

Annex 1: Diagramms to PARTIAL TEST REPORT No.: 2-20842790-15-9c

According to:
FCC Regulations
Part 15.209
Part 15.247

IC-Regulations
RSS-Gen, Issue 4
RSS-247, Issue 1

for

Datalogic ADC S.r.l.

JOYA TOUCH
Type: P00AN04HL0HT0W7-GR0

FCC-ID: U4GJNGWB
IC: 3862E-JNGWB
PMN: JOYA TOUCH
HVIN: JNG P HH







Laboratory Accreditation and Listings			
 DAkKS Deutsche Akkreditierungsstelle D-PL-12047-01-01	 FEDERAL COMMUNICATIONS COMMISSION • USA • MRA US-EU 0003	 Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3	 Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2666 C-2914, T-1967, G-301
 WiFi ALLIANCE AUTHORIZED RF LABORATORY	 ctia Authorized TM Test Lab Lab Code: 20011130-00		
accredited according to DIN EN ISO/IEC 17025			
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1. Maximum Peak Conducted Output Power

1.1. Bluetooth BR / EDR Mode

						SW-Settings within BlueTest3 application				
	Channel no.		00	39	78	BT Mode	Modulation	PWR-Setting:	Packet	Ant. Gain
	Channel frequency		2402 MHz	2441 MHz	2480 MHz		GFSK 1Mbps	255, 63	Default	0,50 dBi
Data Rate	Modulation						8DPK 3Mbps	255,127	Type: 31 Length: 1021	
1 Mbps	GFSK		4,59	7,17	8,25	BR Mode				
3 Mbps	8 DPSK		-2,45	1,21	2,48	EDR Mode				
Maximum measured Conducted Value:			8,25 dBm		6,68 mW					
Maximum e.i.r.p. value			8,75 dBm		7,50 mW					
Limit:			21 dBm		125 mW					

Remarks:

- 1.) The maximum measured conducted power values among each mode are highlighted.

1.2. Bluetooth LE Mode

								SW-Settings within BlueTest3 application			
	Channel no.		37	0	17	39	BT Mode	Modulation	PWR-Setting:	Packet	Ant. Gain
	Channel frequency		2402 MHz	2404 MHz	2440 MHz	2480 MHz		GFSK 1Mbps	Default	Length: 37 Pattern: 0	0,50 dBi
Data Rate	Modulation										
1 Mbps	GFSK		5,92	2,01	5,39	5,98	LE Mode				
Maximum measured Conducted Value:					5,98 dBm		3,96 mW				
Maximum e.i.r.p. value					6,48 dBm		4,44 mW				
Limit:					21 dBm		125 mW				

Remarks:

- 1.) The maximum measured conducted power values among each mode are highlighted.

2. Radiated magnetic field strengths measurements (9kHz to 30MHz)

Diagram No. 2.04_Bluetooth_BR(GFSK; 1Mbps)_Ch 78

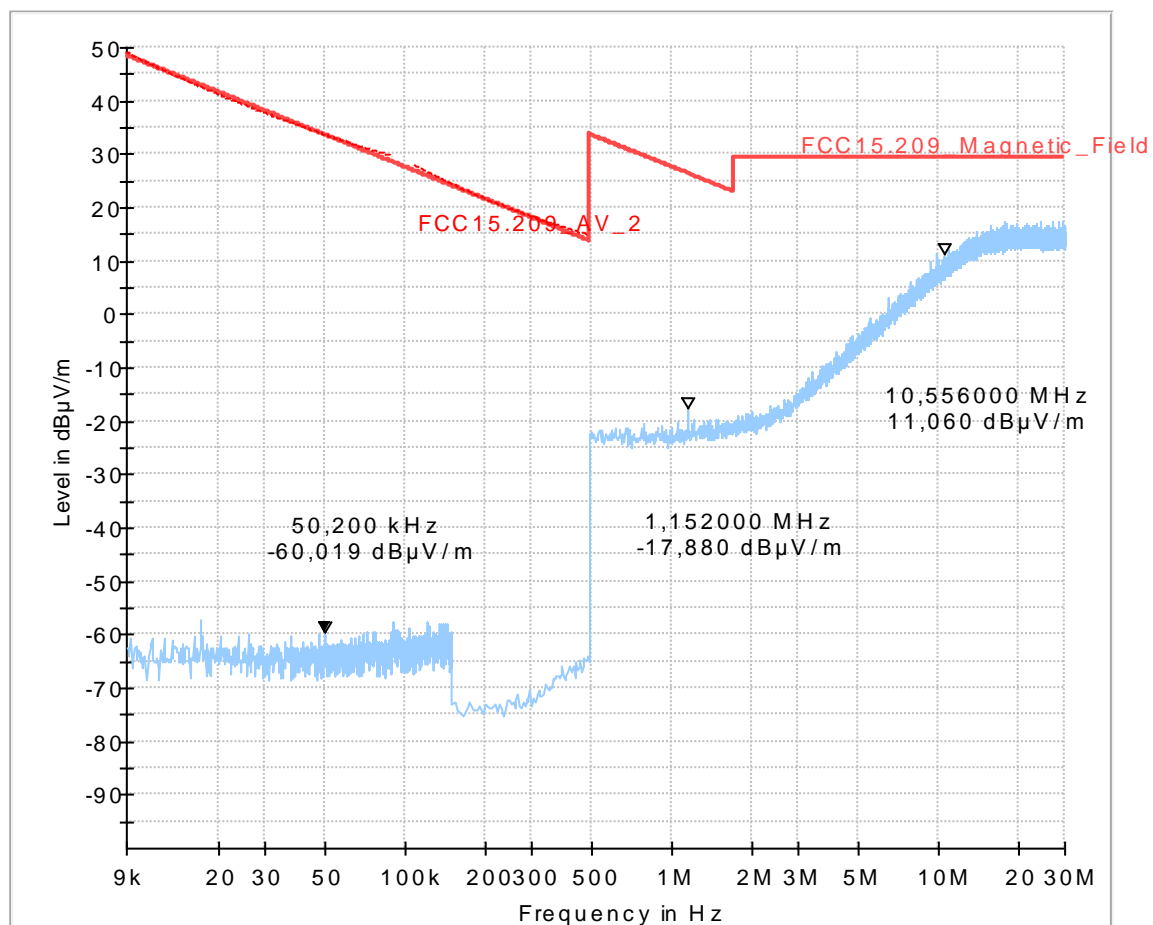
Common Information

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 V9.25.0
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; RSS-Gen: Issue 4
Operator:	ASe
Operating conditions:	TX-on Continuous
Operating Mode:	Bluetooth BR:GFSK(1Mbps) Ch 78 Max. Power

EUT Information

Manufacturer:	Datalogic ADCL S.r.l.
MODEL:	JOYA TOUCH
EuT Type:	P00AN04HL0HT0W7-GR0
P/N:	911350015
S/N:	Z16P00044
HW Version:	Beta HW Version
SW Version:	WEC7
Firmware Version:	2.16
Input:	Fully Charged Internal Battery

Full Spectrum



3. Radiated field strengths measurements (30MHz to 1GHz)

Diagram No. 3.04_Bluetooth_BR(GFSK; 1Mbps)_Ch 78

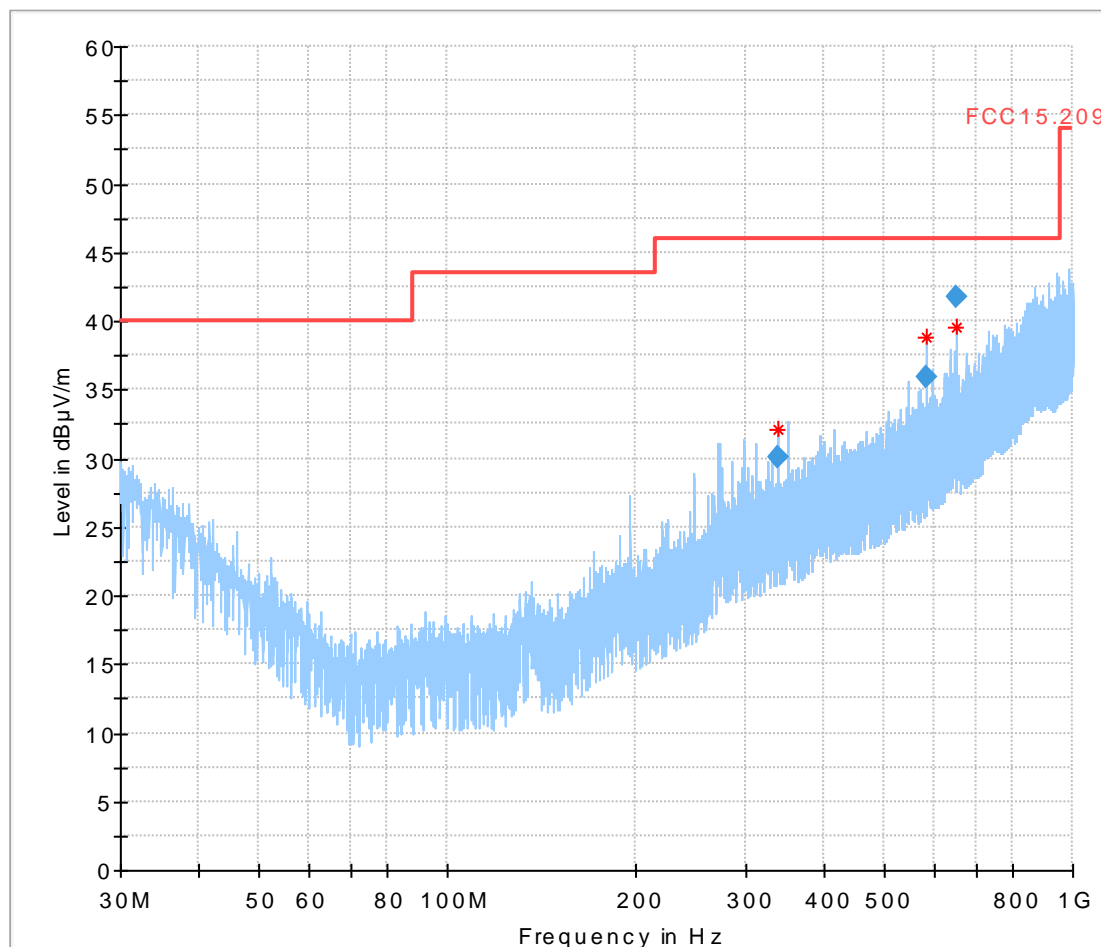
Common Information

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
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:	TP NLP-1200
Test specification:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	Aph
Operating conditions:	TX-on Continuous
Operating Mode:	Bluetooth LE:GFSK(1Mbps) Ch 78 Max. Power

EUT Information

Manufacturer:	Datalogic ADCL S.r.l.
MODEL:	JOYA TOUCH
EuT Type:	P00AN04HL0HT0W7-GR0
P/N:	911350015
S/N:	Z16P00044
HW Version:	Beta HW Version
SW Version:	WEC7
Firmware Version:	2.16
Input:	Fully Charged Internal Battery

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
337.980000	30.13	46.00	15.87	1000.0	120.000	284.0	H	300.0	90.0	16.5
584.980000	35.86	46.00	10.14	1000.0	120.000	162.0	V	65.0	90.0	22.2
650.000000	41.80	46.00	4.20	1000.0	120.000	183.0	H	110.0	0.0	23.3

4. Radiated field strength measurements (1GHz to 25 GHz)

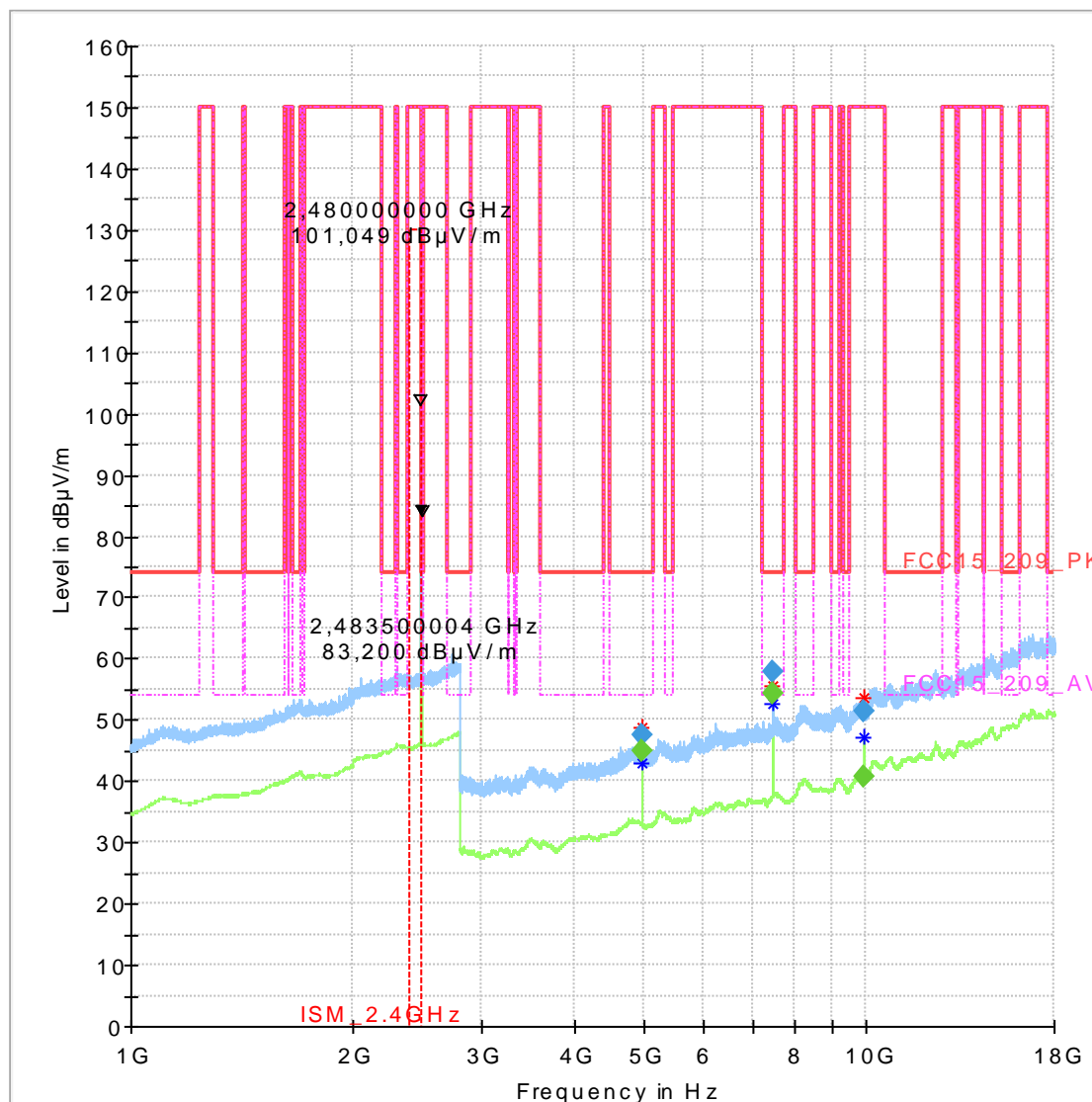
Diagram No.: 4.04_Bluetooth_BR(GFSK 1Mbps)_Ch78

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operation mode:	TX, continuous
Operator Name:	MRa
Operating Mode:	Bluetooth BR:GFSK(1Mbps) Ch 78 Max. Power

EUT Information

Manufacturer:	Datalogic ADCL S.r.l.
MODEL:	JOYA TOUCH
EuT Type:	P00AN04HL0HT0W7-GR0
P/N:	911350015
S/N:	Z16P00044
HW Version:	Beta HW Version
SW Version:	WEC7
Firmware Version:	2.16
Input:	Fully Charged Internal Battery



Final_Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)
4959.940000	---	45.09	54.00	8.91	100.0	1000.000	155.0	V	296.0	90.0
4959.940000	47.64	---	74.00	26.36	100.0	1000.000	155.0	V	206.0	0.0
7439.940000	---	53.46	54.00	0.54	100.0	1000.000	155.0	H	245.0	0.0
7439.940000	57.82	---	74.00	16.18	100.0	1000.000	155.0	H	244.0	0.0
9919.900000	---	40.84	150.00	109.16	100.0	1000.000	155.0	H	164.0	90.0
9919.900000	51.44	---	150.00	98.56	100.0	1000.000	155.0	H	217.0	90.0

(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Corr .	Comment
4959.940000	4.3	22:46:53 - 15.03.2016
4959.940000	4.3	22:40:52 - 15.03.2016
7439.940000	11.3	22:43:49 - 15.03.2016
7439.940000	11.3	22:39:21 - 15.03.2016
9919.900000	14.2	22:45:19 - 15.03.2016
9919.900000	14.2	22:42:26 - 15.03.2016

Diagram No.: 4.04a_Bluetooth_BR(GFSK 1Mbps)_Ch78

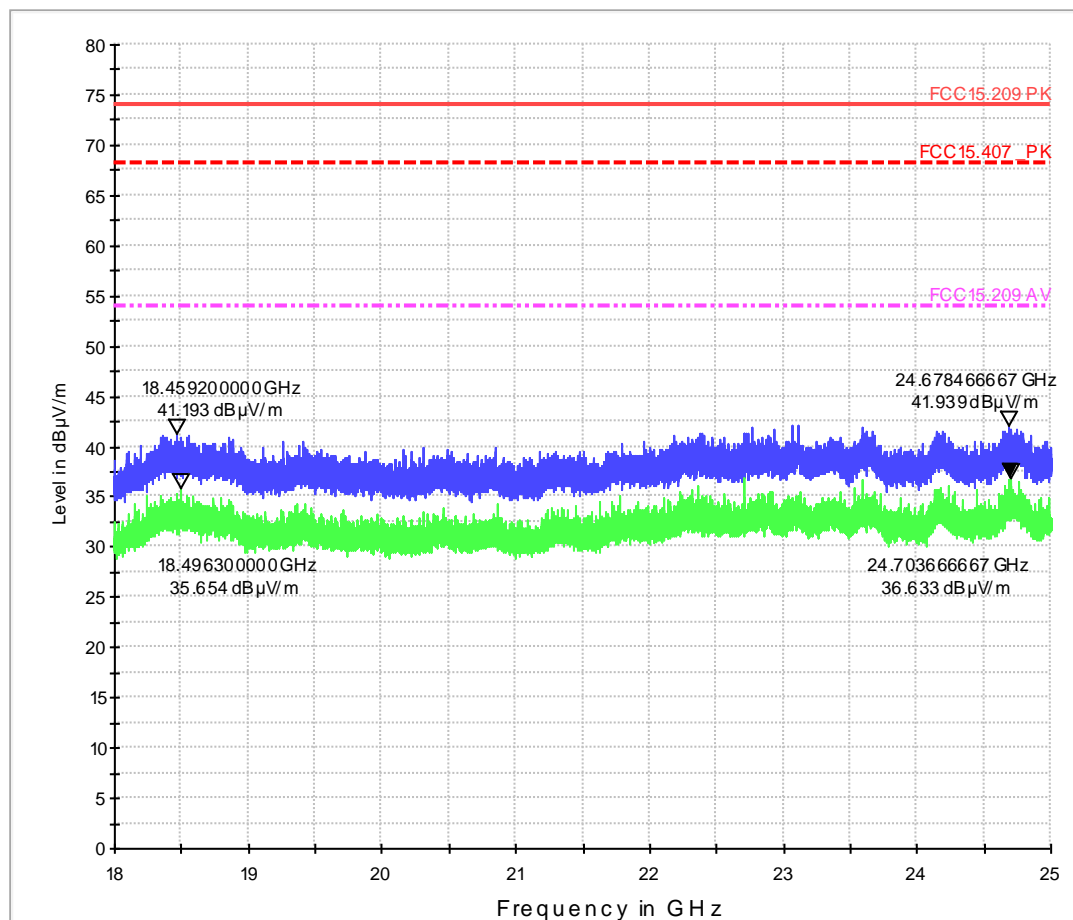
Common Information

Test Description:	Radiated field strength emission in 1m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247, 15.205&15.209 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:	Bluetooth_BR(GFSK 1Mbps)_Ch78
Operator Name:	TFr

EUT Information

Manufacturer:	Datalogic ADCL S.r.l.
MODEL:	JOYA TOUCH
EuT Type:	P00AN04HL0HT0W7-GR0
P/N:	911350015
S/N:	Z16P00044
HW Version:	Beta HW Version
SW Version:	WEC7
Firmware Version:	2.16
Input:	Fully Charged Internal Battery

FCC_Sweep_15.247_18_25GHz_Pre



5. Radiated Band-Edge Measurements accord. §15.209 & §15.205

5.1. Channel 0 BR-Mode (left band edge)

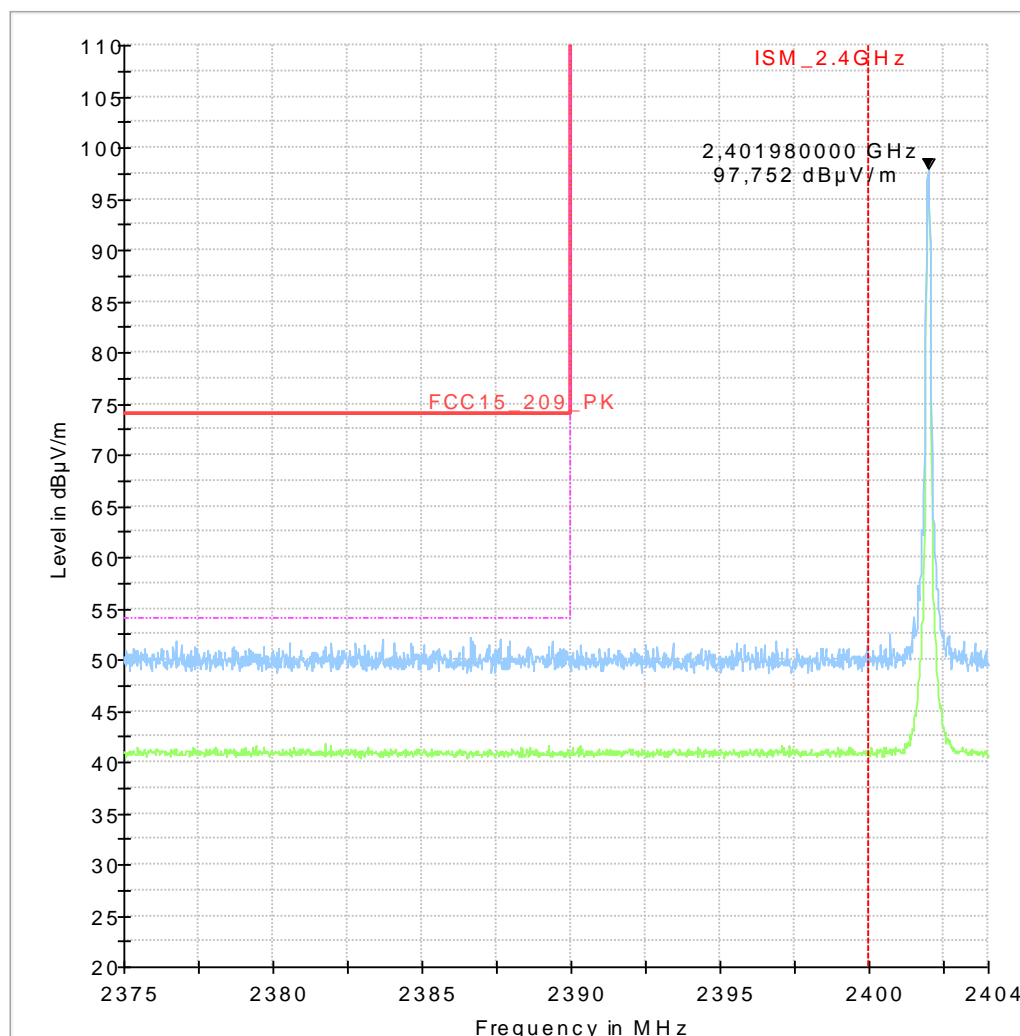
Diagram No. : 9.07_BE_Low_BT_TX_BR_GFSK(1Mbps)-mode_CH0

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operation mode:	Bluetooth BR:GFSK(1Mbps) Ch 0 Max. Power
Operator Name:	APh
Comment:	Channel no. low (2402 MHz)

EUT Information

Manufacturer:	Datalogic ADCL S.r.l.
MODEL:	JOYA TOUCH
EuT Type:	P00AN04HL0HT0W7-GR0
P/N:	911350015
S/N:	Z16P00044
HW Version:	Beta HW Version
SW Version:	WEC7
Firmware Version:	2.16
Input:	Fully Charged Internal Battery



5.2. Channel 78 BR-Mode (right band edge)

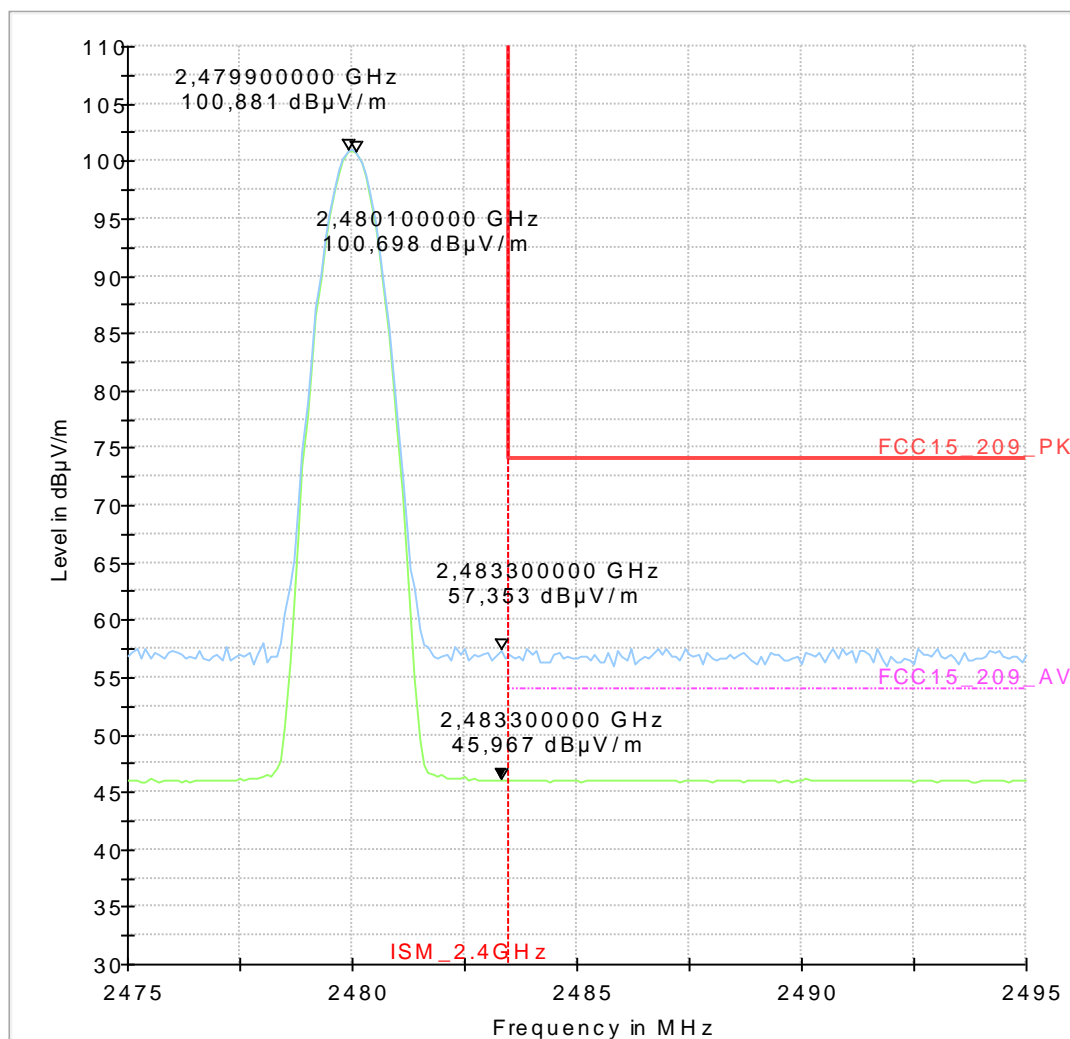
Diagram No.: 9.08_BE_High_BT_TX_BR(GFSK 1Mbps)_CH78

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operation:	TX, continuous
Operating Mode:	Bluetooth BR:GFSK(1Mbps) Ch 78 Max. Power
Operator Name:	MRA

EUT Information

Manufacturer:	Datalogic ADCL S.r.l.
MODEL:	JOYA TOUCH
EuT Type:	P00AN04HL0HT0W7-GR0
P/N:	911350015
S/N:	Z16P00044
HW Version:	Beta HW Version
SW Version:	WEC7
Firmware Version:	2.16
Input:	Fully Charged Internal Battery



5.3. Channel 0 EDR-Mode (left band edge)

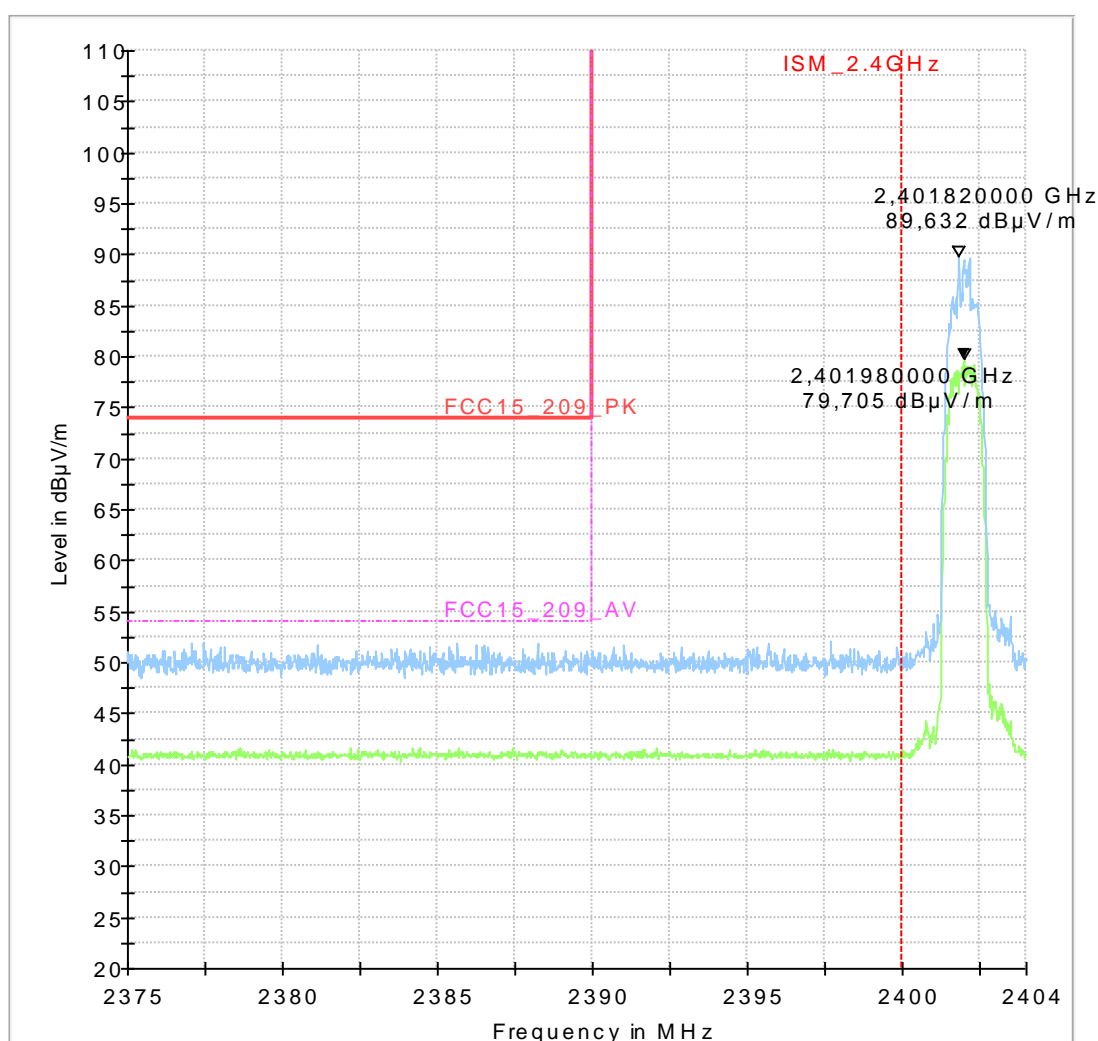
Diagram No.: 9.09_BE_Low_BT_TX_EDR_8DPSK(3Mbps)-mode_CH0

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operation mode:	Bluetooth EDR:8DPSK(3Mbps) Ch 0 Max. Power
Operator Name:	RIs
Comment:	Channel no. low

EUT Information

Manufacturer:	Datalogic ADCL S.r.l.
MODEL:	JOYA TOUCH
EuT Type:	P00AN04HL0HT0W7-GR0
P/N:	911350015
S/N:	Z16P00044
HW Version:	Beta HW Version
SW Version:	WEC7
Firmware Version:	2.16
Input:	Fully Charged Internal Battery



5.4. Channel 78 EDR-Mode (right band edge)

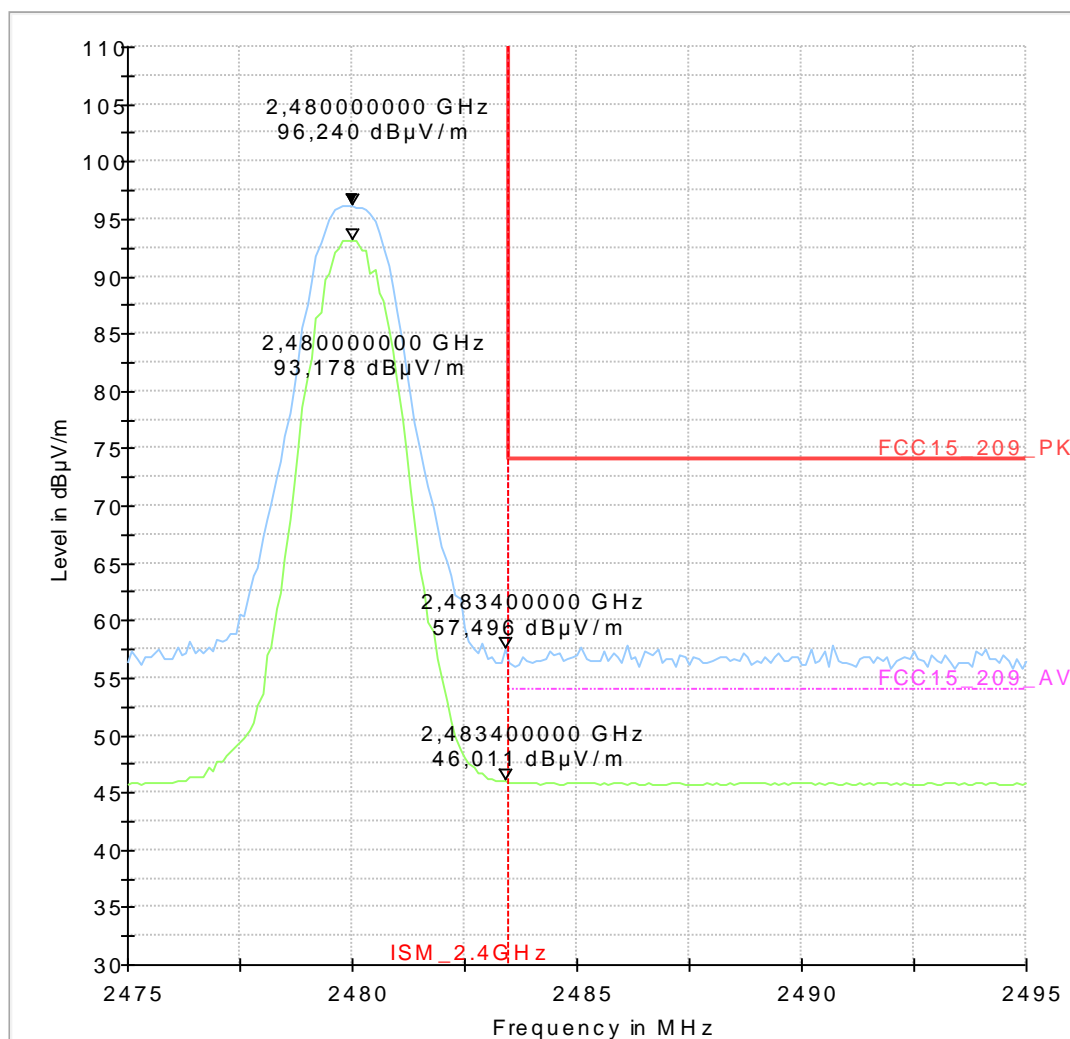
Diagram No.: 9.10_BE_High_BT_TX_EDR(8DPSK 3Mbps)-mode_CH78

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operation:	TX, continuous
Operating Mode:	Bluetooth BR:GFSK(1Mbps) Ch 78 Max. Power
Operator Name:	APh

EUT Information

Manufacturer:	Datalogic ADCL S.r.l.
MODEL:	JOYA TOUCH
EuT Type:	P00AN04HL0HT0W7-GR0
P/N:	911350015
S/N:	Z16P00044
HW Version:	Beta HW Version
SW Version:	WEC7
Firmware Version:	2.16
Input:	Fully Charged Internal Battery



5.5. Channel 0 LE-Mode (left band edge)

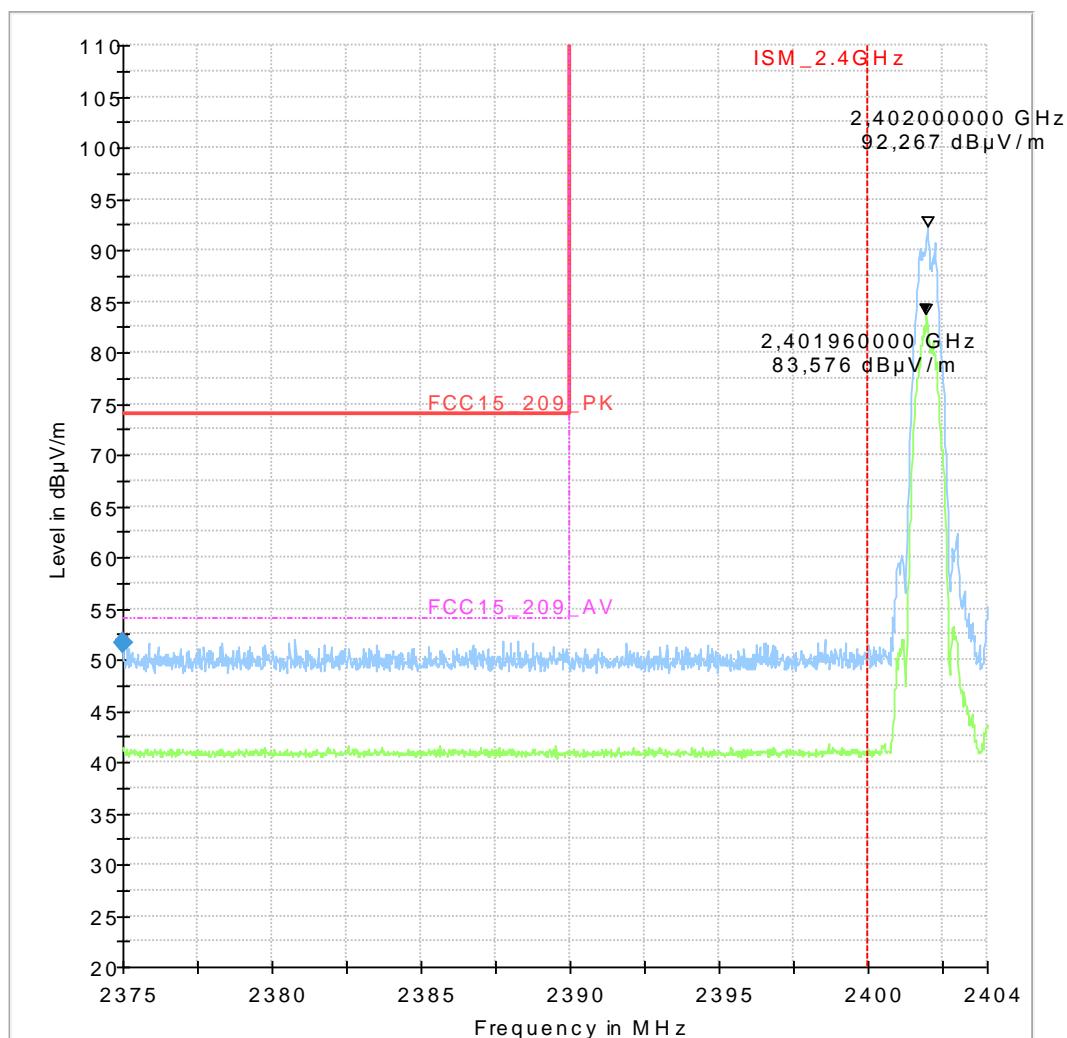
Diagram No.: 9.11_BE_Low_BT_TX_LE_GFSK(1Mbps)-mode_CH0

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operation mode:	Bluetooth LE:GFSK(1Mbps) Ch 0 Max. Power
Operator Name:	RLs
Comment:	Channel no. low

EUT Information

Manufacturer:	Datalogic ADCL S.r.l.
MODEL:	JOYA TOUCH
EuT Type:	P00AN04HL0HT0W7-GR0
P/N:	911350015
S/N:	Z16P00044
HW Version:	Beta HW Version
SW Version:	WEC7
Firmware Version:	2.16
Input:	Fully Charged Internal Battery



5.6. Channel 39 LE-Mode (right band edge)

Diagram No.: 9.12_BE_High_BT_TX_LE(GFSK 1Mbps)-mode_CH39

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 4
Antenna polarisation:	horizontal/vertical
Operation	TX, continuous
Operating Mode:	Bluetooth BR:GFSK(1Mbps) Ch 39 Max. Power
Operator Name:	Aph

EUT Information

Manufacturer:	Datalogic ADCL S.r.l.
MODEL:	JOYA TOUCH
EuT Type:	P00AN04HL0HT0W7-GR0
P/N:	911350015
S/N:	Z16P00044
HW Version:	Beta HW Version
SW Version:	WEC7
Firmware Version:	2.16
Input:	Fully Charged Internal Battery

