

Annex 1: Measurement diagrams to TEST REPORT

No.: 16-1-0181301T09a

According to:

FCC Regulations

Part 15.205 Part 15.209 Part 15.247

for

Datalogic S.r.l.

SKORPIO X4 Type:00ANM4HS0GF0A4

FCC ID: U4GSX4WB

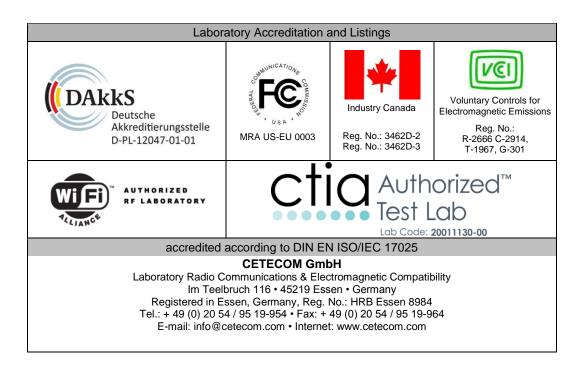




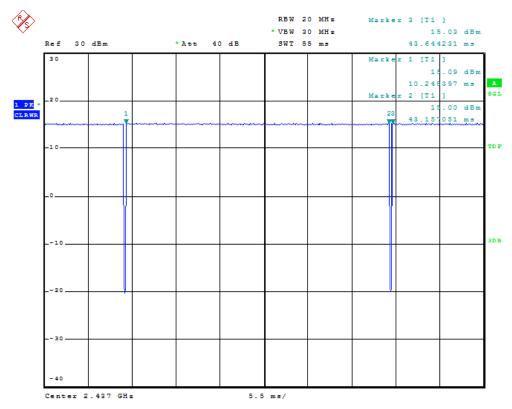
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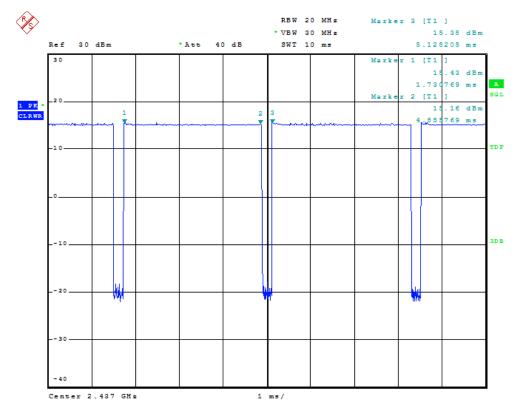


1. Conducted RF-Measurements

1.1. Duty Cycle Measurements

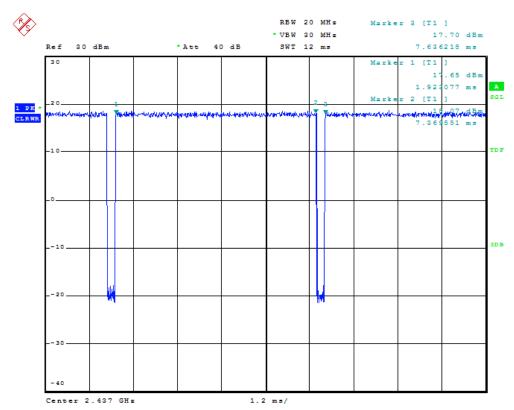


Plot 1: Duty Cycle-WLAN 2.4 GHz-b Mode (SISO) | 20 MHz | 1 Mbit | Ch 6 (2437 MHz)

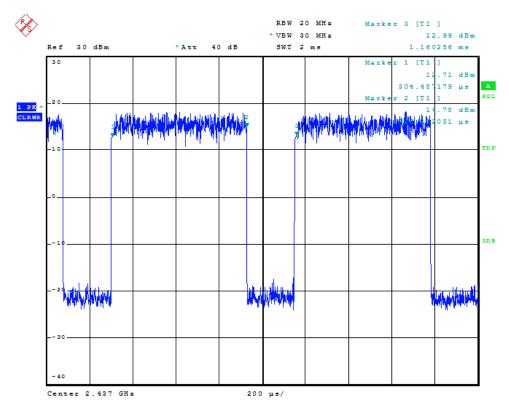


Plot 2: Duty Cycle-WLAN 2.4 GHz-b Mode (SISO) | 20 MHz | 11 Mbit | Ch 6 (2437 MHz)



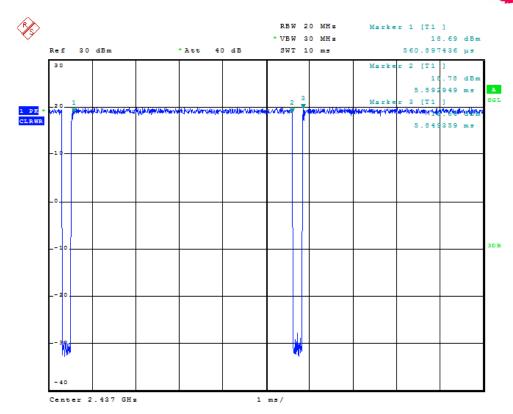


Plot 3: Duty Cycle-WLAN 2.4 GHz-g Mode (SISO) | 20 MHz | 6 Mbit | Ch 6 (2437 MHz)

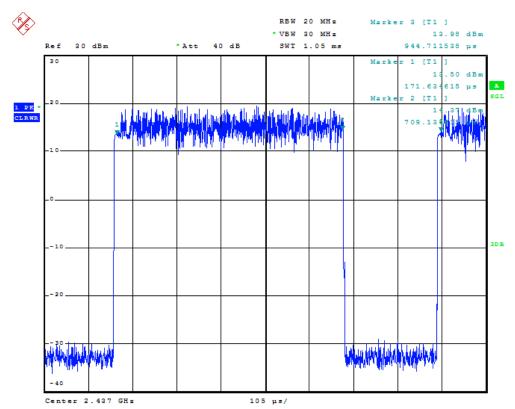


Plot 4: Duty Cycle-WLAN 2.4 GHz-g Mode (SISO) | 20 MHz | 54 Mbit | Ch 6 (2437 MHz)



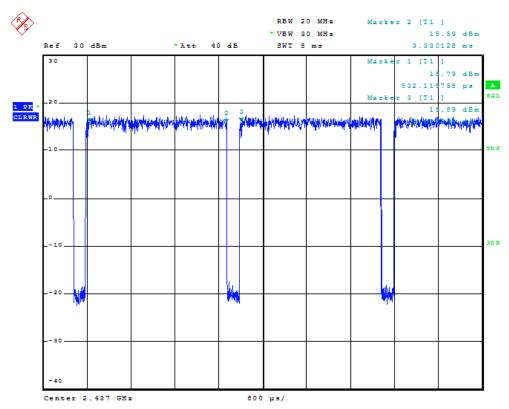


Plot 5: Duty Cycle-WLAN 2.4 GHz-n Mode (SISO) | 20 MHz | MCS0 | Ch 6 (2437 MHz)

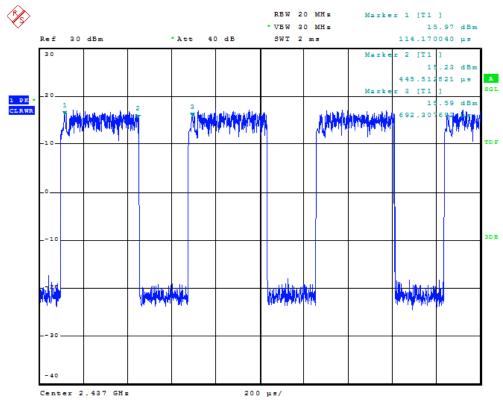


Plot 6: Duty Cycle-WLAN 2.4 GHz-n Mode (SISO) | 20 MHz | MCS7 | Ch 6 (2437 MHz)



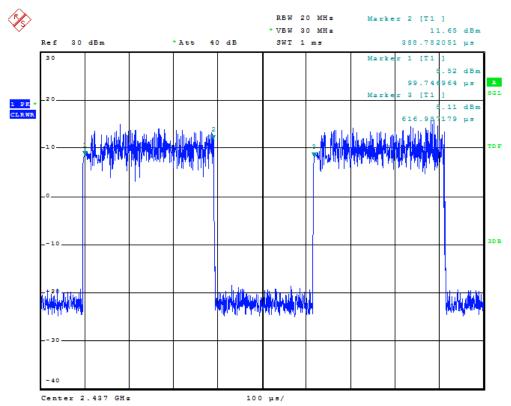


Plot 7: Duty Cycle-WLAN 2.4 GHz-n Mode (MIMO) | 20 MHz | MCS8 | Ch 6 (2437 MHz)



Plot 8: Duty Cycle-WLAN 2.4 GHz-n Mode (MIMO) | 20 MHz | MCS13 | Ch 6 (2437 MHz)





Plot 9: Duty Cycle-WLAN 2.4 GHz-n Mode (MIMO) | 20 MHz | MCS15 | Ch 6 (2437 MHz)



1.2. Power Spectral Density Measurements (n MIMO Mode)

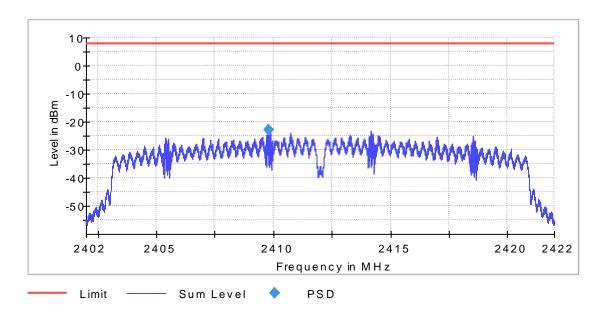
1.2.1. n-Mode MIMO|20 MHz| MCS13| Lowest Channel 1 (2412 MHz)

Power Spectral Density (2412 MHz; 20,000 dBm; 20 MHz)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

Result

DUT Frequency (MHz)			Limit Max (dBm)	Result	
2412.000000	2409.795489	-22.717	8.0	PASS	



Setting	Instrument Value	Target Value
Start Frequency	2.40200 GHz	2.40200 GHz
Stop Frequency	2.42200 GHz	2.42200 GHz
Span	20.000 MHz	20.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	13301	~ 13333
Sweeptime	450.000 s	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	35.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	Channel	Channel
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	Sweep
Preamp	off	off



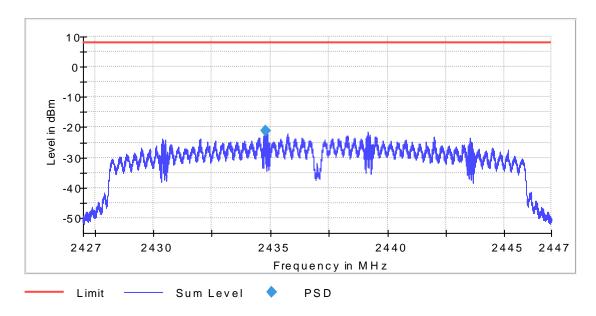
1.2.2. n-Mode MIMO|20 MHz| MCS13| Middle Channel 6 (2437 MHz)

Power Spectral Density (2437 MHz; 20,000 dBm; 20 MHz)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

Result

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2437.000000	2437.000000 2434.795489		8.0	PASS



Setting	Instrument Value	Target Value
Start Frequency	2.42700 GHz	2.42700 GHz
Stop Frequency	2.44700 GHz	2.44700 GHz
Span	20.000 MHz	20.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	13301	~ 13333
Sweeptime	450.000 s	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	35.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	Channel	Channel
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	Sweep
Preamp	off	off



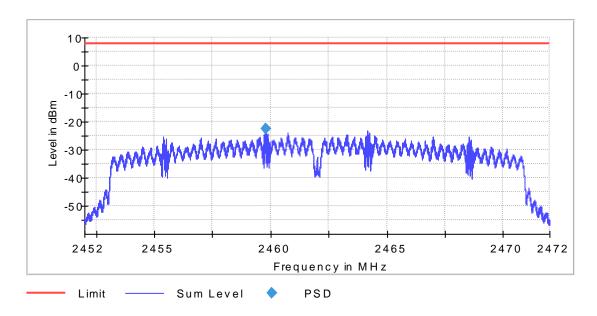
1.2.3. n-Mode MIMO|20 MHz| MCS13| Highest Channel 11 (2462 MHz)

Power Spectral Density (2462 MHz; 20,000 dBm; 20 MHz)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

Result

DUT Frequency (MHz)	1 1		Limit Max (dBm)	Result
2462.000000	2459.795489	-22.393	8.0	PASS



Setting	Instrument Value	Target Value
Start Frequency	2.45200 GHz	2.45200 GHz
Stop Frequency	2.47200 GHz	2.47200 GHz
Span	20.000 MHz	20.000 MHz
RBW	3.000 kHz	<= 3.000 kHz
VBW	10.000 kHz	>= 9.000 kHz
SweepPoints	13301	~ 13333
Sweeptime	450.000 s	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	35.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	Channel	Channel
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	Sweep
Preamp	off	off



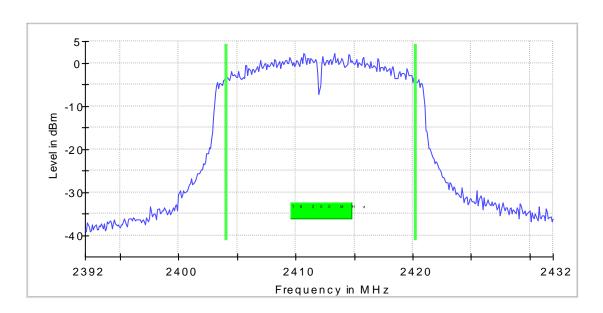
1.3. 6 dB Bandwidth Measurements (n MIMO Mode)

1.3.1. n-Mode MIMO|20 MHz| MCS13| Lowest Channel 1 (2412 MHz) Minimum Emission Bandwidth 6 dB (2412 MHz; 20,000 dBm; 20 MHz)

Test according to FCC title 47 part 15 \$15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2412.000000	16.200000	0.500000		2404.100000	2420.300000	2.2	PASS



Setting	Instrument Value	Target Value
Start Frequency	2.39200 GHz	2.39200 GHz
Stop Frequency	2.43200 GHz	2.43200 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	401	~ 400
Sweeptime	15.000 ms	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	35.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	97 / max. 150	max. 150
Stable	15 / 15	15
Max Stable Difference	0.21 dB	0.50 dB

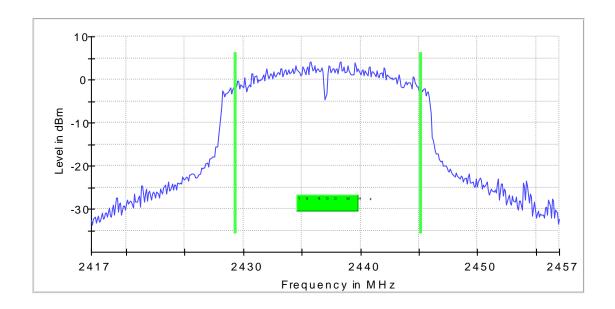


1.3.2. n-Mode MIMO|20 MHz| MCS13| Middle Channel 6 (2437 MHz) Minimum Emission Bandwidth 6 dB (2437 MHz; 20,000 dBm; 20 MHz)

Test according to FCC title 47 part 15 \$15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2437.000000	15.900000	0.500000		2429.300000	2445.200000	4.3	PASS



Setting	Instrument Value	Target Value
Start Frequency	2.41700 GHz	2.41700 GHz
Stop Frequency	2.45700 GHz	2.45700 GHz
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	401	~ 400
Sweeptime	15.000 ms	AUTO
Reference Level	10.000 dBm	10.000 dBm
Attenuation	35.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	79 / max. 150	max. 150
Stable	15 / 15	15
Max Stable Difference	0.00 dB	0.50 dB

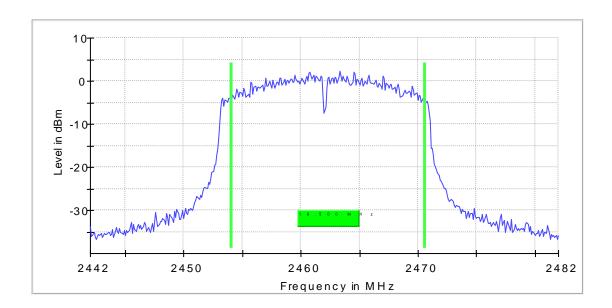


1.3.3. n-Mode MIMO|20 MHz| MCS13| Highest Channel 11 (2462 MHz) Minimum Emission Bandwidth 6 dB (2462 MHz; 20,000 dBm; 20 MHz)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v03r05 and ANSI C63.10

6 dB Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	Max Level (dBm)	Result
2462.000000	16.500000	0.500000		2454.100000	2470.600000	2.2	PASS



Setting	Instrument Value	Target Value		
Start Frequency	2.44200 GHz	2.44200 GHz		
Stop Frequency	2.48200 GHz	2.48200 GHz		
Span	40.000 MHz	40.000 MHz		
RBW	100.000 kHz	~ 100.000 kHz		
VBW	300.000 kHz	~ 300.000 kHz		
SweepPoints	401	~ 400		
Sweeptime	15.000 ms	AUTO		
Reference Level	10.000 dBm	10.000 dBm		
Attenuation	35.000 dB	AUTO		
Detector	MaxPeak	MaxPeak		
SweepCount	100	100		
Filter	3 dB	3 dB		
Trace Mode	Max Hold	Max Hold		
Sweeptype	Sweep	AUTO		
Preamp	off	off		
Stablemode	Trace	Trace		
Stablevalue	0.50 dB	0.50 dB		
Run	85 / max. 150	max. 150		
Stable	15 / 15	15		
Max Stable Difference	0.27 dB	0.50 dB		



2. Radiated Field Strength Measurements

2.1. Radiated Field Strength Emissions – 9 kHz to 30 MHz

Diagram No. 2.01_SKORPIO X4-WLAN2.4 GHz-TX-bMode-SISO-BW20MHz-11Mbit-Ch11-20dBm

Common Information

Test description: Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware: EMC32 V9.25.00

Distance correction: used accord. table, pls. see test report

Technical Data: Please see page 2 for detailed data of measurement setup Rec. antenna (pre-scan): height 1.00 m, parallel and 90° to EUT polarisation

Used filter: bypass

Test specification: FCC 15.205 § 15.209

Operator: RIs

Operating conditions: b Mode-SISO-B.W. 20 MHz-11Mbit-Ch 11 (2462 MHz)- PWR+20dBm

Power during tests: full loaded batteries

EUT Information

Manufacturer: Datalogic S.r.l. EUT MODEL: SKORPIO X4 EuT Type: 00ANM4HS0GF0A4 942600012 P/N: S/N: Z16P01723 HW Version: **BETA** SW Version: Android 4.4.4 Firmware Version: 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

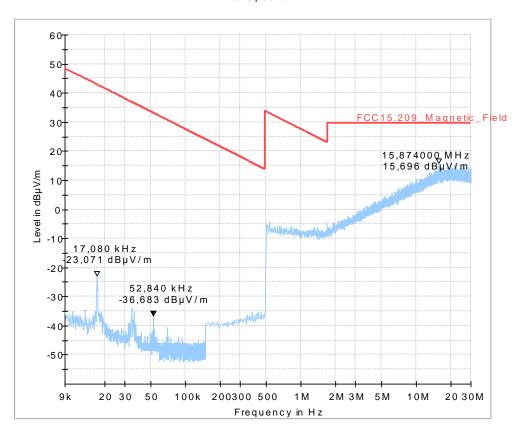




Diagram No. 2.02_SKORPIO X4-WLAN2.4 GHz-TX-gMode-SISO-BW20MHz-6Mbit-Ch6-20dBm

Common Information

Test description: Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware: EMC32 V9.25.00

Distance correction: used accord. table, pls. see test report

Technical Data: Please see page 2 for detailed data of measurement setup Rec. antenna (pre-scan): height 1.00 m, parallel and 90° to EUT polarisation

Used filter: bypass

Test specification: FCC 15.205 § 15.209

Operator: RIs

Operating conditions: g Mode-SISO-B.W. 20 MHz-6Mbit-Ch 6 (2437 MHz)- PWR+20dBm

Power during tests: full loaded batteries

EUT Information

Manufacturer: Datalogic S.r.l. EUT MODEL: SKORPIO X4 EuT Type: 00ANM4HS0GF0A4 942600012 P/N: S/N: Z16P01723 HW Version: BETA SW Version: Android 4.4.4 Firmware Version: 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

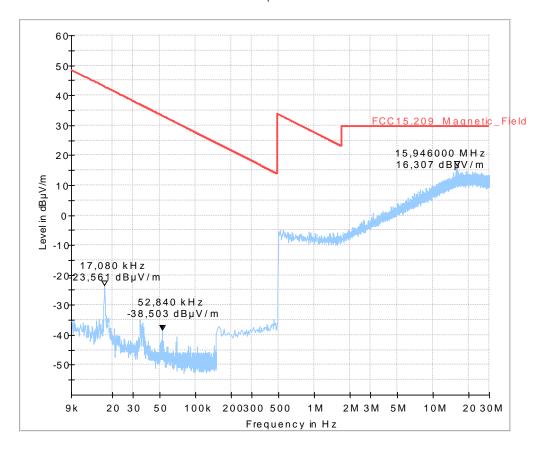




Diagram No. 2.03_SKORPIO X4-WLAN2.4 GHz-TX-nMode-MIMO-BW20MHz-MCS13-Ch1-20dBm

Common Information

Test description: Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware: EMC32 V9.25.00

Distance correction: used accord. table, pls. see test report

Technical Data: Please see page 2 for detailed data of measurement setup Rec. antenna (pre-scan): height 1.00 m, parallel and 90° to EUT polarisation

Used filter: bypass

Test specification: FCC 15.205 § 15.209

Operator: RIs

Operating conditions: n Mode-MIMO-B.W. 20 MHz-MCS13-Ch 1 (2412 MHz)- PWR+20dBm

Power during tests: full loaded batteries

EUT Information

Firmware Version:

 Manufacturer:
 Datalogic S.r.l.

 EUT MODEL:
 SKORPIO X4

 EuT Type:
 00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01723

 HW Version:
 BETA

 SW Version:
 Android 4.4.4

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

2.00.29

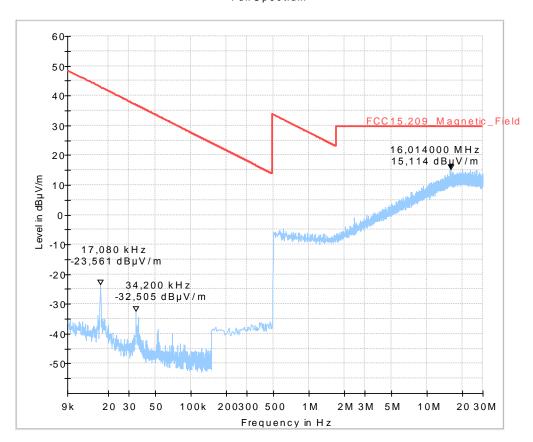




Diagram No. 2.04_SKORPIO X4-WLAN2.4 GHz-TX-nMode-SISO-BW20MHz-MCS0-Ch1-20dBm

Common Information

Test description: Magnetic Field Strength Measurement related to 30/300 m distance
Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware: EMC32 V9.25.00

Distance correction: used accord. table, pls. see test report

Technical Data: Please see page 2 for detailed data of measurement setup Rec. antenna (pre-scan): height 1.00 m, parallel and 90° to EUT polarisation

Used filter: bypass

Test specification: FCC 15.205 § 15.209

Operator: RI

Operating conditions: n Mode SISO-B.W. 20 MHz-MCS0-Ch 1 (2412 MHz)- PWR+20dBm

Power during tests: full loaded batterie

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01723

 HW Version:
 BETA

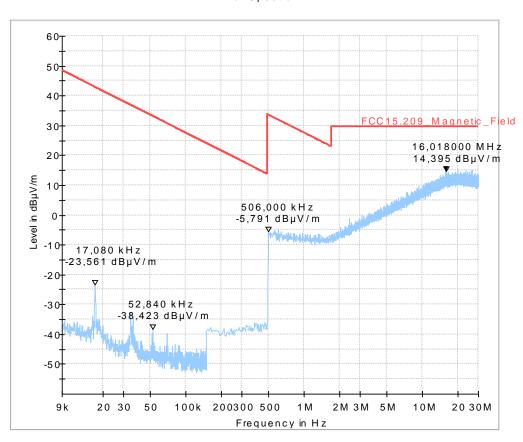
 SW Version:
 Android 4.4.4

Firmware Version: 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

$Full \, Spectrum$





2.2. Radiated Field Strength Emissions – 30 MHz to 1 GHz

Diagram No. 3.01_SKORPIO X4-WLAN2.4 GHz-TX-bMode-SISO-B.W20MHz-11Mbit-Ch11-20dBm

Common Information

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Test description: Electric Field Strength Measurement

Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware: EMC32 V9.25.0 Distance correction: not used Used filter: not used

Technical Data: please see page 2 for detailed data of measurement setup

Test specification.: FCC 15.205 § 15.209

Operator: DLe

Operating conditions: Continuous TX - b Mode-SISO-B.W. 20 MHz-11Mbit-Ch 11 (2462 MHz)- PWR+20dBm

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01723

 HW Version:
 BETA

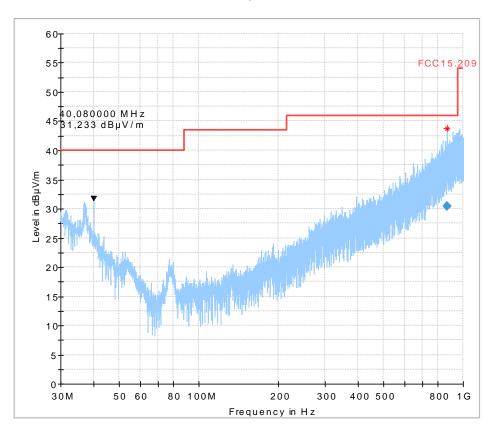
 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
870.320000	30.45	46.00	15.55	1000.0	120.000	338.0	Н	359.0	90.0	26.2



Diagram No. 3.02_SKORPIO X4-WLAN2.4 GHz-TX-gMode-SISO-B.W20MHz-6Mbit-Ch6-20dBm

Common Information

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Test description: Electric Field Strength Measurement

Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware: EMC32 V9.25.0 Distance correction: not used Used filter: not used

Technical Data: please see page 2 for detailed data of measurement setup

Test specification.: FCC 15.205 § 15.209

Continuous TX - g Mode-SISO-B.W. 20 MHz-6Mbit-Ch 6 (2437 MHz)- PWR+20dBm Operating Mode

Operator:

Operating conditions: Humidity: 35%rH; Temperature: 20°C

EUT Information

Firmware Version:

Manufacturer: Datalogic S.r.l. EUT MODEL: SKORPIO X4 EuT Type: 00ANM4HS0GF0A4 942600012 P/N: S/N: Z16P01723 HW Version: BETA SW Version: Android 4.4.4

fully Internal Battery charging Input:

2.00.29 Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

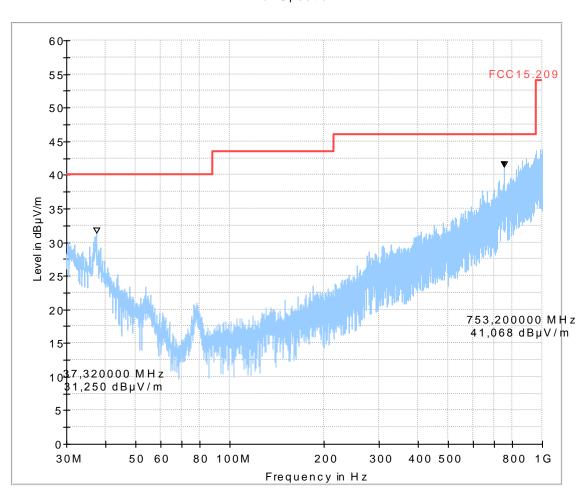




Diagram No. 3.03_SKORPIO X4-WLAN2.4 GHz-TX-nMode-MIMO-B.W20MHz-MCS13-Ch1-20dBm

Common Information

07.04.2017 Page 1 of 2

Test description: Electric Field Strength Measurement

Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware: EMC32 V9.25.0 Distance correction: not used Used filter: not used

Technical Data: please see page 2 for detailed data of measurement setup

Test specification.: FCC 15.205 § 15.209

Operating Mode Continuous TX - n Mode-MIMO-B.W. 20 MHz-MCS13-Ch 1 (2412 MHz)- PWR+20dBm

Operator: DLe

Operating conditions: Humidity: 35%rH; Temperature: 20°C

EUT Information

Datalogic S.r.l. Manufacturer: EUT MODEL: SKORPIO X4 EuT Type: 00ANM4HS0GF0A4 942600012 P/N: S/N: Z16P01723 HW Version: BETA SW Version: Android 4.4.4 Firmware Version: 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

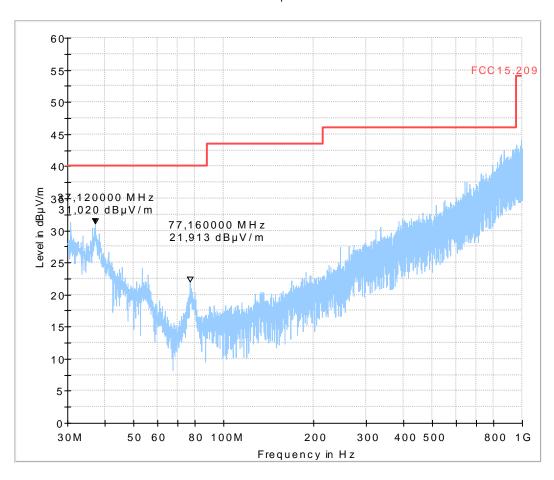




Diagram No. 3.04_SKORPIO X4-WLAN2.4 GHz-TX-nMode-SISO-B.W20MHz-MCS0-Ch1-20dBm

Common Information

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Test description: Electric Field Strength Measurement

Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance

Version of Testsoftware: EMC32 V9.25.0 Distance correction: not used Used filter: not used

Technical Data: please see page 2 for detailed data of measurement setup

Test specification.: FCC 15.205 § 15.209

Operating Mode Continuous TX - n Mode-SISO.-B.W. 20 MHz-MCS0-Ch 1 (2412 MHz)- PWR+20dBm

Operator: DLe

Operating conditions: Humidity: 35%rH; Temperature: 20°C

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01723

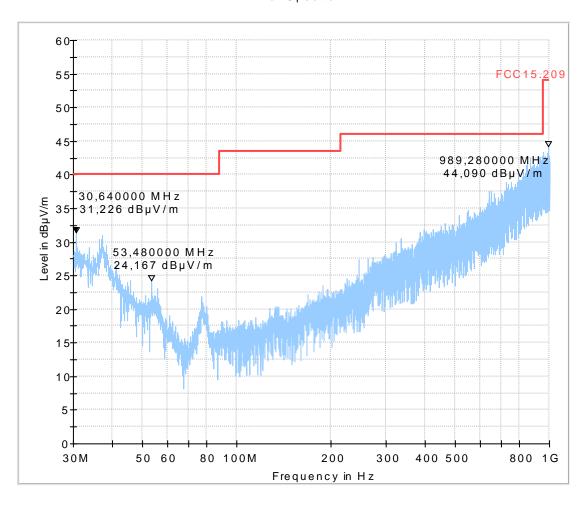
 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)





2.3. Radiated Field Strength Emissions – 1 GHz to 18 GHz

Diagram No.: 4.01_SKORPIO X4-WLAN2.4 GHz-TX-bMode-SISO-BW_20MHz-11Mbit-Ch11-20dBm

Common Information

Test Description: Band-Edge: Radiated Field Strength Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Operation mode: Continuous TX - b Mode-SISO-B.W. 20 MHz-11Mbit-Ch 11 (2462 MHz)- PWR+20dBm

Operator Name: AFr

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

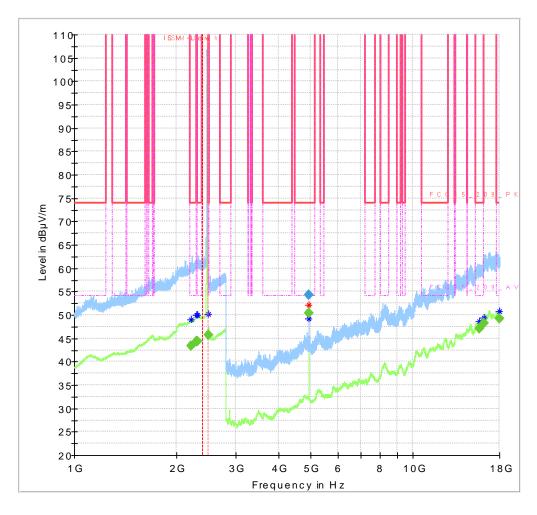
 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)



For Average RMS Values Duty-Cycle Correction is applicable: Chapter 5.1 Test Report 16-1-0181301T09a



Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	MaxPeak Limit (dBμV/m)	Average (dBµV/m) + Duty Cycle Correction (dB)	Average Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)
2211.280000		74.00	43.71	54.00	10.29	100.0	1000.000	V	233.0	90.0
2295.800000		74.00	44.74	54.00	9.26	100.0	1000.000	Н	85.0	0.0
2311.000000		74.00	44.78	54.00	9.22	100.0	1000.000	Н	1.0	0.0
2483.500000		74.00	46.02	54.00	7.98	100.0	1000.000	Н	187.0	0.0
4924.000000		74.00	50.78	54.00	3.22	100.0	1000.000	V	308.0	90.0
4924.000000	54.37	74.00		54.00	19.63	100.0	1000.000	V	309.0	90.0
15700.920000		74.00	47,49	54.00	6.51	100.0	1000.000	V	142.0	0.0
16193.280000		74.00	48.62	54.00	5.38	100.0	1000.000	Н	267.0	90.0
17994.520000		74.00	49.57	54.00	4.43	100.0	1000.000	V	127.0	0.0

Frequency (MHz)	Corr. (dB)
2211.280000	35.0
2295.800000	35.7
2311.000000	35.7
2483.500000	35.6
4924.000000	4.4
4924.000000	4.4
15700.920000	23.6
16193.280000	24.8
17994.520000	26.5



Diagram No.: 4.02_SKORPIO X4-WLAN2.4 GHz-TX-gMode-SISO-BW_20MHz-6Mbit-Ch6-20dBm

Common Information

Test Description: Band-Edge: Radiated Field Strength Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Operation mode: Continuous TX - g Mode-SISO-B.W. 20 MHz-6Mbit-Ch 6 (2437 MHz)- PWR+20dBm

Operator Name: AFr

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

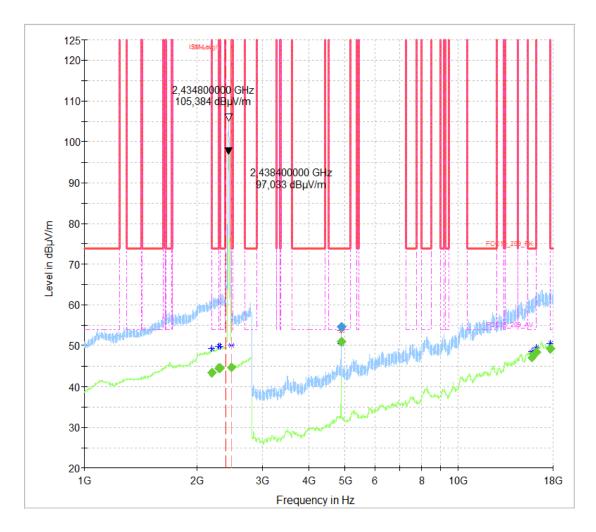
 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)





Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	MaxPeak Limit (dBμV/m)	Average (dBµV/m) + Duty Cycle Correction (dB)	Average Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)
2201.720000		74.00	43.57	54.00	10.43	100.0	1000.000	V	46.0	90.0
2299.560000		74.00	44.67	54.00	9.33	100.0	1000.000	H	299.0	90.0
2313.080000		74.00	44.58	54.00	9.42	100.0	1000.000	V	90.0	90.0
2483.500000		74.00	44.98	54.00	9.02	100.0	1000.000	Н	124.0	90.0
4874.000000		74.00	51.15	54.00	2.85	100.0	1000.000	V	160.0	0.0
4874.000000	54.56	74.00		54.00	19.44	100.0	1000.000	V	159.0	0.0
15779.520000		74.00	47.36	54.00	6.64	100.0	1000.000	V	150.0	0.0
16195.480000		74.00	48.47	54.00	5.53	100.0	1000.000	Н	43.0	90.0
17743.560000		74.00	49.41	54.00	4.59	100.0	1000.000	V	160.0	0.0

Frequency (MHz)	Corr. (dB)
2201.720000	35.1
2299.560000	35.8
2313.080000	35.7
2483.500000	35.6
4874.000000	4.7
4874.000000	4.7
15779.520000	23.7
16195.480000	24.8
17743.560000	25.8



Diagram No.: 4.03_SKORPIO X4-WLAN2.4 GHz-TX-nMode-MIMO-BW_20MHz-MCS13-Ch1-20dBm

Common Information

Test Description: Band-Edge: Radiated Field Strength Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Operation mode: Continuous TX - n Mode-MIMO-B.W. 20 MHz-MCS13-Ch 1 (2412 MHz)- PWR+20dBm

Operator Name: AFr

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

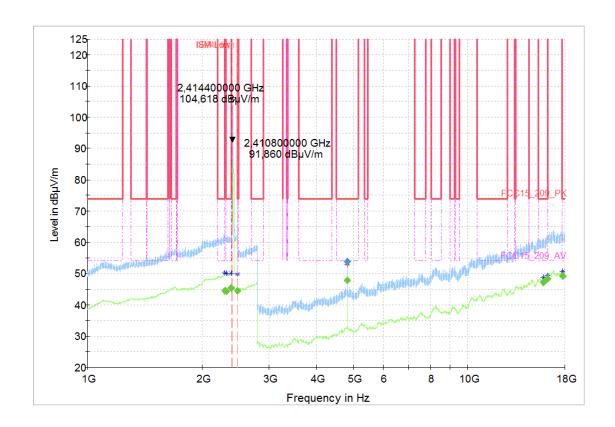
 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)





Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	MaxPeak Limit (dBμV/m)	Average (dBµV/m) + Duty Cycle Correction (dB)	Average Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)
2297.880000		74.00	46.85	54.00	7.15	100.0	1000.000	V	45.0	0.0
2317.240000		74.00	46.78	54.00	7.22	100.0	1000.000	V	228.0	0.0
2389.800000		74.00	47.81	54.00	6.19	100.0	1000.000	V	149.0	0.0
2483.500000		74.00	47.01	54.00	6.99	100.0	1000.000	Н	133.0	0.0
4824.000000		74.00	50.36	54.00	3.64	100.0	1000.000	V	238.0	0.0
4824.000000	53.82	74.00		54.00	20.18	100.0	1000.000	V	239.0	0.0
15780.360000		74.00	49.55	54.00	4.45	100.0	1000.000	V	-24.0	90.0
16197.520000		74.00	50.72	54.00	3.28	100.0	1000.000	Н	69.0	90.0
17747.480000		74.00	51.62	54.00	2.38	100.0	1000.000	V	209.0	0.0

Frequency (MHz)	Corr. (dB)
2297.880000	35.7
2317.240000	35.7
2389.800000	35.5
2483.500000	35.6
4824.000000	4.8
4824.000000	4.8
15780.360000	23.7
16197.520000	24.8
17747.480000	25.8



Diagram No.: 4.04_SKORPIO X4-WLAN2.4 GHz-TX-nMode-SISO-BW_20MHz-MCS0-Ch1-20dBm

Common Information

Test Description: Radiated Field Strength Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Operation mode: Continuous TX - n Mode-SISO-B.W. 20 MHz-MCS0-Ch 1 (2412 MHz)- PWR+20dBm

Operator Name: AFr

EUT Information

Manufacturer: Datalogic S.r.l.
EUT MODEL: SKORPIO X4
EuT Type: 00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

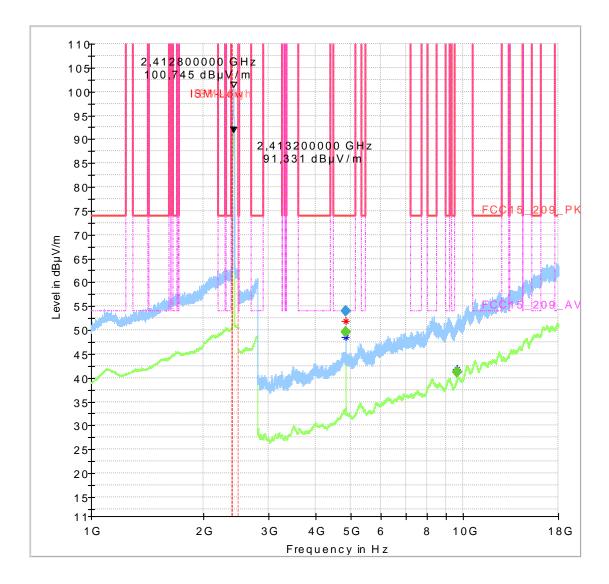
 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)



For Average RMS Values Duty-Cycle Correction is applicable: Chapter 5.1 Test Report 16-1-0181301T09a



Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	MaxPeak Limit (dBμV/m)	Average (dBµV/m) + Duty Cycle Correction (dB)	Average Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)
4824.000000		74.00	49.83	54.00	4.17	100.0	1000.000	V	170.0	90.0
4824.000000	54.08	74.00		54.00	19.92	100.0	1000.000	V	159.0	90.0
9648.000000		74.00	41.50	149.55	108.05	100.0	1000.000	V	226.0	0.0

Frequency (MHz)	Corr. (dB)
4824.000000	4.8
4824.000000	4.8
9648.000000	14.8



2.4. Radiated Field Strength Emissions – 18 GHz to 25 GHz

Diagram No.: 4.01a_SKORPIO X4-WLAN2.4 GHz-TX-bMode-SISO-B.W20MHz-11Mbit-Ch11-20dBm

Common Information

Test Description: Radiated field strength emission in 1m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Distance correction factor 3 to 1m: -10.5 dB applying to measurement results

SW-Version: EMC32 V8.53.0

Operation mode: Continuous TX - b Mode-SISO-B.W. 20 MHz-11Mbit-Ch 11 (2462 MHz)-

PWR+20dBm

Operator Name: TF1

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

EMIScan_18_25GHz_Pre

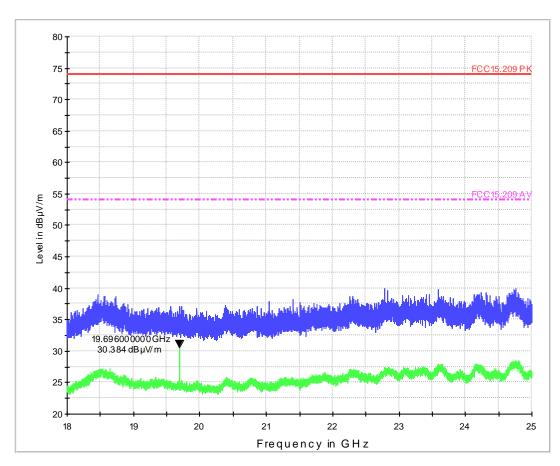




Diagram No.: 4.02a_SKORPIO X4-WLAN2.4 GHz-TX-gMode-SISO-B.W20MHz-6Mbit-Ch6-20dBm

Common Information

Test Description: Radiated field strength emission in 1m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Distance correction factor 3 to 1m: -10.5 dB applying to measurement results

SW-Version: EMC32 V8.53.0

Operation mode: Continuous TX - g Mode-SISO-B.W. 20 MHz-6Mbit-Ch 6 (2437 MHz)- PWR+20dBm

Operator Name: TFr

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

EMIScan_18_25GHz_Pre

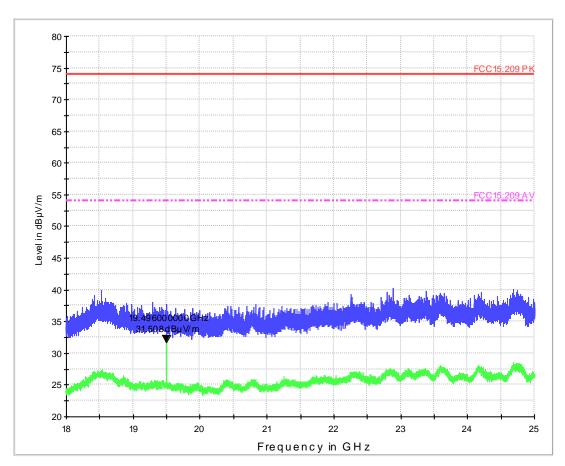




Diagram No.: 4.03a_SKORPIO X4-WLAN2.4 GHz-TX-nMode-MIMO-B.W20MHz-MCS13-Ch1-20dBm

Common Information

Test Description: Radiated field strength emission in 1m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Distance correction factor 3 to 1m: -10.5 dB applying to measurement results

SW-Version: EMC32 V8.53.0

Operation mode: Continuous TX - n Mode-MIMO-B.W. 20 MHz-MCS13-Ch 1 (2412 MHz)-

PWR+20dBm

Operator Name: TFr

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

EMIScan_18_25GHz_Pre

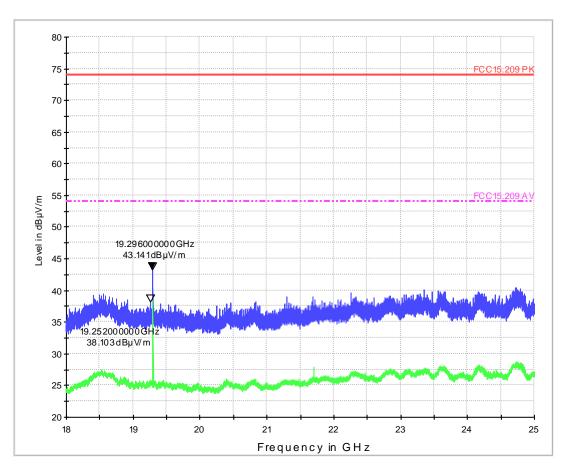




Diagram No.: 4.04a_SKORPIO X4-WLAN2.4 GHz-TX-nMode-SISO-B.W20MHz-MCS0-Ch1-20dBm

Common Information

Test Description: Radiated field strength emission in 1m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Distance correction factor 3 to 1m: -10.5 dB applying to measurement results

SW-Version: EMC32 V8.53.0

Operation mode: Continuous TX - n Mode-SISO-B.W. 20 MHz-MCS0-Ch 1 (2412 MHz)- PWR+20dBm

Operator Name: TFr

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

 HW Version:
 BETA

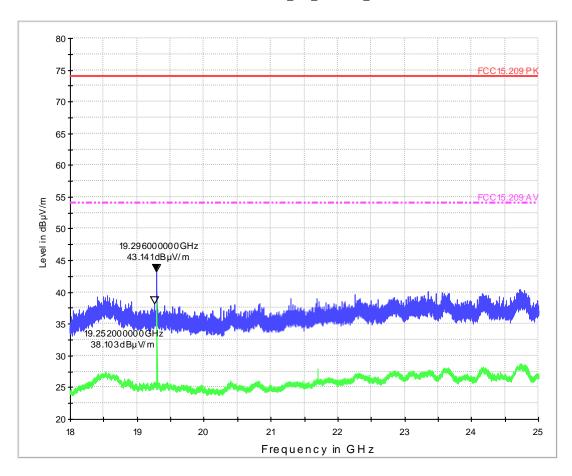
 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

EMIScan_18_25GHz_Pre





3. Radiated Band-Edge Measurements

3.1. b SISO Mode-Low Channel 2412 MHz (2.4 GHz ISM: left band edge)

9.01_BE-Low-TX-bMode-SISO-BW_20MHz-11Mbit-Ch1-20dBm

Common Information

Test Description: Band-Edge: Radiated Field Strength Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Operation mode: Continuous TX - b Mode-SISO-B.W. 20 MHz-11Mbit-Ch 1 (2412 MHz)- PWR+20dBm

Operator Name: Mal

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

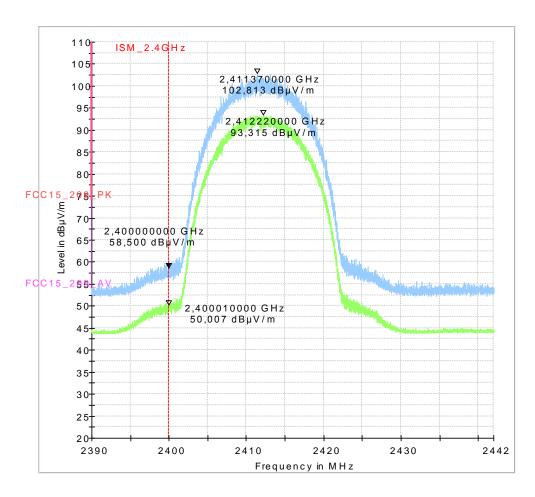
 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)





3.2. b SISO Mode-High Channel 2462 MHz (2.4 GHz ISM: right band edge)

Diagram No.: 9.02_BE-High-SKORPIO X4-WLAN2.4 GHz-TX-bMode-SISO-BW_20MHz-11Mbit-Ch11-20dBm

Common Information

Test Description: Band-Edge: Radiated Field Strength Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Operation mode: Continuous TX - b Mode-SISO-B.W. 20 MHz-11Mbit-Ch 11 (2462 MHz)- PWR+20dBm

Operator Name: Mal

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

 HW Version:
 BETA

 SW Version:
 Android 4.4.4

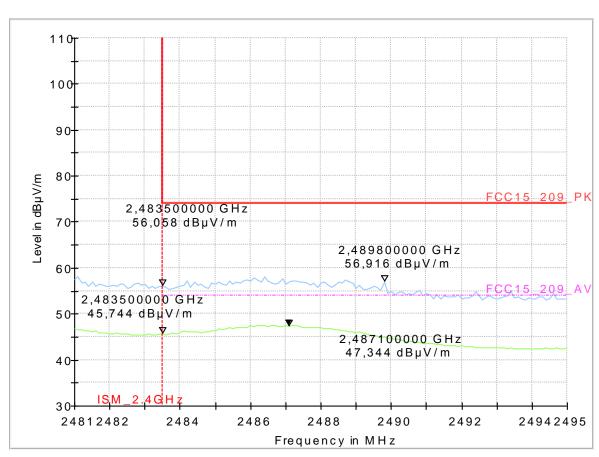
 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

Full Spectrum

Full Spectrum





3.3. g SISO Mode-Low Channel 2412 MHz (2.4 GHz ISM: left band edge)

9.03_BE-Low-TX-gMode-SISO-BW_20MHz-6Mbit-Ch1-20dBm

Common Information

Test Description: Band-Edge: Radiated Field Strength Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Operation mode: g Mode-SISO-B.W. 20 MHz-6Mbit-Ch 1 (2412 MHz)- PWR+20dBm

Operator Name: Mah

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

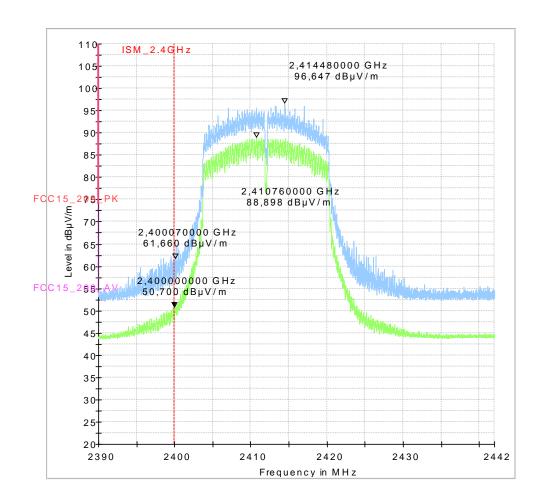
 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: 2.00.29
Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)





3.4. g SISO Mode-High Channel 2462 MHz (2.4 GHz ISM: right band edge)

Diagram No.: 9.04_BE-High-SKORPIO X4-WLAN2.4 GHz-TX-gMode-SISO-BW 20MHz-6Mbit-Ch11-20dBm

Common Information

Test Description: Band-Edge: Radiated Field Strength Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Operation mode: Continuous TX - g Mode-SISO-B.W. 20 MHz-6Mbit-Ch 11 (2462 MHz)- PWR+20dBm

Operator Name: Mah

EUT Information

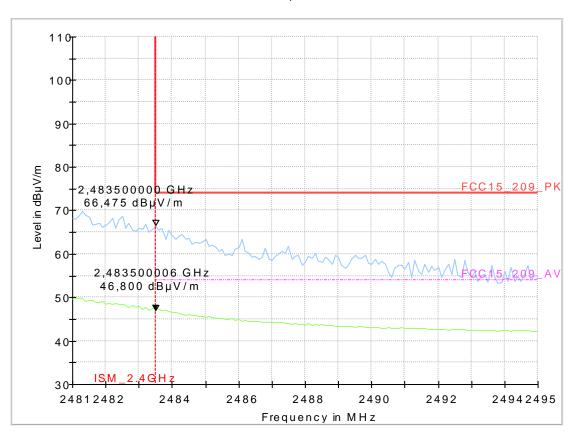
Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4P/N:942600012

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

Full Spectrum

Full Spectrum





3.5. n SISO Mode-Low Channel 2412 MHz (2.4 GHz ISM: left band edge)

Diagram No.: 9.07_BE-Low-TX-nMode-SISO-BW_20MHz-MCS0-Ch1-20dBm

Common Information

Test Description: Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Operation mode: n Mode-SISO-B.W. 20 MHz-MCS0-Ch 1 (2412 MHz)- PWR+20dBm

Operator Name: Mah

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

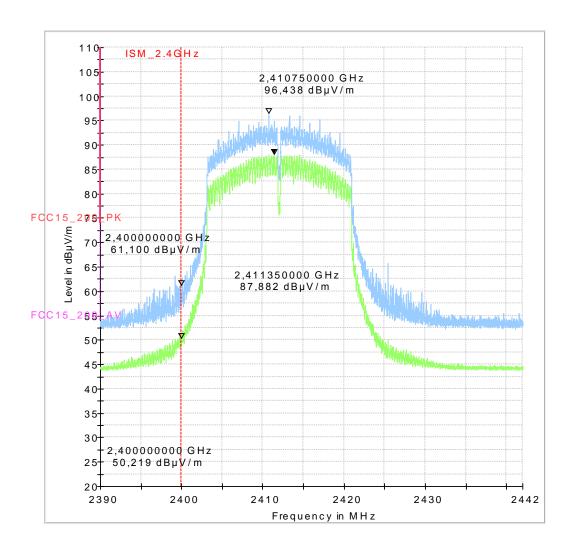
 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)



For Average RMS Values Duty-Cycle Correction is applicable: Chapter 5.1 Test Report 16-1-0181301T09a



3.6. n SISO Mode-High Channel 2462 MHz (2.4 GHz ISM: right band edge) Diagram No.: 9.08_BE-High-SKORPIO X4-WLAN2.4 GHz-TXnMode-SISO-BW_20MHz-MCS0-Ch11-20dBm

Common Information

Test Description: Band-Edge: Radiated Field Strength Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Operation mode: Continuous TX - n Mode-SISO-B.W. 20 MHz-MCS0-Ch 11 (2462 MHz)- PWR+20dBm

Operator Name: APh

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

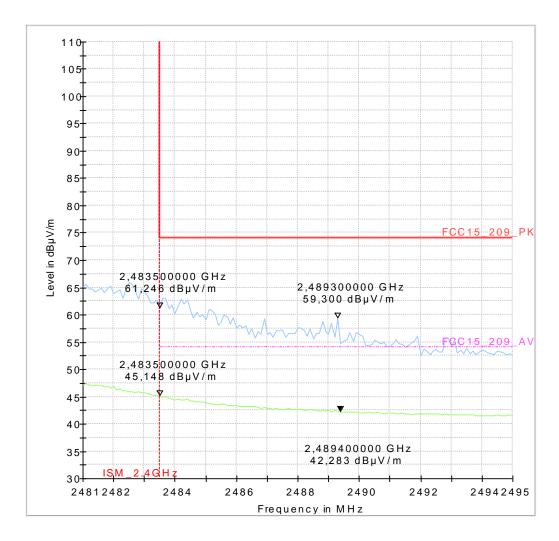
 HW Version:
 BETA

 SW Version:
 Andoriod 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)





3.7. n MIMO Mode-Low Channel 2412 MHz (2.4 GHz ISM: left band edge)

Diagram No.: 9.05_BE-Low-TX-nMode-MIMO-BW_20MHz-MCS13-Ch1-20dBm

Common Information

Test Description: Band-Edge: Radiated Field Strength Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Operation mode: n Mode-MIMO-B.W. 20 MHz-MCS13-Ch 1 (2412 MHz)- PWR+20dBm

Operator Name: Mah

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

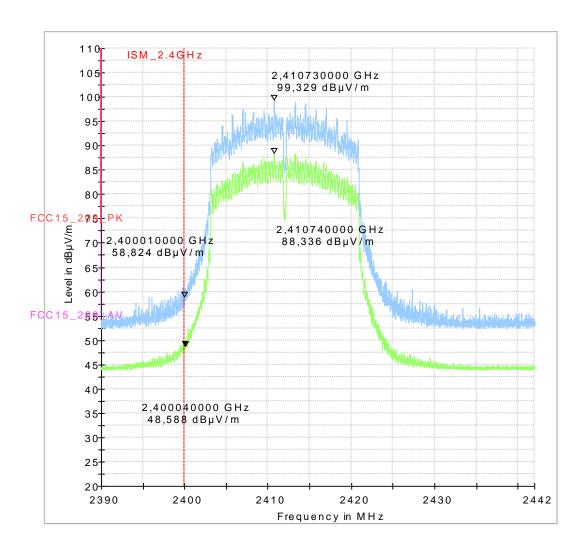
 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)



For Average RMS Values Duty-Cycle Correction is applicable: Chapter 5.1 Test Report 16-1-0181301T09a



3.8. n MIMO Mode-High Channel 2462 MHz (2.4 GHz ISM: right band edge)

Diagram No.: 9.06_BE-High-SKORPIO X4-WLAN2.4 GHz-TX-nMode-MIMO-BW_20MHz-MCS13-Ch11-20dBm

Common Information

Test Description: Band-Edge: Radiated Field Strength Emissions in 3m distance

Test Site: CETECOM GmbH Essen

Test Standard: FCC 15.205 § 15.209 & FCC 15.247 Intentional Radiator

Antenna polarisation: horizontal/vertical

Operation mode: Continuous TX - n Mode-MIMO-B.W. 20 MHz-MCS13-Ch 11 (2462 MHz)-

PWR+20dBm

Operator Name: RIs

EUT Information

Manufacturer:Datalogic S.r.l.EUT MODEL:SKORPIO X4EuT Type:00ANM4HS0GF0A4

 P/N:
 942600012

 S/N:
 Z16P01691

 HW Version:
 BETA

 SW Version:
 Android 4.4.4

 Firmware Version:
 2.00.29

Input: fully Internal Battery charging

Battery Type: BT-0016 | Li-ion|3.7V DC 5200mAh (2 Cylindrical Cells)

