BW3 span 61.2-122.9°.

PRELIMINARY / ILLUSTRATIVE

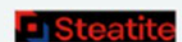
HexDF-40C - Steatite module data I

Baseline or first module set

QMS-00934 (LHCP) / QMS-00933 (RHCP)

QSP-LC / RC-2-40-K-SG-R

Polarisation: LHCP or RHCP



SUPPLIER VIEW



TYPICAL SPECIFICATION

FREQUENCY

2 to 40 GHz

CONNECTOR

2.92 mm K-type female

VSWR

<2.0:1 typical

GAIN

-4.4 to 5.2 dBi

AXIAL RATIO

0.3 to 5.8 dB

3 DB BEAMWIDTH

61.2 to 122.9 degrees

10 DB BEAMWIDTH

125.2 to 196.8 degrees

POWER

5 W c.w. typical

SIZE / WEIGHT

Ø50.5 x 45 mm; 140 g

MOUNTING

3 x M3 through on Ø38.1 mm PCD

ENVIRONMENTAL

Supplier consultation required

Source: Steatite QMS-00933 Typical Specification. Individual-module data; installed-array performance remains preliminary.

HexDF-40C - Steatite module data II

Alternative, rugged or high-band module set

QMS-00936 (LHCP) / QMS-00935 (RHCP)

2-40 GHz non-radomed module pair

Polarisation: LHCP or RHCP



SUPPLIER VIEW



TYPICAL SPECIFICATION

FREQUENCY

2 to 40 GHz

CONNECTOR

K-type female

VSWR

<2.0:1 typical

GAIN

-7.7 to 4.4 dBi

AXIAL RATIO

0.1 to 4.9 dB

3 DB BEAMWIDTH

57.4 to 131.5 degrees

10 DB BEAMWIDTH

110 to 224 degrees

POWER

2 W c.w.

SIZE / WEIGHT

Ø51 x 44.9 mm; 140 g nominal

MOUNTING

3 x M3 rear-mounted holes on Ø38.1 mm

PCD

ENVIRONMENTAL

MIL-STD-810H / DO160F; -40°C to +70°C

storage

Source: Steatite QMS-00935 Typical Specification. Individual-module data; installed-array performance remains preliminary.

HEXDF IMPLEMENTATION

- Baseline radomed pair: QMS-00934 / QMS-00933
- Alternative non-radomed pair: QMS-00936 / QMS-00935
- Six-module antenna mass is approx. 0.840 kg for either option

HexDF-42

6-42 GHz

Ultra-compact high-band DF frontend

SYSTEM FREQUENCY COVERAGE



PRODUCT POSITIONING

Compact dual-ring architecture matched to the actual 6-42 GHz requirement. QMS-00992 covers 6-18 GHz and QMS-00962 covers 18-42 GHz, avoiding unnecessary 1-6 GHz antenna volume and mass.

APPLICATIONS

- X / Ku / Ka-band monitoring
- Radar, SatCom and 5G FR2

MODULE BASIS

LOW / MID BAND

QMS-00992 | 6-18 GHz RHCP

HIGH BAND

QMS-00962 | 18-42 GHz RHCP

CONFIGURATION

- Two interleaved six-sector rings
- Current source-defined baseline is RHCP
- 18 GHz crossover and calibration region

CURRENT IMPLEMENTATION BASIS

GEOMETRY

6 x Ø30 mm + 6 x Ø20 mm |
envelope approx. Ø301 mm

ANTENNA-MODULE MASS

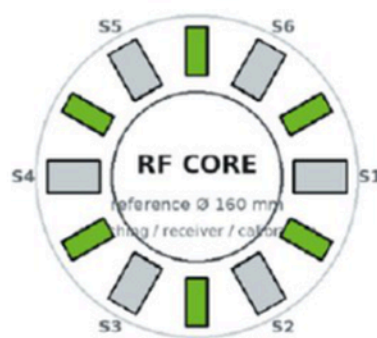
Approx. 0.444 kg antenna
modules only

STATUS

Corrected compact 6-42 GHz
baseline; LHCP pairing not
supported by current source set

HexDF-42 - mechanical concept

Plan view only | actual supplier D x L footprints shown in proportion



PHYSICAL MODULE BASIS

6-18 GHz RING

6 x QMS-00992 | 30 x 49.5 mm | 0.288 kg

18-42 GHz RING

6 x QMS-00962 | 20 x 45 mm | 0.156 kg

INTEGRATION NOTES

- Both supplied modules are RHCP.
- High-band modules are offset 30 degrees between the 6-18 GHz sectors.
- Envelope assumes a Ø160 mm reference RF core.

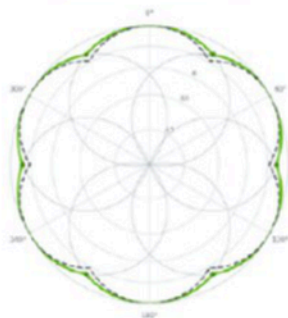
HexDF-42 - pattern concept

Illustrative installed-sector response | not a released as-installed measurement

Azimuth estimates use six identical sector responses at 60° spacing and max-channel selection. Solid green shows the representative envelope; dashed grey is a conservative proxy using the minimum supplier BW3. No coherent summation is assumed. Elevation remains a representative normalized cut.

LOW / MID BAND - ARRAY ENVELOPE

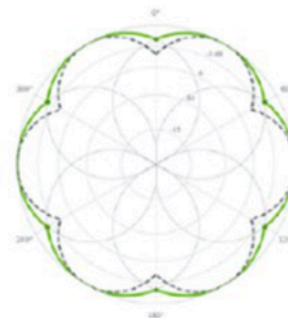
6-18 GHz | QMS-00992



Rep. 78.2° / -1.8 dB | min 62.2° / -2.8 dB

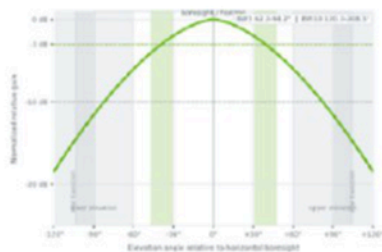
HIGH BAND - ARRAY ENVELOPE

18-42 GHz | QMS-00962

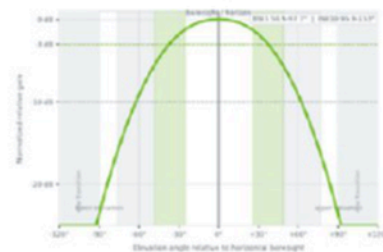


Rep. 74.3° / -2.0 dB | min 50.9° / -4.2 dB

LOW-BAND ELEVATION



HIGH-BAND ELEVATION



ARRAY COVERAGE ESTIMATE

LOW / MID 6-18 GHz | QMS-00992

Rep. BW3 78.2° -> crossover -1.8 dB | min-BW proxy 62.2° -> -2.8 dB

HIGH 18-42 GHz | QMS-00962

Rep. BW3 74.3° -> crossover -2.0 dB | min-BW proxy 50.9° -> -4.2 dB | ring offset 30°

PRELIMINARY / ILLUSTRATIVE

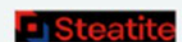
HexDF-42 - Steatite module data I

Baseline or first module set

QMS-00992 (RHCP)

QSP-RC-6-18-S-R

Polarisation: RHCP



SUPPLIER VIEW



TYPICAL SPECIFICATION

FREQUENCY

6 to 18 GHz

CONNECTOR

SMA female

VSWR

<2.0:1 typical

GAIN

1 to 4.7 dBi

AXIAL RATIO

0.3 to 1.2 dB

3 DB BEAMWIDTH

62.2 to 94.2 degrees

10 DB BEAMWIDTH

120.7 to 208.3 degrees

POWER

2 W c.w.

SIZE / WEIGHT

Ø30 x 49.5 mm; 48 g nominal

MOUNTING

4 x M3 on Ø20 mm PCD, rear mount

ENVIRONMENTAL

-40°C to +55°C storage; 60°C / 98% RH humidity

Source: Steatite QMS-00992 Typical Specification. Individual-module data; installed-array performance remains preliminary.

HexDF-42 - Steatite module data II

Alternative, rugged or high-band module set

QMS-00961 (LHCP) / QMS-00962 (RHCP)

QSP-LC / RC-18-42-K-SG

Polarisation: LHCP or RHCP



SUPPLIER VIEW



TYPICAL SPECIFICATION

FREQUENCY

18 to 42 GHz

CONNECTOR

2.92 mm K-type female

VSWR

<2.5:1 typical

GAIN

0.5 to 3.7 dBi

AXIAL RATIO

0.4 to 2.1 dB

3 DB BEAMWIDTH

50.9 to 97.7 degrees

10 DB BEAMWIDTH

95.9 to 153 degrees

POWER

2 W c.w. typical

SIZE / WEIGHT

Ø20 x 45 mm; 26 g

MOUNTING

Clamping to external cavity

ENVIRONMENTAL

DO160F / MIL-STD-810H; -40°C to +70°C storage

Source: Steatite QMS-00962 Typical Specification. Individual-module data; installed-array performance remains preliminary.

HEXDF IMPLEMENTATION

- Low/mid ring: 6 x QMS-00992, 6-18 GHz RHCP
- High ring: 6 x QMS-00962, 18-42 GHz RHCP
- Combined antenna-module mass: approx. 0.444 kg
- Current documented baseline is RHCP; alternate polarisation requires confirmed low-band counterpart

From scaled concept to verified product

Required steps before final mechanical and installed-pattern limits are released

1

Freeze module and polarisation selection

Confirm the exact RHCP or LHCP module set, connector orientation and any lensed or ultra-compact high-band option.

2

Release the mechanical envelope

Complete the central RF-core layout, module brackets, common radome, cable exits, service interfaces and installation mounting.

3

Run installed EM simulation

Model module coupling, bracket and core scattering, radome effects and representative azimuth/elevation cuts across the band.

4

Build and measure a prototype

Measure every sector at representative frequencies and derive amplitude, phase and channel-to-channel correction data.

5

Validate DF processing

Confirm commutation, synchronization, calibration stability and the selected AoA or correlative DF method.

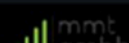
6

Publish verified performance

Release final dimensions, mass, environmental limits, installed patterns and DF accuracy after qualification.

Discuss the required HexDF® configuration

mmt gmbh | Meffert Microwave Technology



Technical data status and limitations

Configuration control for the HexDF® Product Guide

Supplier module data

Frequency, connector, VSWR, gain, axial ratio, beamwidth, power, dimensions, weight and environmental values come from the supplied Steatite QMS reports and brochure extracts. Missing values remain open or TBD.

HexDF system estimates

Array masses, platform diameters, azimuth envelopes and elevation cuts are engineering estimates. They are not installed-array guarantees.

Electronic extensions

RF switch, LNA, converter and RFoF are configurable extensions. Final gain, noise figure, dynamic range, switching time, IF plan and optical-link values require hardware selection and verification.

Omni channel

The optional omni antenna supports monitoring, reference or triggering. Direction finding remains based on the six sector antennas.

Release and qualification checklist

Items required before guaranteed product data can be issued

Mechanical freeze

Confirm module clocking, ring radius, RF-core diameter, cable routing, radome geometry and mounting interfaces.

RF definition

Select switch, LNA, converter and RFoF hardware; define losses, gain distribution, bypass paths, control and power budget.

Installed-pattern validation

Simulate and measure embedded patterns, full-array azimuth coverage, elevation cuts, coupling, radome impact and optional omni channel.

Controlled release

Replace preliminary values with verified data and issue controlled drawings, ordering codes and final datasheets.