

Annex 1: Measurement diagrams
to
PARTIAL TEST REPORT
No.: 16-1-0131301T01a-C1

According to:
FCC Regulations
Part 15.207
Part 15.209, Part 15.247

ISED-Regulations
RSS-Gen, Issue 4
RSS-247, Issue 2

for

m2m Germany GmbH

BT Audio Adapter V1.6 Audio Streaming Device

FCC-ID: 2ALIO-MMBTA
IC/ISED: 22523-MMBTAA







Laboratory Accreditation and Listings			
 Deutsche Akkreditierungsstelle D-PL-12047-01-01	 MRA US-EU 0003	 Industry Canada Reg. No.: 3462D-2 Reg. No.: 3462D-3	 Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2666 C-2914, T-1967, G-301
 AUTHORIZED RF LABORATORY	 Authorized™ Test Lab Lab Code: 20011130-00		
accredited according to DIN EN ISO/IEC 17025			
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1. Summary of test results

1.1. Conducted EMI measurements on AC-mains port according 15.207, class B

1.01_Ch0_DH5

Common Information

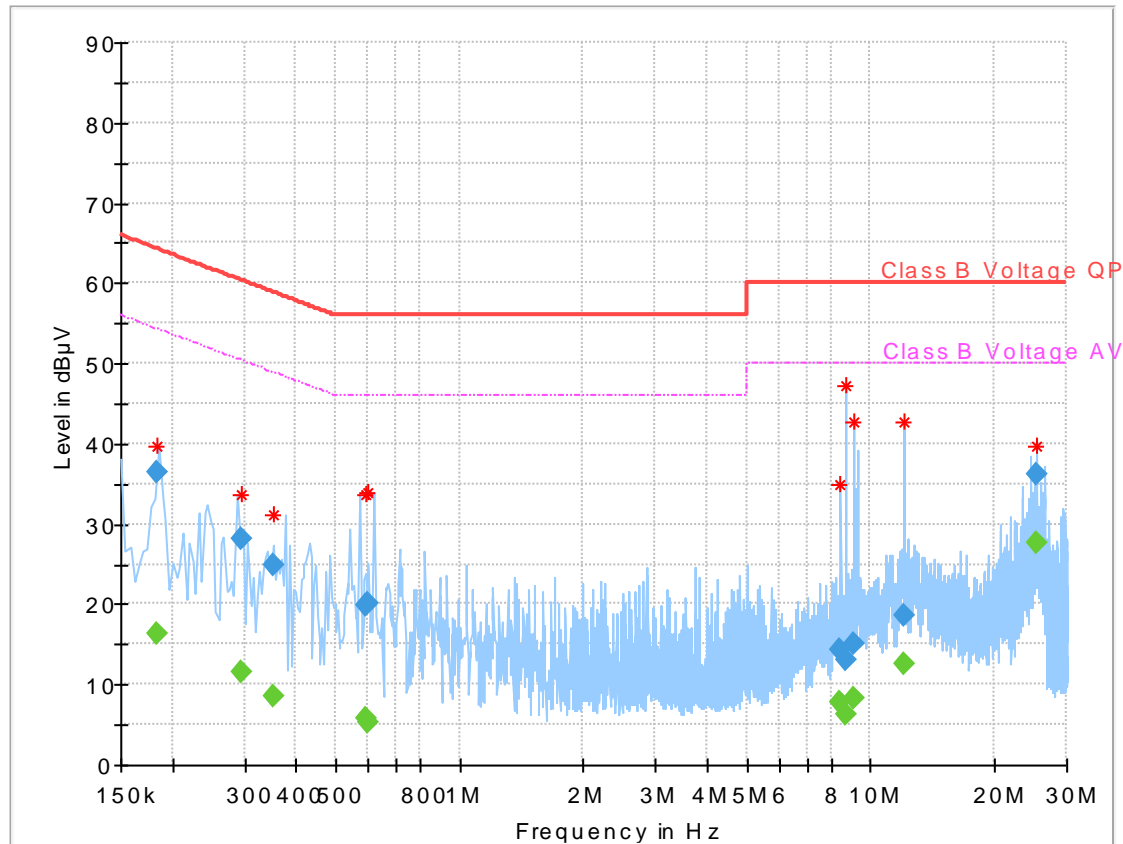
Test Description:	Conducted Voltage Measurement Class B
Test Site & Location:	Conducted Emission, CETECOM GmbH Essen
Test Software:	R&S EMC32 v9.15
Test Specification:	FCC 15.107, FCC 15.207
Operating Mode:	TX Ch:0, DH5
Measured on line:	N/L1
Diagram details:	Shows the peak values as a sum of measured ports in maxhold mode
Environmental Conditions:	Humidity: 37%rH; Temperature: 20°C
Operator:	HLA
Comments:	

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter

HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	Test Mode activation using BlueTest3 Software

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.182656	36.44	---	64.36	27.92	1000.0	9.000	N	GN	0.1
0.182656	---	16.22	54.36	38.14	1000.0	9.000	N	GN	0.1
0.294219	---	11.52	50.40	38.88	1000.0	9.000	L1	GN	0.1
0.294219	28.10	---	60.40	32.30	1000.0	9.000	L1	GN	0.1
0.354063	24.79	---	58.87	34.08	1000.0	9.000	L1	GN	0.1
0.354063	---	8.48	48.87	40.39	1000.0	9.000	L1	GN	0.1
0.594375	---	5.76	46.00	40.24	1000.0	9.000	N	GN	0.2
0.594375	19.93	---	56.00	36.07	1000.0	9.000	N	GN	0.2
0.596250	---	5.30	46.00	40.70	1000.0	9.000	N	GN	0.2
0.596250	20.17	---	56.00	35.83	1000.0	9.000	N	GN	0.2
8.445000	---	7.90	50.00	42.10	1000.0	9.000	N	GN	0.4
8.445000	14.45	---	60.00	45.55	1000.0	9.000	N	GN	0.4
8.663125	---	6.40	50.00	43.60	1000.0	9.000	N	GN	0.4
8.663125	13.14	---	60.00	46.86	1000.0	9.000	N	GN	0.4
9.138594	---	8.38	50.00	41.62	1000.0	9.000	N	GN	0.4
9.138594	15.08	---	60.00	44.92	1000.0	9.000	N	GN	0.4
12.086719	---	12.57	50.00	37.43	1000.0	9.000	N	GN	0.5
12.086719	18.72	---	60.00	41.28	1000.0	9.000	N	GN	0.5
25.219531	---	27.77	50.00	22.23	1000.0	9.000	N	GN	0.6
25.219531	36.28	---	60.00	23.72	1000.0	9.000	N	GN	0.6

1.2. Magnetic field strength measurements in the range 9 kHz to 30 MHz

Diagram No. 2.01_Bluetooth-BR-Mode-DH5-Ch0

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:	TFr
Operating conditions:	Humidity: 37%rH; Temperature: 21°C
Power during tests:	120V/60Hz

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter
HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	-

Full Spectrum

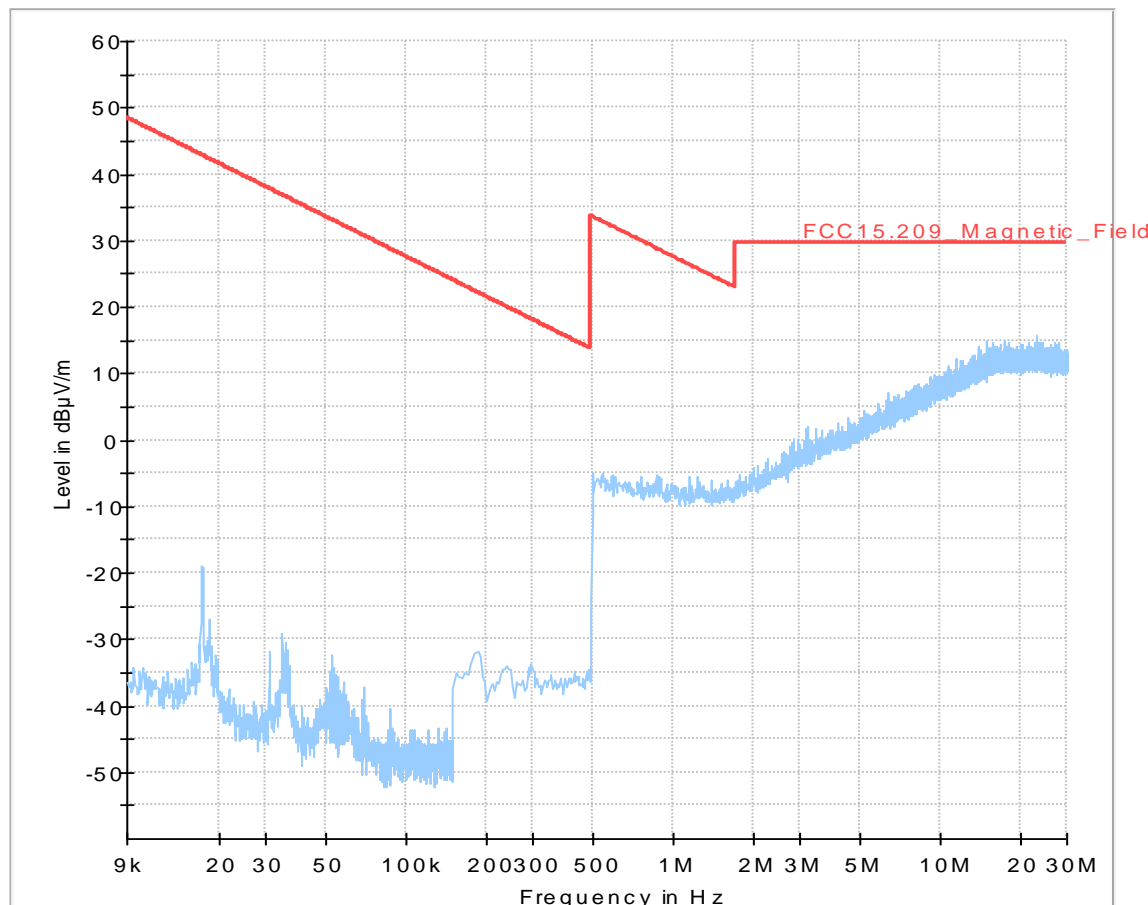


Diagram No. 2.02_Bluetooth-EDR-Mode-2DH5-Ch39

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:	RLs
Operating conditions:	Humidity: 37%rH; Temperature: 21°C
Power during tests:	120V/60Hz
Comment 1:	

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter

HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	-

Full Spectrum

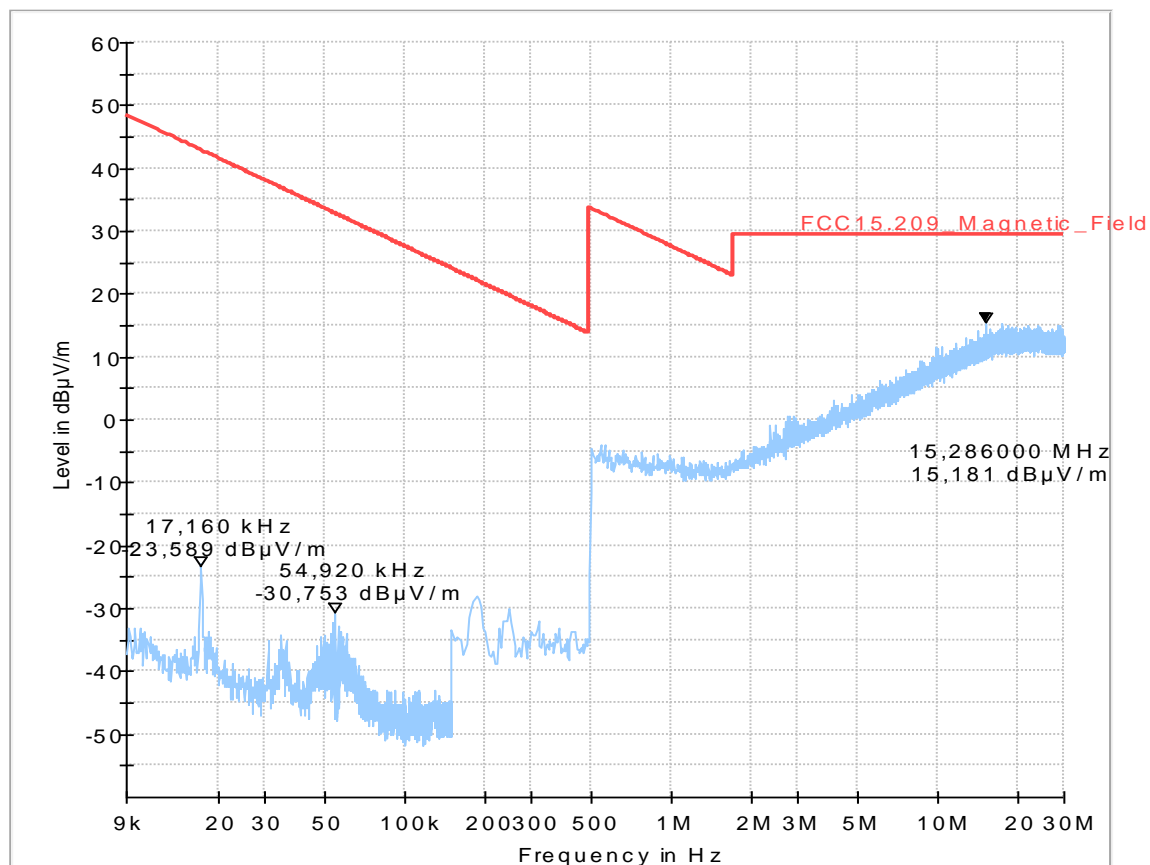


Diagram No. 2.03_Bluetooth-EDR-Mode-3DH5-Ch78

Common Information

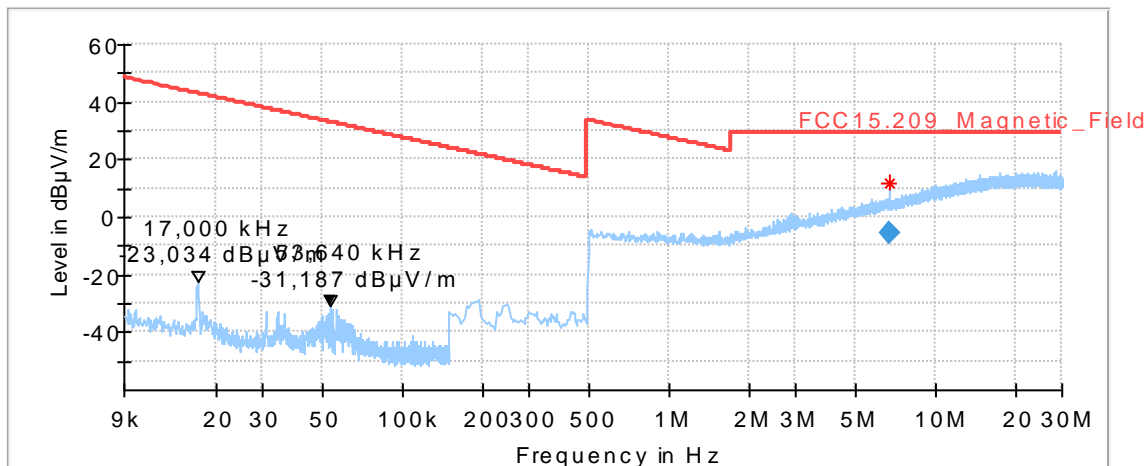
Test description: Magnetic Field Strength Measurement related to 30/300 m distance
 Test site and distance: Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
 Version of Testsoftware: EMC32 V9.25.0
 Distance correction: used accord. table, pls. see test report
 Technical Data: Please 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: RIs
 Operating conditions: Humidity: 37%rH; Temperature: 21°C
 Power during tests: 120V/60Hz
 Comment 1:

EUT Information

Manufacturer: m2m Germany GmbH
 Model: BT Audio Adapter
 HW version: V1.6
 SW version: iWRAP 6.1
 Serial number: -
 Connected Interfaces: PowerSupply
 Power Supply: 120AC/60Hz
 Comments: -

Full Spectrum



Final Result

Frequency (MHz)	RMS (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Correction (dB)
6.734000	-5.27	29.54	34.81	1000.0	10.000	100.0	H	181.0	90.0	-7.7

(continuation of the "Final_Result" table from column 17 ...)

Frequency (MHz)	Comment
6.734000	21:29:42 - 18.01.2017

1.3. Field strength measurements 30MHz <f <1GHz

Diagram No. 3.01_Bluetooth-BR-Mode-DH5-Ch0

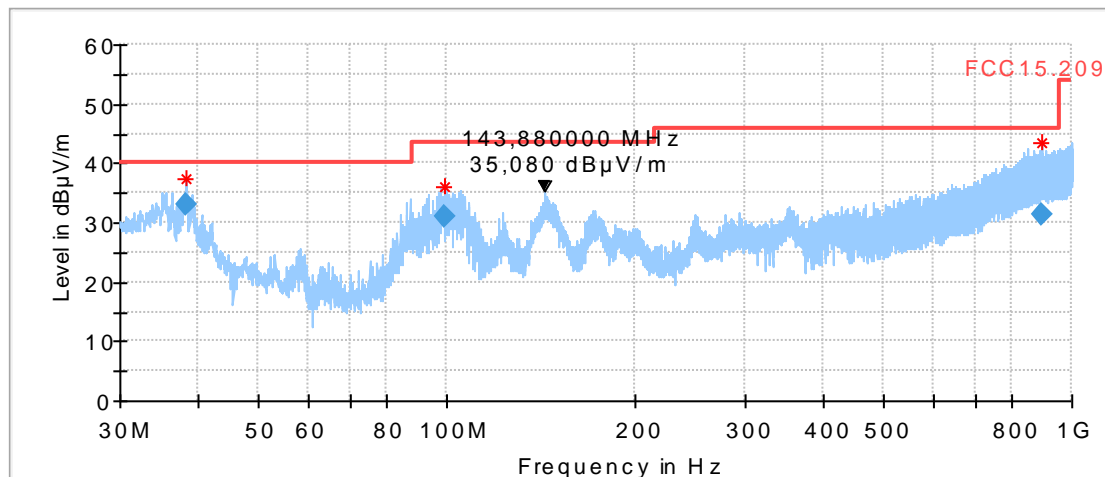
Common Information

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
Used filter:	not used
Technical Data:	please see page 2 for detailed data of measurement setup
Test specification.:	FCC 15.209; RSS-Gen: Issue 3
Operator:	RI
Operating conditions:	Humidity: 31%RH; Temperature: 21°C
Power during tests:	120V 60Hz,
Comment 1:	

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter
-----	-----
HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	-

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)
38.196000	32.92	40.00	7.08	1000.0	120.000	240.0	H	87.0	90.0	17.9
99.228000	31.12	43.50	12.38	1000.0	120.000	108.0	V	269.0	0.0	8.1
893.224000	31.18	46.00	14.82	1000.0	120.000	112.0	V	207.0	0.0	26.7

Diagram No. 3.02_Bluetooth-EDR-Mode-2DH5-Ch39

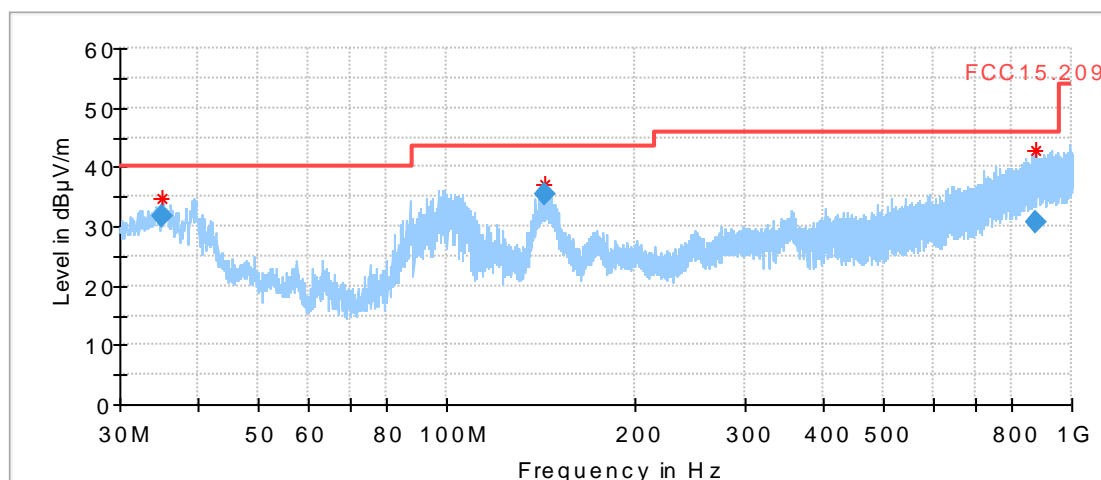
Common Information

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
Used filter:	not used
Technical Data:	please see page 2 for detailed data of measurement setup
Test specification.:	FCC 15.209; RSS-Gen: Issue 3
Operator:	RI
Operating conditions:	Humidity: 31%rH; Temperature: 21°C
Power during tests:	120V 60Hz,
Comment 1:	

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter
HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	-

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)
35.044000	31.56	40.00	8.44	1000.0	120.000	285.0	H	314.0	90.0	19.2
142.996000	35.23	43.50	8.27	1000.0	120.000	105.0	V	-6.0	0.0	8.7
877.096000	30.78	46.00	15.22	1000.0	120.000	232.0	V	269.0	90.0	26.2

Diagram No. 3.03_Bluetooth-EDR-Mode-3DH5-Ch78

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
 Used filter: not used
 Technical Data: please see page 2 for detailed data of measurement setup
 Test specification.: FCC 15.209; RSS-Gen: Issue 3

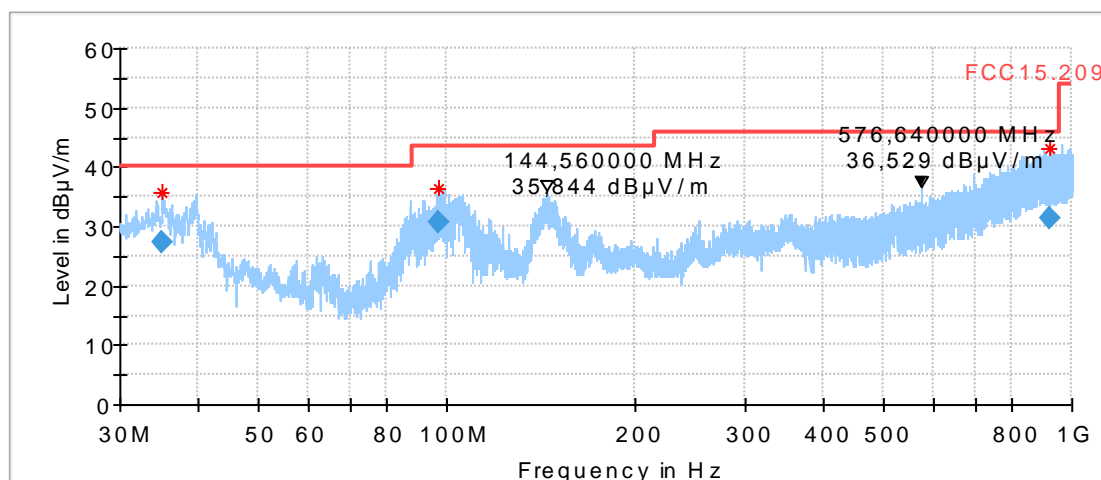
Operator: RIs
 Operating conditions: Humidity: 31%rH; Temperature: 21°C
 Power during tests: 120V 60Hz,
 Comment 1:

EUT Information

Manufacturer: m2m Germany GmbH
 Model: BT Audio Adapter

HW version: V1.6
 SW version: iWRAP 6.1
 Serial number: -
 Connected Interfaces: PowerSupply
 Power Supply: 120AC/60Hz
 Comments: -

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)
35.048000	27.22	40.00	12.78	1000.0	120.000	125.0	H	183.0	90.0	19.2
97.300000	30.67	43.50	12.83	1000.0	120.000	109.0	V	314.0	0.0	8.2
923.604000	31.26	46.00	14.74	1000.0	120.000	167.0	H	39.0	0.0	27.1

1.4. Field strength measurements 1GHz < f < 25GHz

Diagram No.: 4.01_Bluetooth_BR_Mode_DH5_CH0

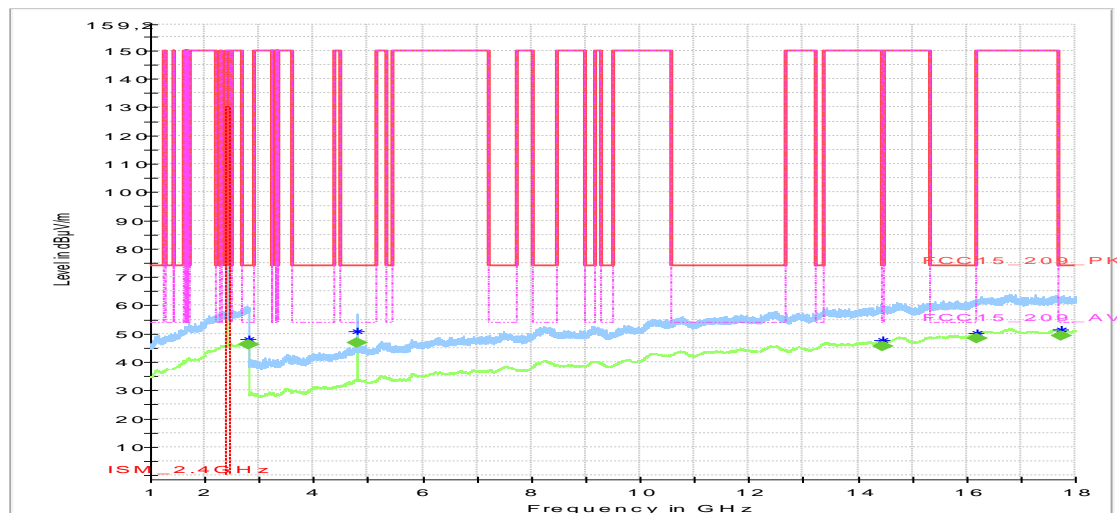
Common Information

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- Bluetooth BR Mode-Packet Type:DH5-Channel 0 :2402 MHz
Operator Name:	APh

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter

HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	Test Mode activation using BlueTest3 Software



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2793.200000	---	46.32	54.00	7.68	100.0	1000.000	155.0	H	238.0
4804.000000	---	46.87	54.00	7.13	100.0	1000.000	155.0	H	186.0
14472.400000	---	45.63	54.00	8.37	100.0	1000.000	155.0	H	15.0
16198.800000	---	48.25	54.00	5.75	100.0	1000.000	155.0	H	54.0
17744.400000	---	49.20	54.00	4.80	100.0	1000.000	155.0	H	127.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Elevation (deg)	Corr. (dB)	Comment
2793.200000	90.0	38.0	14:05:23 - 04.02.2017
4804.000000	90.0	4.9	15:08:01 - 04.02.2017
14472.400000	90.0	22.2	15:09:14 - 04.02.2017
16198.800000	90.0	24.8	15:10:10 - 04.02.2017
17744.400000	90.0	25.8	15:11:11 - 04.02.2017

Diagram No.: 4.01a_Bluetooth_BR_Mode_DH5_CH0

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:	TX mode continuous
Operator Name:	TFr
Comment:	Ch0_MINI

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter

HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz

FCC_Sweep_15.247_18_25GHz_Pre

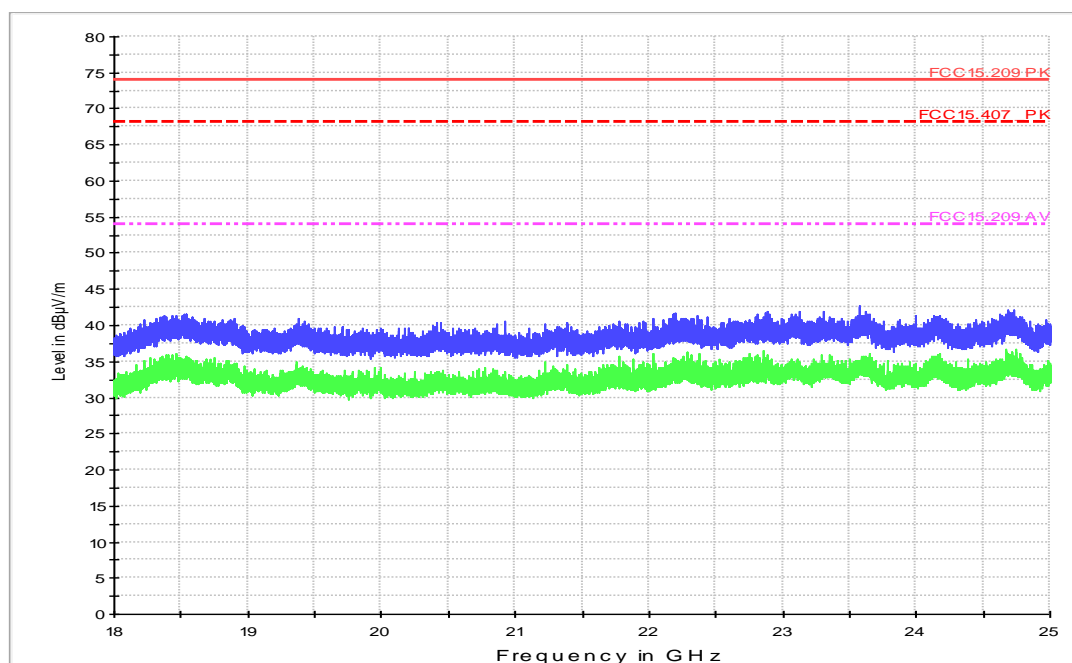


Diagram No.: 4.02_Bluetooth_EDR_Mode_2DH5_CH39

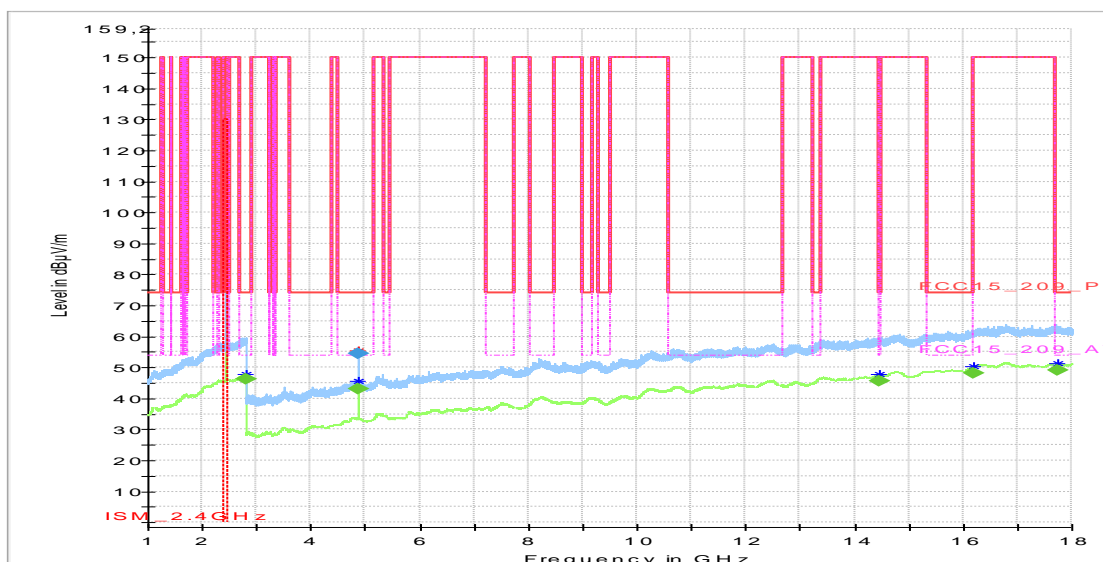
Common Information

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- Bluetooth EDR Mode-Packet Type:2DH5-Channel 39 :2441 MHz
Operator Name: APh

EUT Information

Manufacturer: m2m Germany GmbH
Model: BT Audio Adapter

HW version: V1.6
SW version: iWRAP 6.1
Serial number: -
Connected Interfaces: PowerSupply
Power Supply: 120AC/60Hz
Comments: Test Mode activation using BlueTest3 Software



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2798.800000	---	46.37	54.00	7.63	100.0	1000.000	155.0	H	255.0
4882.000000	54.45	---	74.00	19.55	100.0	1000.000	155.0	H	185.0
4882.400000	---	43.00	54.00	11.00	100.0	1000.000	155.0	H	180.0
14472.400000	---	45.62	54.00	8.38	100.0	1000.000	155.0	H	355.0
16190.800000	---	48.21	54.00	5.79	100.0	1000.000	155.0	H	180.0
17736.800000	---	49.18	54.00	4.82	100.0	1000.000	155.0	H	90.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Elevation (deg)	Correction (dB)	Comment
2798.800000	90.0	38.1	15:40:32 - 04.02.2017
4882.000000	0.0	4.6	16:31:08 - 04.02.2017
4882.400000	0.0	4.6	16:32:10 - 04.02.2017
14472.400000	0.0	22.2	16:33:12 - 04.02.2017
16190.800000	0.0	24.8	16:34:26 - 04.02.2017
17736.800000	0.0	25.8	16:35:32 - 04.02.2017

Diagram No.: 4.02a_Bluetooth_EDR_Mode_2DH5_CH39

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:	TX mode continuous
Operator Name:	TFr

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter

HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz

FCC_Sweep_15.247_18_25GHz_Pre

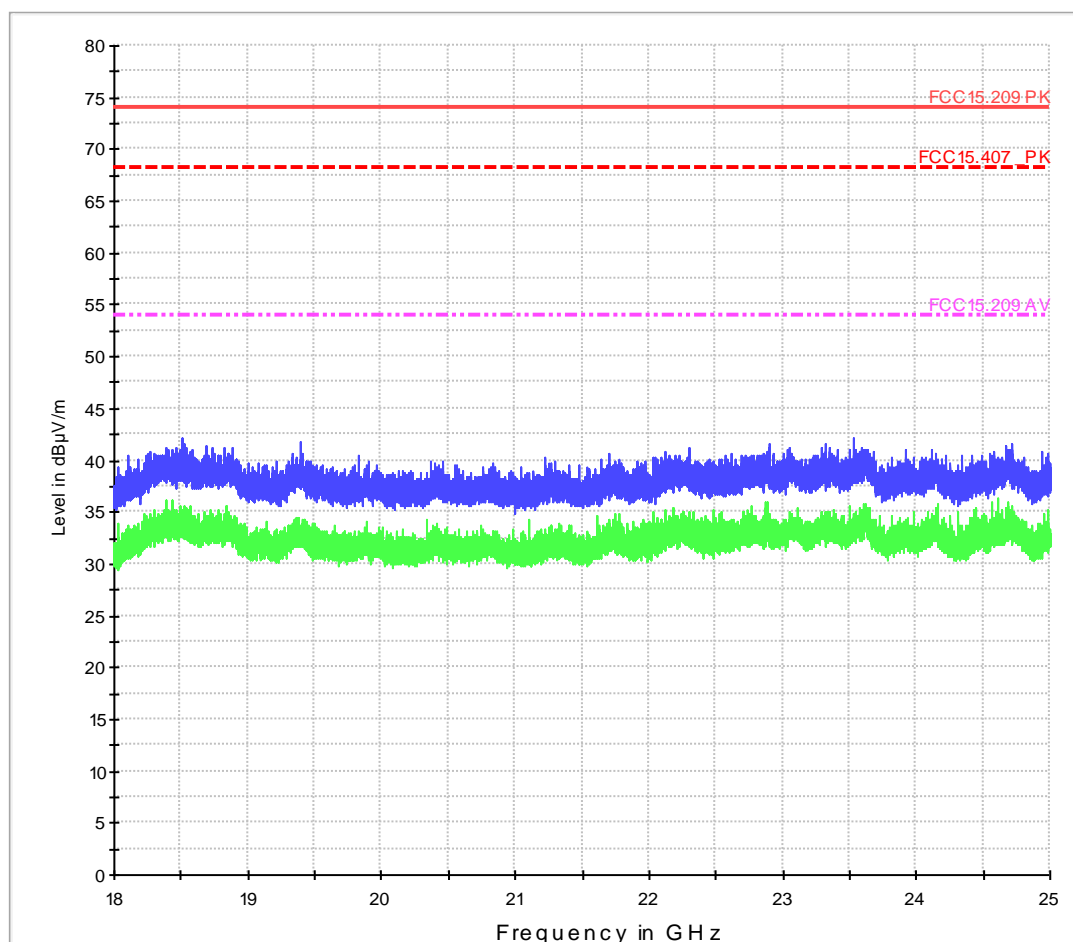


Diagram No.: 4.03_Bluetooth_EDR_Mode_3DH5_CH78

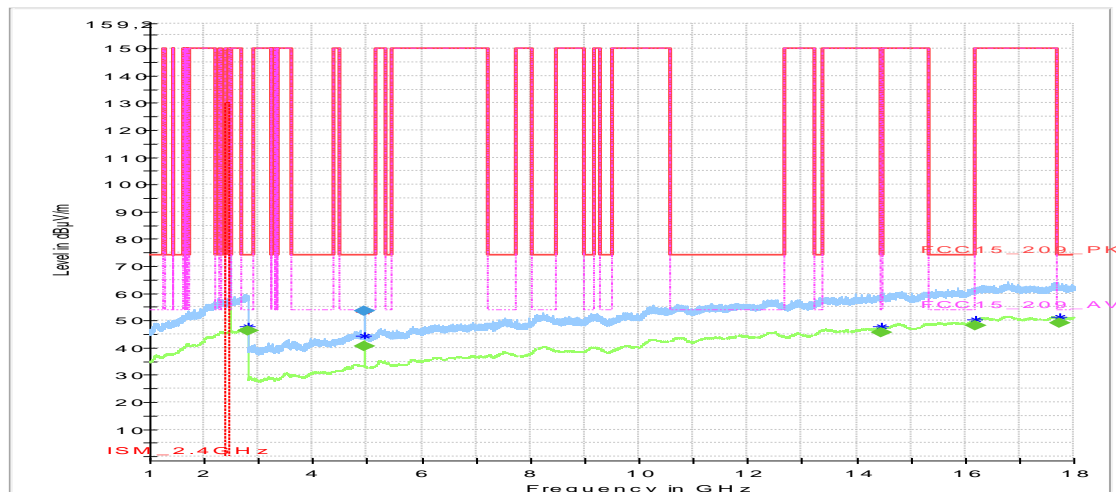
Common Information

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- Bluetooth EDR Mode-Packet Type:3DH5-Channel 78 :2480 MHz
Operator Name: APh

EUT Information

Manufacturer: m2m Germany GmbH
Model: BT Audio Adapter

HW version: V1.6
SW version: iWRAP 6.1
Serial number: -
Connected Interfaces: PowerSupply
Power Supply: 120AC/60Hz
Comments: Test Mode activation using BlueTest3 Software



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
2798.000000	---	46.33	54.00	7.67	100.0	1000.000	155.0	H	139.0
4960.000000	---	40.55	54.00	13.45	100.0	1000.000	155.0	H	199.0
4960.000000	53.44	---	74.00	20.56	100.0	1000.000	155.0	H	268.0
14470.400000	---	45.66	54.00	8.34	100.0	1000.000	155.0	H	192.0
16197.600000	---	48.28	54.00	5.72	100.0	1000.000	155.0	H	29.0
17740.400000	---	49.17	54.00	4.83	100.0	1000.000	155.0	H	41.0

(continuation of the "Final_Result" table from column 15 ...)

Frequency (MHz)	Elevation (deg)	Corr (dB)	Comment
2798.000000	90.0	38.1	16:57:30 - 04.02.2017
4960.000000	90.0	4.3	17:55:29 - 04.02.2017
4960.000000	90.0	4.3	17:53:03 - 04.02.2017
14470.400000	90.0	22.2	17:56:30 - 04.02.2017
16197.600000	90.0	24.8	17:54:24 - 04.02.2017
17740.400000	90.0	25.8	17:57:43 - 04.02.2017

Diagram No.: 4.03a_Bluetooth_EDR_Mode_3DH5_CH78.Pdf

Common Information

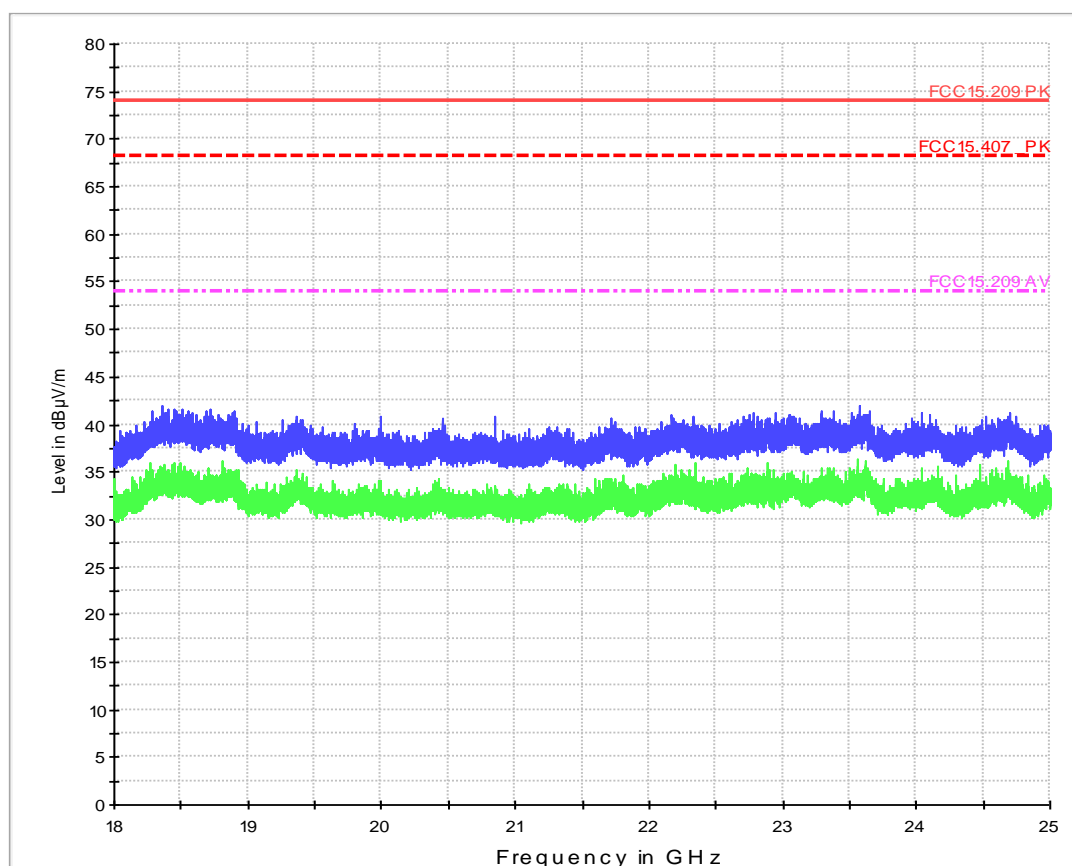
Test Description:	Radiated field strength emission in 1m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247, 15.205&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Distance correction factor	3 to 1m: -10.5 dB applying to measurement results
SW-Version:	EMC32 V8.53.0
Operation mode:	TX mode continuous
Operator Name:	TFr

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter

HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz

FCC_Sweep_15.247_18_25GHz_Pre



1.5. Radiated band-edge measurements accord. §15.209 & §15.205 (§15.247)

1.5.1. Channel 0 BR_Mode_DH5 (left band edge)

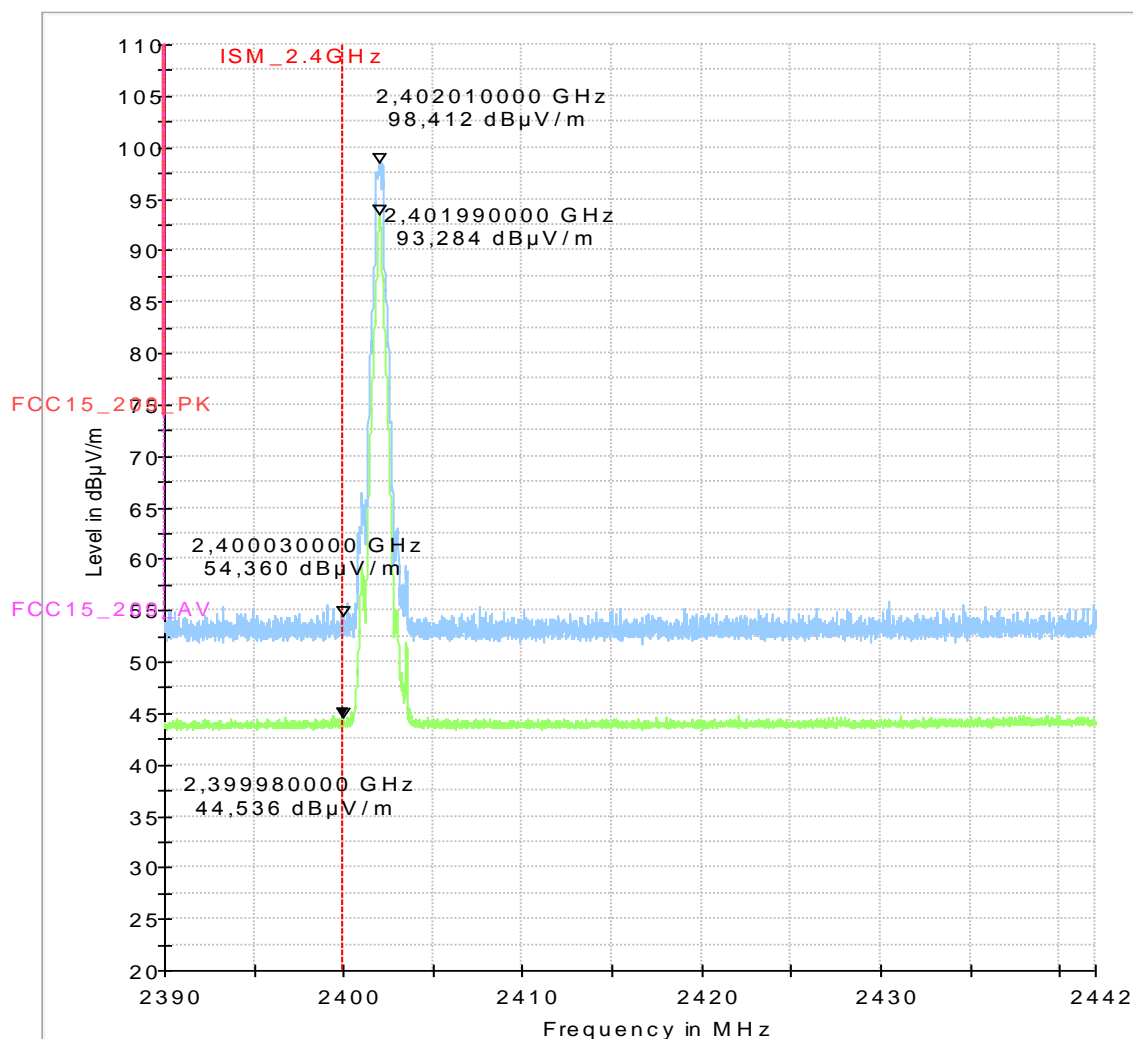
9.01_BR_Mode_DH5_CH0

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions 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:	TX, continuous- Bluetooth BR Mode-Packet Type:DH5-Channel 0 :2402 MHz
Operator Name:	RLs

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter
HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	Test Mode activation using BlueTest3 Software



9.03_BR_Mode_2DH5_CH0

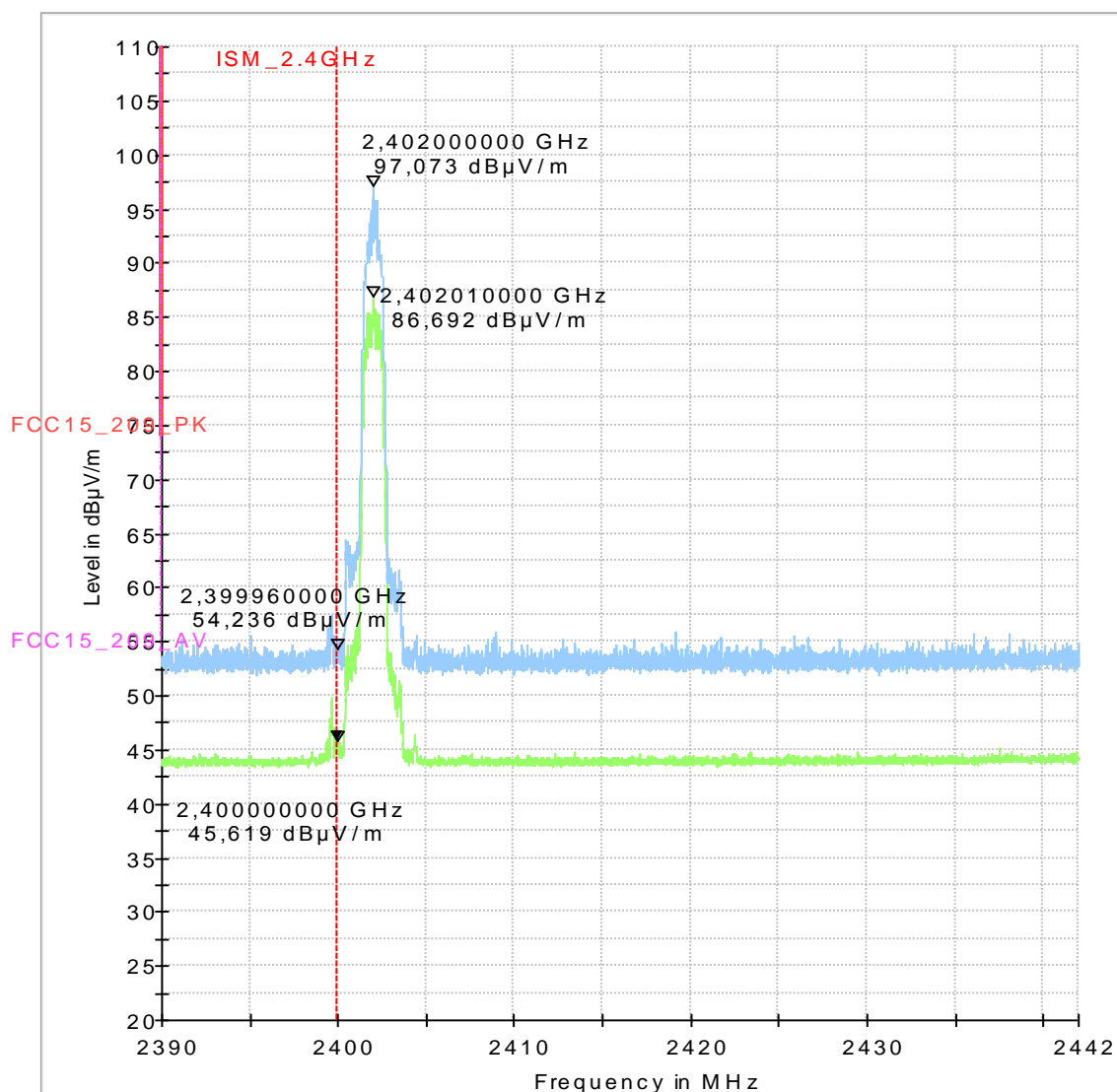
Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions 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:	TX, continuous- Bluetooth BR Mode-Packet Type:2DH5-Channel 0 :2402 MHz
Operator Name:	RLs

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter

HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	Test Mode activation using BlueTest3 Software



9.05_BR_Mode_3DH5_CH0

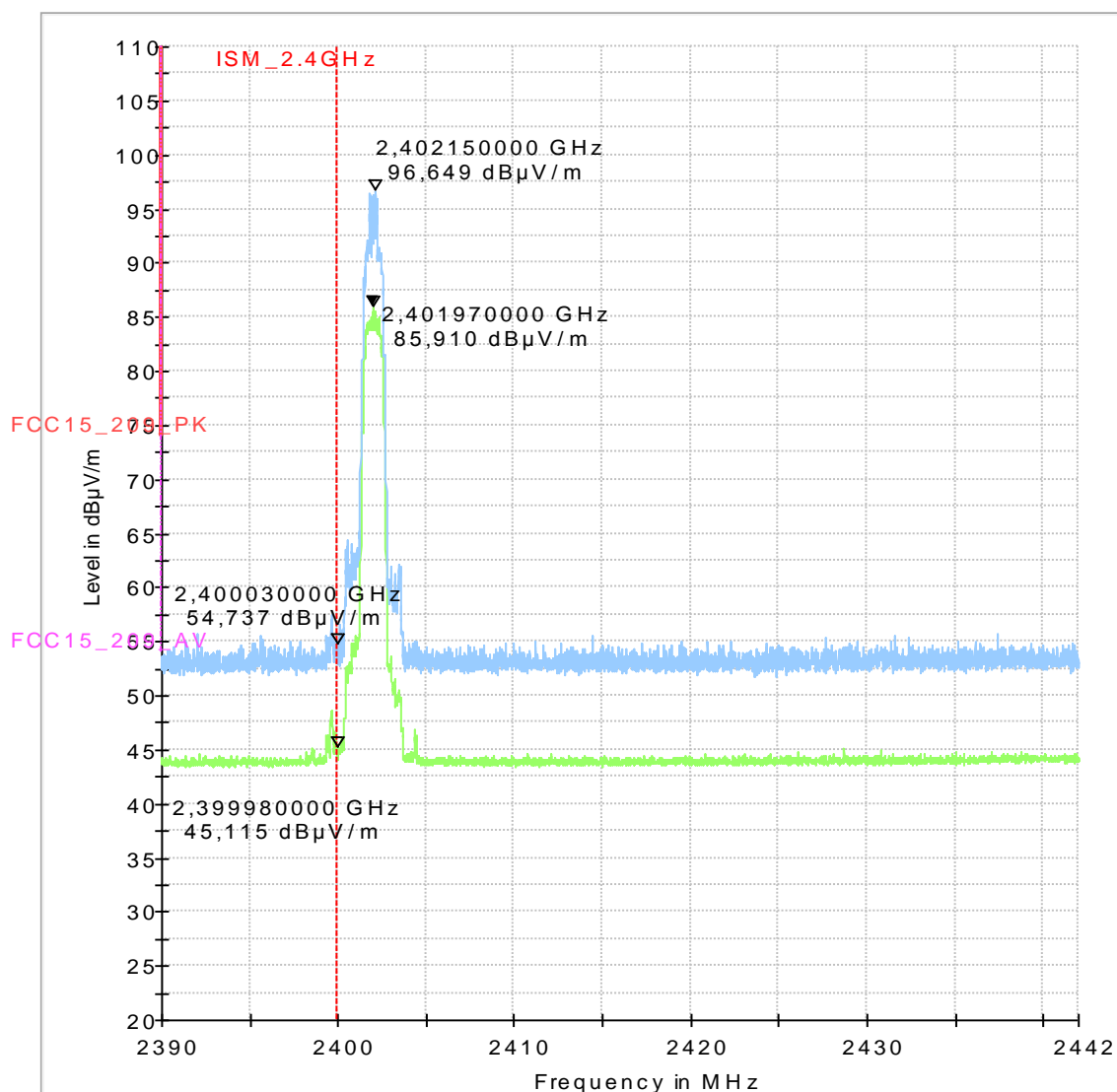
Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions 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:	TX, continuous- Bluetooth BR Mode-Packet Type:3DH5-Channel 0 :2402 MHz
Operator Name:	RLs

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter

HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	Test Mode activation using BlueTest3 Software



1.5.2. Channel 78 BR_Mode_DH5 (right band edge)

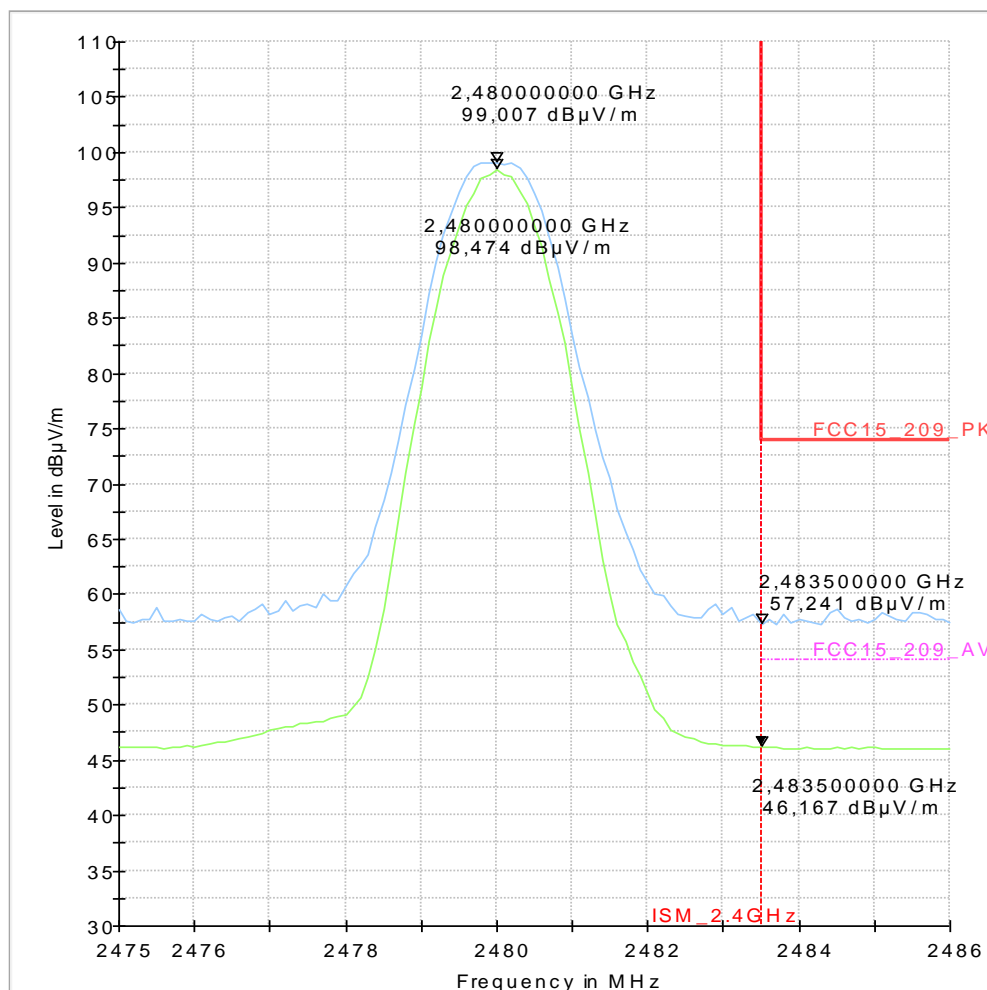
9.02_BR_Mode_DH5_CH78

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions 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:	TX, continuous- Bluetooth BR Mode-Packet Type:DH5-Channel 0 :2480 MHz
Operator Name:	RI's

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter
HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	Test Mode activation using BlueTest3 Software



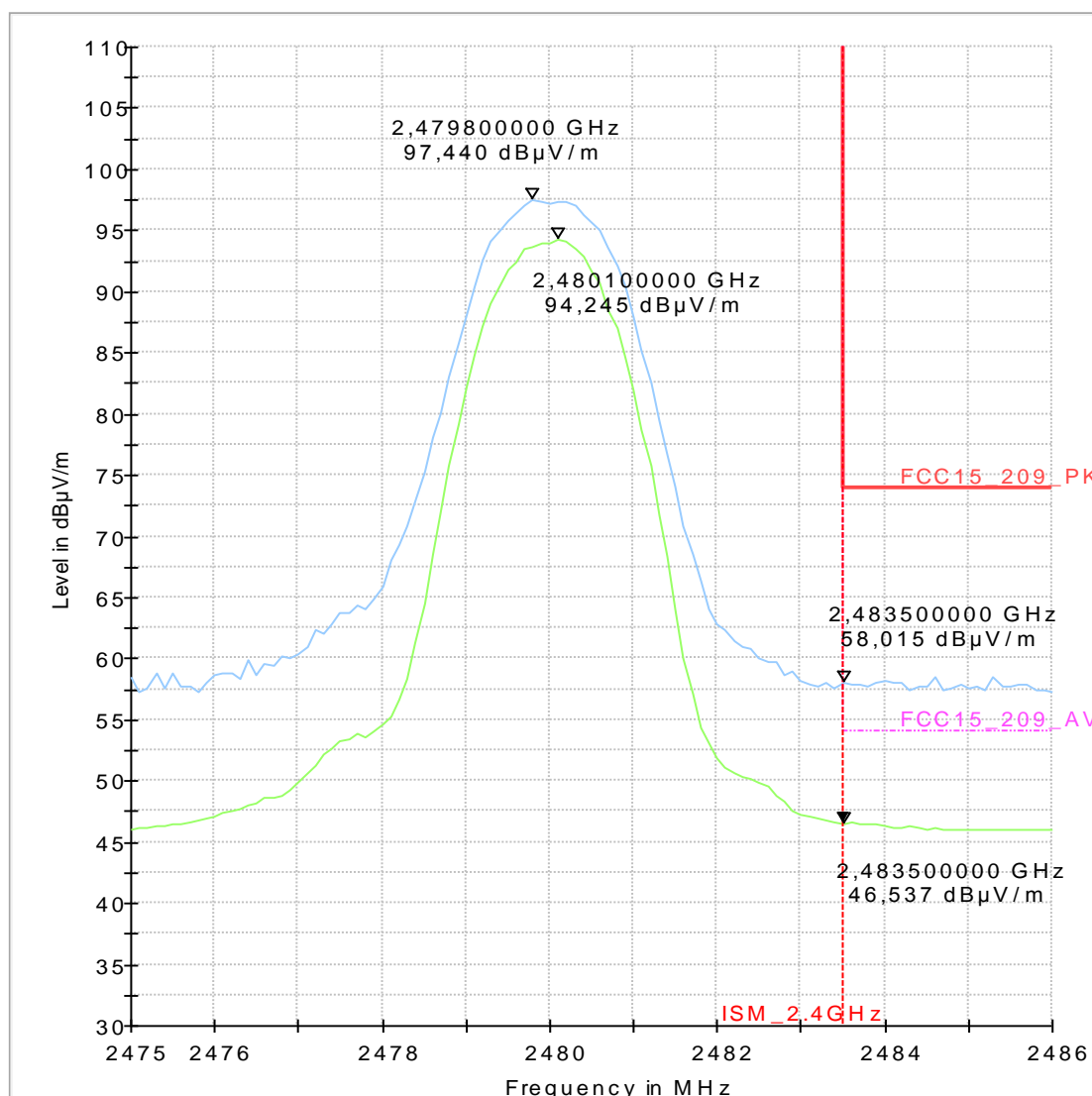
9.04_BR_Mode_2DH5_CH78

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions 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:	TX, continuous- Bluetooth BR Mode-Packet Type:2DH5-Channel 78 :2480 MHz
Operator Name:	RLs

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter
HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	Test Mode activation using BlueTest3 Software



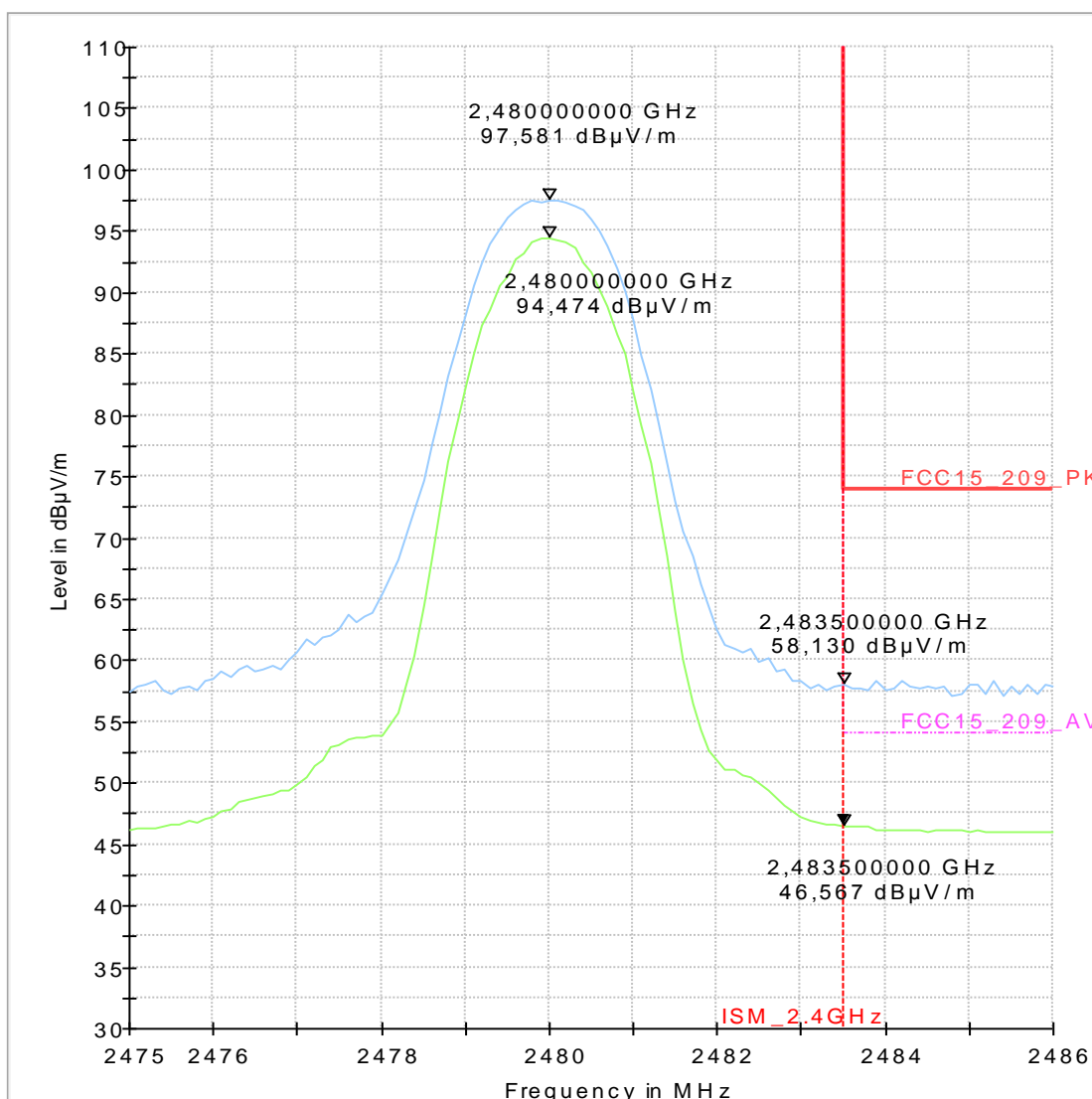
9.06_BR_Mode_3DH5_CH78

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions 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:	TX, continuous- Bluetooth BR Mode-Packet Type:3DH5-Channel 78 :2480 MHz
Operator Name:	RLs

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter
HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	Test Mode activation using BlueTest3 Software



1.5.3. BR_Mode_DH5_Hopping (left band edge)

9.07_BR_Mode_DH5_Hopping

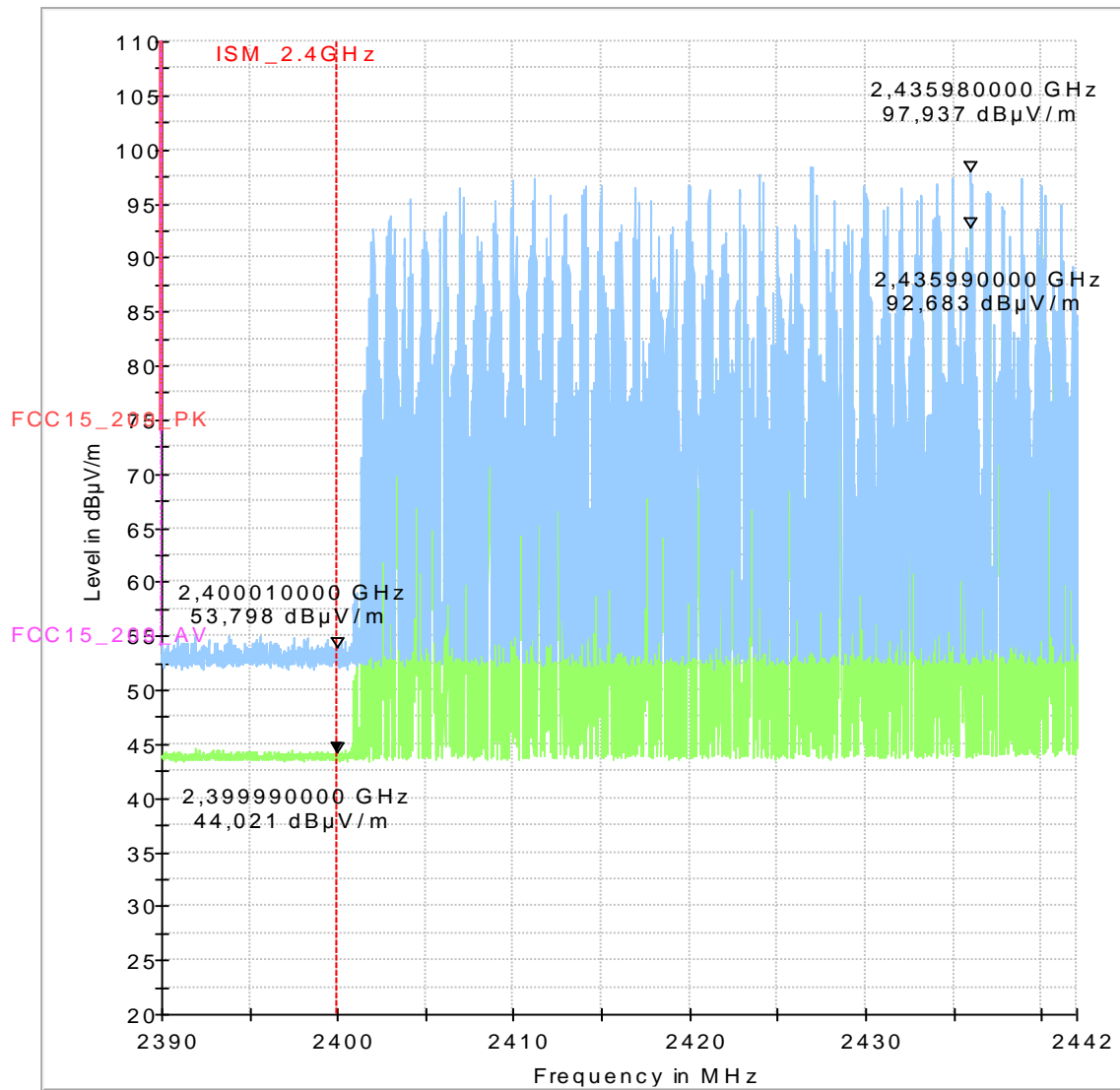
Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions 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:	TX, continuous- Bluetooth BR Mode-Packet Type:DH5: Hopping
Operator Name:	RIIs

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter

HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	Test Mode activation using BlueTest3 Software



9.07_BR_Mode_DH5_Hopping

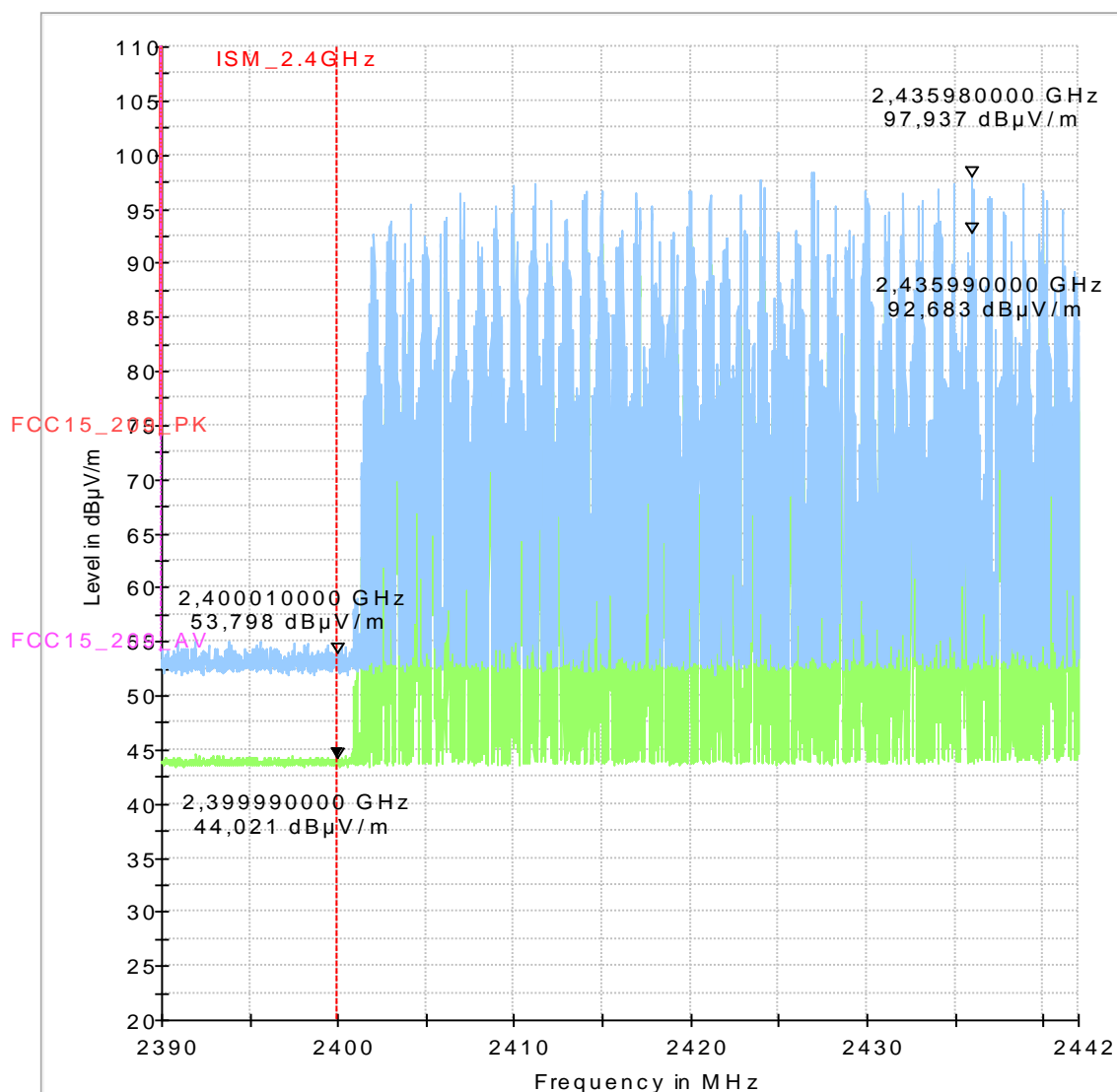
Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions 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:	TX, continuous- Bluetooth BR Mode-Packet Type:DH5: Hopping
Operator Name:	RLs

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter

HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	Test Mode activation using BlueTest3 Software



1.5.4. BR_Mode_DH5_Hopping (right band edge)

9.08_BR_Mode_DH5_Hopping

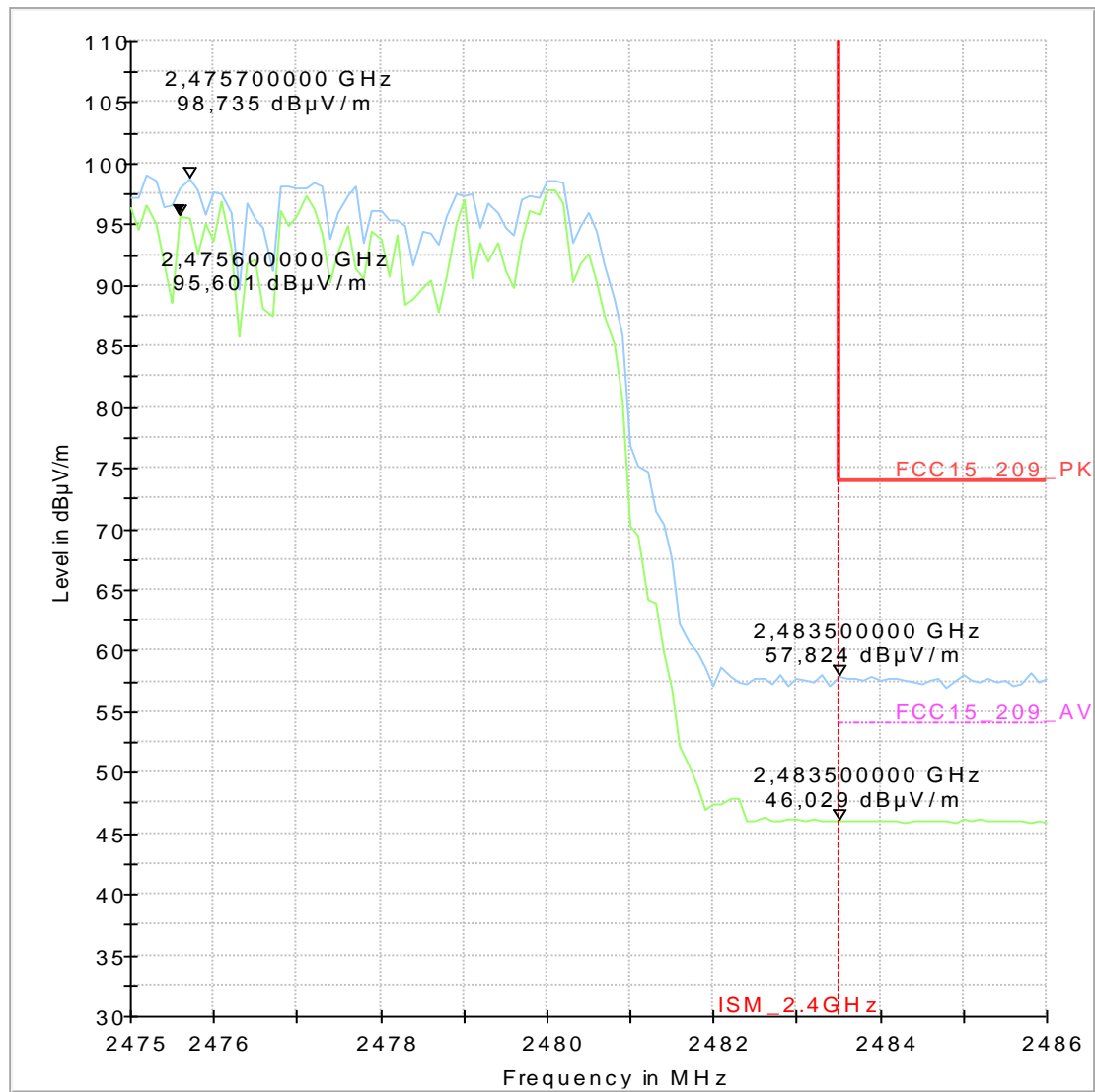
Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions 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:	TX, continuous- Bluetooth BR Mode-Packet Type:DH5: Hopping
Operator Name:	RIIs

EUT Information

Manufacturer:	m2m Germany GmbH
Model:	BT Audio Adapter

HW version:	V1.6
SW version:	iWRAP 6.1
Serial number:	-
Connected Interfaces:	PowerSupply
Power Supply:	120AC/60Hz
Comments:	Test Mode activation using BlueTest3 Software



1.5.5. Conducted RF-power

Bluetooth FHSS (Mode)	Modulation (Data Rate)	Packet Type	Channel No. (Channel Frequency)	Conducted Peak Power (dBm)
Bluetooth FHSS (BR Mode)	GFSK (1 Mbps)	DM1	Channel No. 0 (2402 MHz)	4,08
	GFSK (1 Mbps)	DM1	Channel No. 39 (2441 MHz)	3,75
	GFSK (1 Mbps)	DM1	Channel No. 78 (2480 MHz)	3,28
	GFSK (1 Mbps)	DH3	Channel No. 0 (2402 MHz)	4,05
	GFSK (1 Mbps)	DH3	Channel No. 39 (2441 MHz)	3,72
	GFSK (1 Mbps)	DH3	Channel No. 78 (2480 MHz)	3,25
	GFSK (1 Mbps)	DH5	Channel No. 0 (2402 MHz)	4,04
	GFSK (1 Mbps)	DH5	Channel No. 39 (2441 MHz)	3,71
	GFSK (1 Mbps)	DH5	Channel No. 78 (2480 MHz)	3,24
Bluetooth FHSS (EDR Mode)		DM1	Channel No. 0 (2402 MHz)	2,47
		DM1	Channel No. 39 (2441 MHz)	1,91
		DM1	Channel No. 78 (2480 MHz)	1,33
	$\pi/4$ -DQPSK (3 Mbps)	2DH3	Channel No. 0 (2402 MHz)	2,4

	$\pi/4$ -DQPSK (3 Mbps)	2DH3	Channel No. 39 (2441 MHz)	1,85
	$\pi/4$ -DQPSK (3 Mbps)	2DH3	Channel No. 78 (2480 MHz)	1,27
	$\pi/4$ -DQPSK (3 Mbps)	2DH5	Channel No. 0 (2402 MHz)	2,41
	$\pi/4$ -DQPSK (3 Mbps)	2DH5	Channel No. 39 (2441 MHz)	1,84
	$\pi/4$ -DQPSK (3 Mbps)	2DH5	Channel No. 78 (2480 MHz)	1,28
Bluetooth FHSS (EDR Mode)	8DPSK (3 Mbps)	3DH3	Channel No. 0 (2402 MHz)	2,43
	8DPSK (3 Mbps)	3DH3	Channel No. 39 (2441 MHz)	1,88
	8DPSK (3 Mbps)	3DH3	Channel No. 78 (2480 MHz)	1,28
	8DPSK (3 Mbps)	3DH5	Channel No. 0 (2402 MHz)	2,44
	8DPSK (3 Mbps)	3DH5	Channel No. 39 (2441 MHz)	1,89
	8DPSK (3 Mbps)	3DH5	Channel No. 78 (2480 MHz)	1,29

1.6. MPE calculations accord. §1.1310

The assumptions for calculations of the Maximum permissive exposure is a minimum distance between user and equipment on all times of operation of at least 20cm.

Distance	20	cm											
Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Path Loss du RF-connector cable according manufacturer (dB)	Antenna Gain (dBi)	Declared maximum BRP (Measured+ Tune-up) (dBm)	Duty cycle %	Declared Maximum conducted output power (W)	Equivalent conducted output power (output power x duty cycle) (m W)	MPE Limit accord. Table 1 (mW/cm ²)	MPE-Value (m W/cm ²)	Margin to Limit:	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
Bluetooth 2.4GHz	2412,0	4,08	0,2	3,29	7,57	100%	0,0057	5,7	1,0000	0,0011	0,9989	0,001137	0,0011369
	2437,0	3,75	0,2	3,29	7,24		0,0053	5,3	1,0000	0,0011	0,9989	0,001054	
	2462,0	3,28	0,2	3,29	6,77		0,0048	4,8	1,0000	0,0009	0,9991	0,000946	

Maximum calculated MPE value:		
Lowest MPE-Limit:	1,0000	[m W/cm ²]
Highest MPE value:	0,0011	[m W/cm ²]
Lowest Margin to limit:	0,9989	[m W/cm ²]

1.7. MPE calculations accord. RSS-102, Issue 5

The assumptions for calculations of the maximum permissive exposure is a minimum distance between user and equipment on all times of operation of at least 20cm.

Distance	0,20	m													
Operation Mode	Frequency on channel	Declared measured conducted output power	Antenna Gain	Path Loss to ext. antenna connector according manufacturer	Calculated maximum BRP (declared+ Tune-up+ antenna Gain+ path loss)	Duty-Cycle	Maximum BRP	Equivalent BRP (BRP x duty cycle)	MPE Limit accord. Table 4	MPE-Value	Margin	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band	Exception from MPE if power exceeds: (w / eirp)	Exemption fulfilled ?
	(MHz)	(dBm)	(dBi)	(dB)	(dBm)		(W)	(W)		(W/m^2)	(W/m^2)	(W/m^2)			
Bluetooth	2402,0	4,08	3,29	0,20	7,57	100%	0,0057	0,006	5,3508	0,0114	5,3394	0,00212	0,00212	2,68	yes
	2439,0	3,75	3,29	0,20	7,24	100%	0,0053	0,005	5,4070	0,0105	5,3965	0,00195		2,70	yes
	2480,0	3,28	3,29	0,20	6,77	100%	0,0048	0,005	5,4689	0,0095	5,4595	0,00173		2,74	yes

Maximum calculated MPE value:		
2.4GHz Band		
Lowest MPE-Limit:	5,3508	[W/m ²]
Highest MPE value:	0,0114	[W/m ²]
Lowest margin to limit	5,3394	[W/m ²]