

Annex 1: Measurement diagrams to
TEST REPORT
 No.: 16-1-0131301T05a-C1

According to:
FCC Regulations
 Part 15.107
 Part 15.109

ISED-Regulations
 RSS-Gen, Issue 4

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	 FEDERAL COMMUNICATIONS COMMISSION USA 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	 Lab Code: 20011130-00		
accredited according to DIN EN ISO/IEC 17025			
CETECOM GmbH Laboratory Radio Communications & Electromagnetic Compatibility Im Teelbruch 116 • 45219 Essen • Germany Registered in Essen, Germany, Reg. No.: HRB Essen 8984 Tel.: + 49 (0) 20 54 / 95 19-954 • Fax: + 49 (0) 20 54 / 95 19-964 E-mail: info@cetecom.com • Internet: www.cetecom.com			

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1. Summary of test results

1.1. General Limit - Conducted emissions on AC-Power lines

1.01_Data_transfer

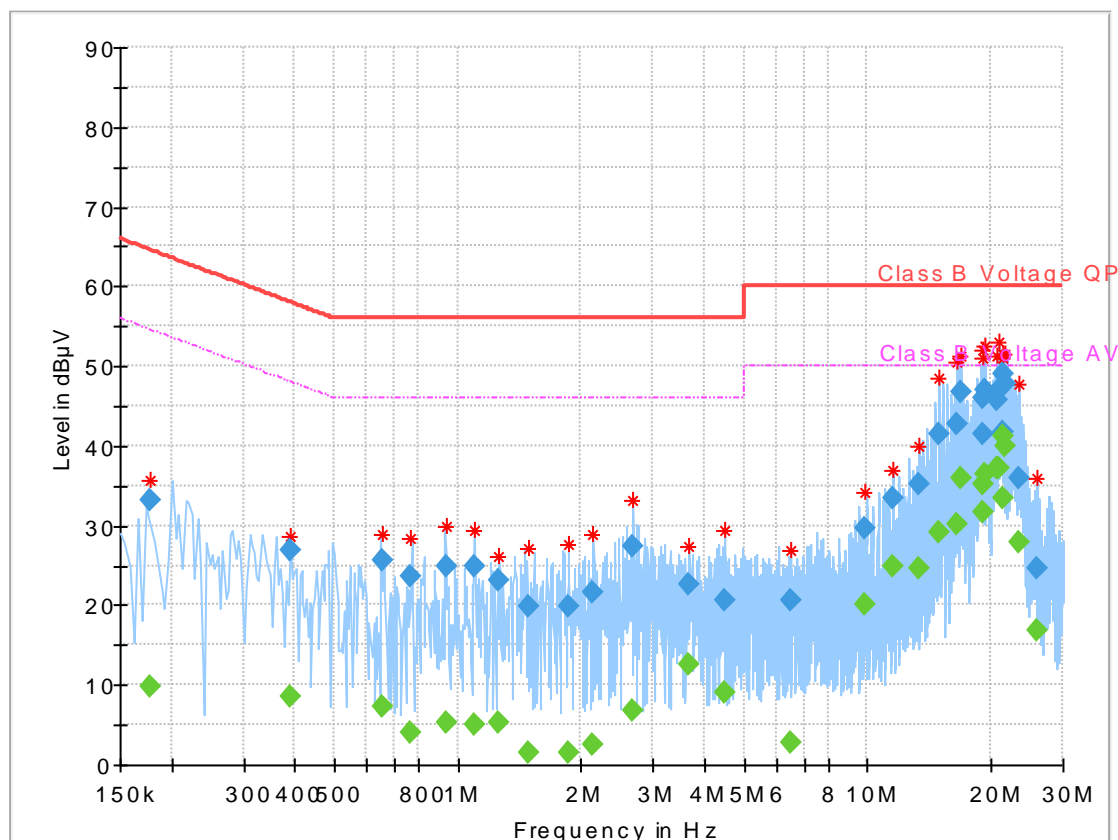
Common Information

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:	Data Transfer
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)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Correction (dB)
0.178281	---	9.88	54.57	44.69	1000.0	9.000	N	GN	0.1
0.178281	33.27	---	64.57	31.30	1000.0	9.000	N	GN	0.1
0.389688	26.94	---	58.07	31.13	1000.0	9.000	L1	GN	0.1
0.389688	---	8.46	48.07	39.61	1000.0	9.000	L1	GN	0.1
0.657500	25.65	---	56.00	30.35	1000.0	9.000	L1	GN	0.3
0.657500	---	7.19	46.00	38.81	1000.0	9.000	L1	GN	0.3
0.768594	23.54	---	56.00	32.46	1000.0	9.000	N	GN	0.2
0.768594	---	3.92	46.00	42.08	1000.0	9.000	N	GN	0.2
0.933750	---	5.16	46.00	40.84	1000.0	9.000	N	GN	0.2
0.933750	24.97	---	56.00	31.03	1000.0	9.000	N	GN	0.2
1.097813	---	5.01	46.00	40.99	1000.0	9.000	N	GN	0.3
1.097813	24.94	---	56.00	31.06	1000.0	9.000	N	GN	0.3
1.260781	---	5.29	46.00	40.71	1000.0	9.000	N	GN	0.3
1.260781	23.02	---	56.00	32.98	1000.0	9.000	N	GN	0.3
1.485000	---	1.44	46.00	44.56	1000.0	9.000	L1	GN	0.3
1.485000	19.89	---	56.00	36.11	1000.0	9.000	L1	GN	0.3
1.868438	---	1.41	46.00	44.59	1000.0	9.000	L1	GN	0.3
1.868438	19.74	---	56.00	36.26	1000.0	9.000	L1	GN	0.3
2.144688	---	2.39	46.00	43.61	1000.0	9.000	L1	GN	0.3
2.144688	21.61	---	56.00	34.39	1000.0	9.000	L1	GN	0.3
2.684844	---	6.86	46.00	39.14	1000.0	9.000	L1	GN	0.3
2.684844	27.39	---	56.00	28.61	1000.0	9.000	L1	GN	0.3
3.679844	---	12.53	46.00	33.47	1000.0	9.000	N	GN	0.3
3.679844	22.51	---	56.00	33.49	1000.0	9.000	N	GN	0.3
4.495156	20.66	---	56.00	35.34	1000.0	9.000	N	GN	0.4
4.495156	---	9.13	46.00	36.87	1000.0	9.000	N	GN	0.4
6.472813	---	2.66	50.00	47.34	1000.0	9.000	N	GN	0.4
6.472813	20.74	---	60.00	39.26	1000.0	9.000	N	GN	0.4
9.900938	29.62	---	60.00	30.38	1000.0	9.000	L1	GN	0.4
9.900938	---	20.21	50.00	29.79	1000.0	9.000	L1	GN	0.4
11.527031	33.45	---	60.00	26.55	1000.0	9.000	L1	GN	0.5
11.527031	---	24.88	50.00	25.12	1000.0	9.000	L1	GN	0.5
13.380781	35.20	---	60.00	24.80	1000.0	9.000	L1	GN	0.7
13.380781	---	24.55	50.00	25.45	1000.0	9.000	L1	GN	0.7
14.996875	---	29.21	50.00	20.79	1000.0	9.000	L1	GN	0.7
14.996875	41.42	---	60.00	18.58	1000.0	9.000	L1	GN	0.7
16.611875	42.77	---	60.00	17.23	1000.0	9.000	L1	GN	0.7
16.611875	---	30.27	50.00	19.73	1000.0	9.000	L1	GN	0.7
16.935469	46.76	---	60.00	13.24	1000.0	9.000	N	GN	0.7
16.935469	---	35.92	50.00	14.08	1000.0	9.000	N	GN	0.7
19.031406	46.01	---	60.00	13.99	1000.0	9.000	L1	GN	0.7
19.031406	---	35.26	50.00	14.74	1000.0	9.000	L1	GN	0.7
19.037656	---	31.58	50.00	18.42	1000.0	9.000	L1	GN	0.7
19.037656	41.58	---	60.00	18.42	1000.0	9.000	L1	GN	0.7
19.361250	---	36.50	50.00	13.50	1000.0	9.000	N	GN	0.7
19.361250	47.12	---	60.00	12.88	1000.0	9.000	N	GN	0.7
20.695938	45.87	---	60.00	14.13	1000.0	9.000	N	GN	0.8
20.695938	---	37.13	50.00	12.87	1000.0	9.000	N	GN	0.8
20.994688	46.96	---	60.00	13.04	1000.0	9.000	L1	GN	0.8
20.994688	---	37.32	50.00	12.68	1000.0	9.000	L1	GN	0.8
21.297656	49.07	---	60.00	10.93	1000.0	9.000	N	GN	0.8
21.297656	---	41.24	50.00	8.76	1000.0	9.000	N	GN	0.8
21.495625	41.85	---	60.00	18.15	1000.0	9.000	N	GN	0.8
21.495625	---	33.55	50.00	16.45	1000.0	9.000	N	GN	0.8
21.768594	---	39.91	50.00	10.09	1000.0	9.000	L1	GN	0.7
21.768594	47.86	---	60.00	12.14	1000.0	9.000	L1	GN	0.7
23.451563	36.02	---	60.00	23.98	1000.0	9.000	N	GN	0.7
23.451563	---	27.80	50.00	22.20	1000.0	9.000	N	GN	0.7
25.867969	24.56	---	60.00	35.44	1000.0	9.000	L1	GN	0.5
25.867969	---	16.94	50.00	33.06	1000.0	9.000	L1	GN	0.5

1.2. General Limit - Radiated field strength emissions, 30 MHz - 1 GHz

Diagram No. 3.01_BRS232_Data_Transfer

Date: 24.02.2017 Page 1 of 1
 Electric Field Strength Measurement
 Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3m measurement distance
 EMC32 V9.25.0
 Distance correction: not used
 Technical Data: Please see page 2 for detailed data of measurement setup
 Used filter: not used
 Test specification: FCC15.109, class B; RSS-Gen.: Issue 4

Operator: TFr
 Operating conditions: RS232 data Transfer
 Measured sides of EUT: front, right, rear, left
 Power during tests: 110V 60Hz

EUT Information

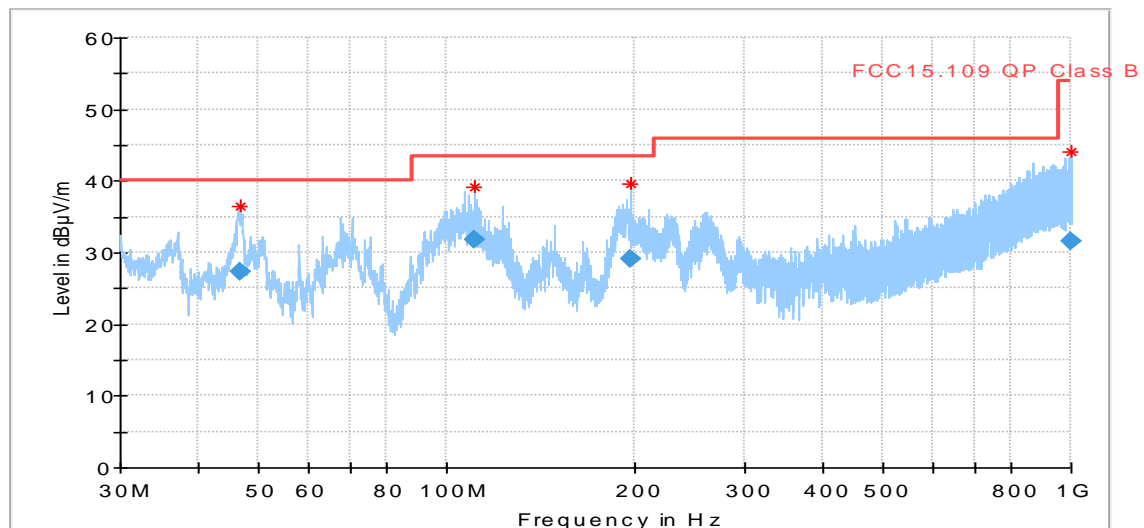
Manufacturer: m2m Germany GmbH
 Model: BT Audio Adapter

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

Final Result

Frequency (MHz)	Quasi Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
46.654000	27.32	40.00	12.68	1000.0	120.000	109.0	V	272.0	90.0	14.4
111.074000	31.82	43.50	11.68	1000.0	120.000	285.0	H	194.0	0.0	8.2
197.070000	29.10	43.50	14.40	1000.0	120.000	183.0	H	140.0	0.0	11.4
997.002000	31.53	54.00	22.47	1000.0	120.000	360.0	V	296.0	0.0	27.8

Full Spectrum



1.3. General Limit - Radiated emissions, above 1 GHz

4.01a_RS232_Data transfer_1-2.8GHz

Common Information

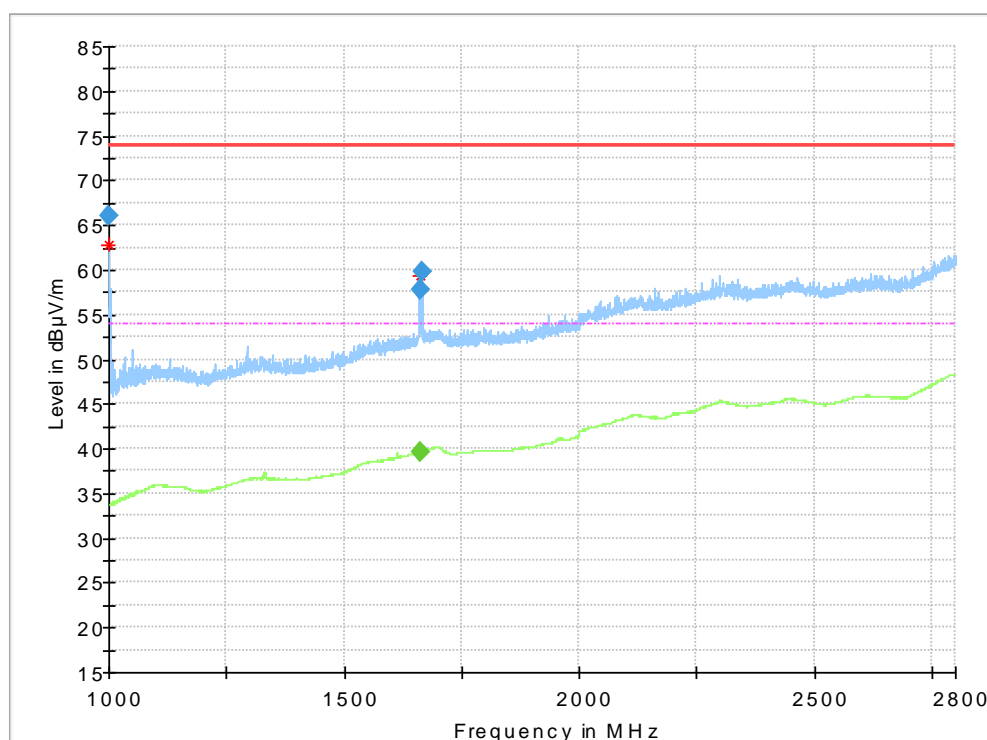
Test Description:	Radiated Filed Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 15.109, class B / RSS-Gen., Issue 4
Operating Mode:	Operator, please fill in the operating mode
Equipment Class:	Class B
Environmental Conditions:	Humidity: 30%rH; Temperature: 20°C
Operator:	HLA

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)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
1000.000000	---	74.00	7.94	100.0	V	25.0	90.0	25.6
1660.660000	39.54	54.00	14.46	100.0	V	185.0	90.0	32.0
1661.940000	---	74.00	16.16	100.0	V	185.0	90.0	32.0
1665.220000	---	74.00	14.30	100.0	H	319.0	0.0	32.0

4.01b_RS232_Data transfer_2.8-18GHz

Common Information

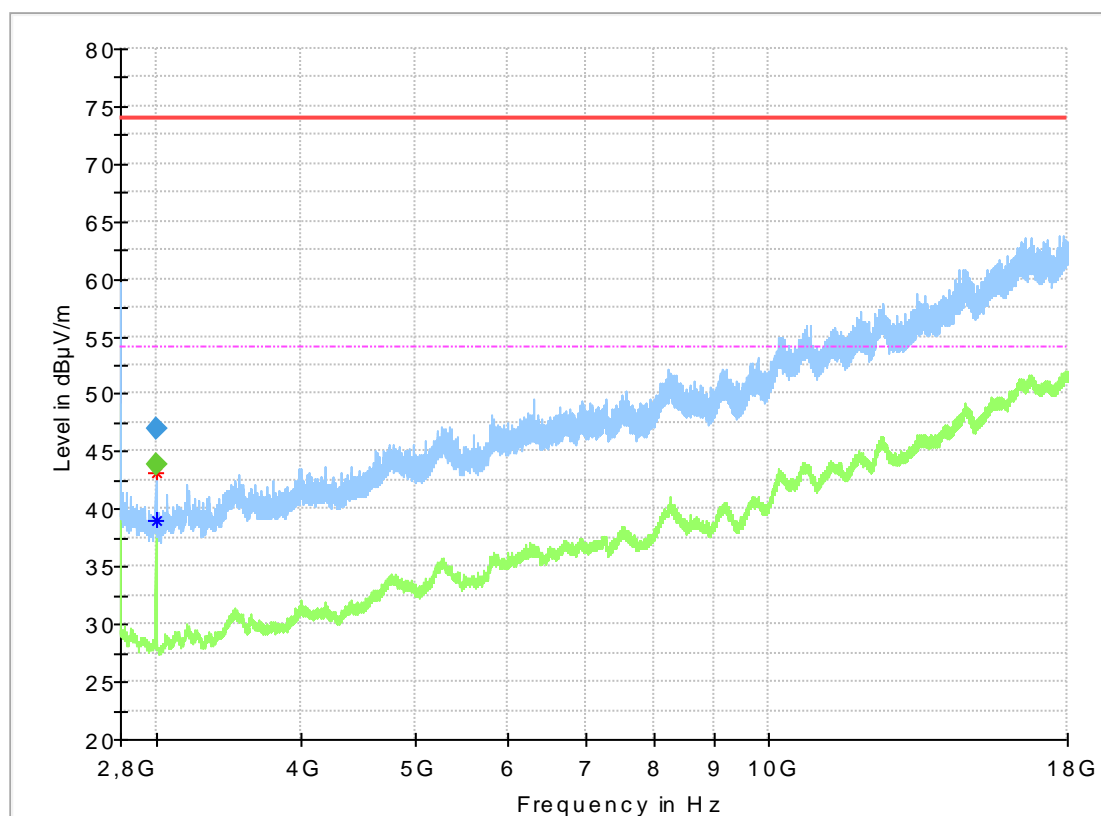
Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 15.109, class B / RSS-Gen., Issue 4
Operating Mode:	Operator, please fill in the operating mode
Equipment Class:	Class B
Environmental Conditions:	Humidity: 30%rH; Temperature: 20°C
Operator:	HLA

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)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Measurement Time	Bandwidth (kHz)	Pol	Azimuth (deg)	Elevation (deg)	Correction (dB)
3000.140000	---	43.88	54.00	10.12	100.0	1000.000	V	15.0	90.0	-1.2
3000.140000	46.99	---	74.00	27.01	100.0	1000.000	V	9.0	0.0	-1.2