

Annex 1: Measurement diagrams to
TEST REPORT
 No.: 17-1-0078101T04a-C1

According to:
FCC Regulations
 Part 15.107
 Part 15.109

for

Gemalto M2M GmbH

EMS31-V

FCC-ID: QIPEMS31-V

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	 Authorized TM Test Lab 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			

Table of contents

1. MEASUREMENT DIAGRAMS.....	3
1.1. Radiated field strength emissions, 30 MHz - 1 GHz	3
1.2. Radiated field strength emissions, above 1 GHz	5

1. Measurement diagrams

1.1. Radiated field strength emissions, 30 MHz - 1 GHz

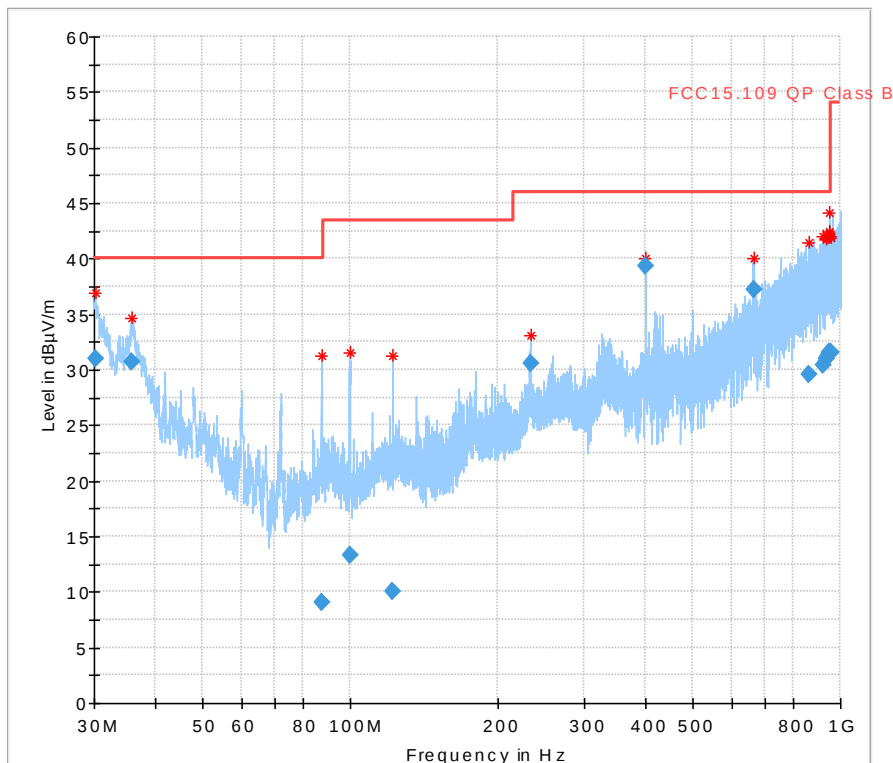
Diagram No. 3.01_RS232_Data_Transfer

Test description:	Date: 23.08.2017 Page 1 of 2
Test site and distance:	Electric Field Strength Measurement
Version of Testsoftware:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3m measurement distance
Distance correction:	EMC32 V9.25.0
Technical Data:	not used
Used filter:	Please see page 2 for detailed data of measurement setup
Test specification:	not used
	FCC15.109, class B; RSS-Gen.: Issue 4
Operator:	Klv
Operating conditions:	USB RS232 DATA TRAFFIC
Measured sides of EUT:	front, right, rear, left
Power during tests:	12V DC

EUT Information

Manufacturer:	Gemalto:
HW version:	EMS31-V
SW version:	5.0.0.0a
Serial number:	E4000044191-03
Connected Interfaces:	Multiband antenna LTE, cables
Power Supply:	12VDC
Comments:	-

Full Spectrum



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)
30.146000	30.92	40.00	9.08	1000.0	120.000	129.0	H	157.0	90.0	21.5
35.854000	30.75	40.00	9.25	1000.0	120.000	120.0	H	186.0	90.0	18.9
87.214000	9.10	40.00	30.90	1000.0	120.000	241.0	V	219.0	90.0	8.0
99.586000	13.29	43.50	30.21	1000.0	120.000	189.0	V	18.0	0.0	8.1
122.190000	10.05	43.50	33.45	1000.0	120.000	349.0	V	60.0	0.0	8.0
233.190000	30.52	46.00	15.48	1000.0	120.000	126.0	H	174.0	0.0	13.0
400.002000	39.27	46.00	6.73	1000.0	120.000	201.0	H	92.0	0.0	18.5
663.866000	37.15	46.00	8.85	1000.0	120.000	136.0	V	96.0	0.0	23.2
863.634000	29.55	46.00	16.45	1000.0	120.000	315.0	H	188.0	0.0	25.9
918.994000	30.49	46.00	15.51	1000.0	120.000	347.0	H	67.0	0.0	26.5
932.658000	30.96	46.00	15.04	1000.0	120.000	263.0	V	136.0	90.0	26.8
933.250000	31.06	46.00	14.94	1000.0	120.000	109.0	H	230.0	90.0	26.8
939.442000	31.29	46.00	14.71	1000.0	120.000	368.0	H	92.0	90.0	27.1
947.690000	31.42	46.00	14.58	1000.0	120.000	360.0	V	172.0	90.0	27.1
950.434000	31.52	46.00	14.48	1000.0	120.000	142.0	H	22.0	90.0	27.2
952.630000	31.53	46.00	14.47	1000.0	120.000	265.0	V	215.0	90.0	27.3
955.194000	31.59	46.00	14.41	1000.0	120.000	287.0	H	185.0	90.0	27.3
956.198000	31.56	46.00	14.44	1000.0	120.000	360.0	V	72.0	90.0	27.4

1.2. Radiated field strength emissions, above 1 GHz

4.01a_RS232 DATA

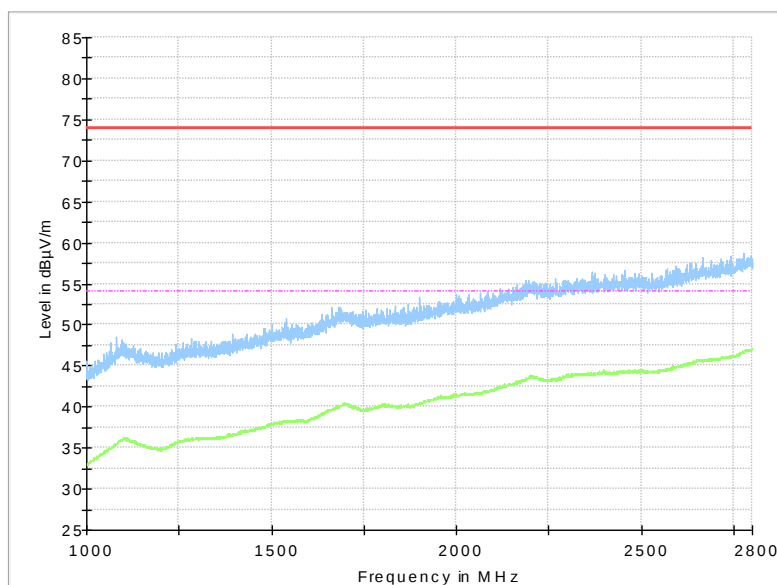
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.109 Unintentional Radiator
Antenna polarisation:	horizontal/vertical
Operation mode:	USB RS232 DATA TRAFFIC
Operator Name:	mah
Comment:	--

EUT Information

Manufacturer:	Gemalto:
-----	-----
HW version:	EMS31-V
SW version:	5.0.0.0a
Serial number:	E4000044191-03
Connected Interfaces:	Multiband antenna LTE, cables
Power Supply:	12VDC
Comments:	-

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	RMS (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)
5591.989666	59.50	---	74.00	14.50	100.0	1000.000	155.0	H	314.0	90.0
5591.997666	---	59.37	54.00	-5.37	100.0	1000.000	155.0	H	315.0	90.0

4.01b_RS232_Data_retest

Common Information

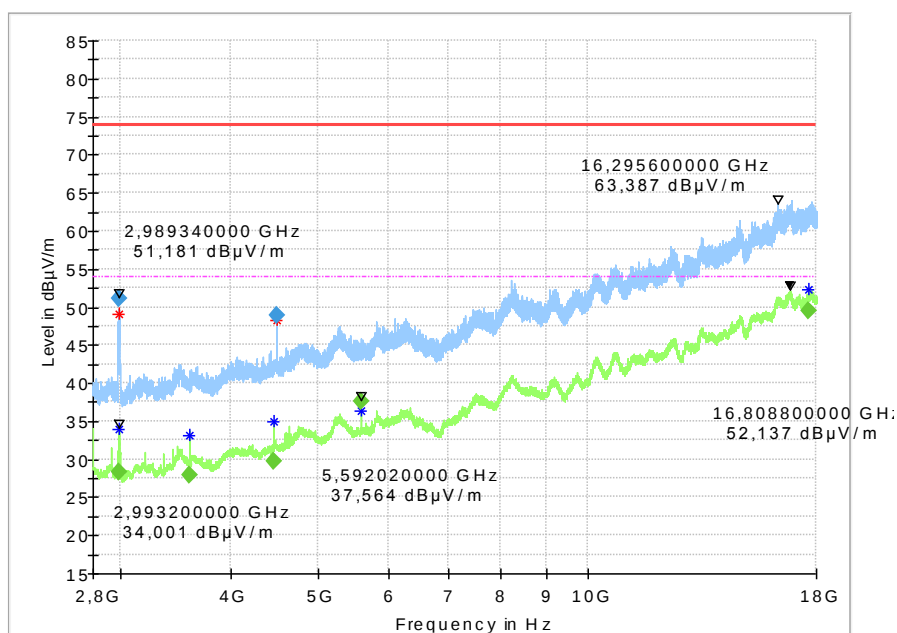
Test Description:	Radiated Field Strength Emission
Test Site Location:	CETECOM GmbH Essen
Test Site:	Fully Anechoic Room (FAR)
Test Standard:	FCC Part 15.109, class B / RSS-Gen., Issue 4
Operating Mode:	USB RS232 DATA TRAFFIC
Equipment Class:	Class B
Environmental Conditions:	Humidity: 50%rH; Temperature: 25°C
Operator:	HEI
EUT Information	FOX-17-18-0315

EUT Information

Manufacturer:	Gemalto:
HW version:	EMS31-V
SW version:	5.0.0.0a
Serial number:	E4000044191-03
Connected Interfaces:	Multiband antenna LTE, cables

Power Supply:	12VDC
Comments:	-

Full Spectrum



Final Result

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
2989.340000	---	74.00	22.82	100.0	V	62.0	0.0	-1.0
2993.660000	28.35	54.00	25.65	100.0	V	84.0	0.0	-0.9
3590.180000	27.97	54.00	26.03	100.0	V	98.0	90.0	0.8
4465.740000	29.81	54.00	24.19	100.0	V	257.0	0.0	2.6
4495.020000	---	74.00	25.18	100.0	V	88.0	90.0	2.6
5592.020000	37.56	54.00	16.44	100.0	H	200.0	90.0	5.7
17640.020000	49.57	54.00	4.43	100.0	H	313.0	0.0	25.9