

Annex 1: Measurement diagrams to
TEST REPORT
 No.: 17-1-0099901T07a

According to:
FCC Regulations
 Part 18.305

ISED Regulations
 RSS-216, Issue 2

for

Renesas Electronics Europe GmbH

Evaluation Board
 Y-Charger-IT

FCC: 2ANWT-CHARGE-IT
 ISED: 23343-YCHARGEIT
 PMN: CHARGE-IT
 HVIN: Y-CHARGE-IT
 FVIN: FW-Y-CHARGE-IT

Laboratory Accreditation and Listings		
 Deutsche Akkreditierungsstelle D-PL-12047-01-01 Accredited EMC-Test Laboratory	 Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3	 Voluntary Controls for Electromagnetic Emissions Reg. No.: R-20013, C-20009, T-20006, G-20013
 	 Authorized TM Test Lab Lab Code: 20011130-00	 FEDERAL COMMUNICATIONS COMMISSION USA • NOISE MRA US-EU 0003
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		
Laboratory Accreditation and Listings		

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1. Measurement diagrams

1.1. Measurement diagrams according FCC 18.307

1.01_TX_125kHz_Loading_Battery

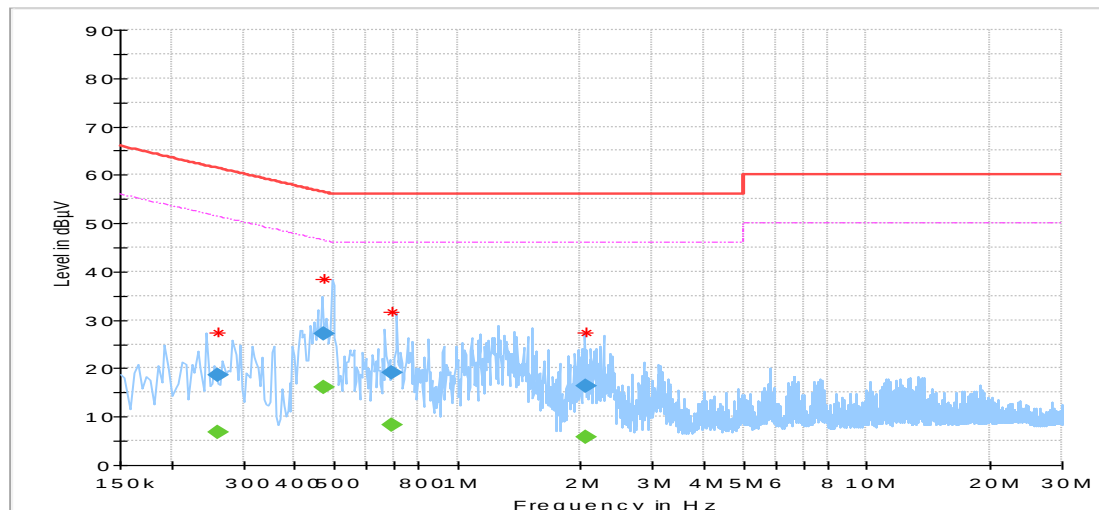
Common Information

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 / Part 18.307 / EN55011 Class B
Operating Mode:	Wireless Charging battery Li-Io CP1254/ 3.7V nominal voltage
Measured on line:	N/L1
Diagram details:	Shows the peak values as a sum of measured ports in maxhold mode
Environmental Conditions:	Humidity: 40.5%RH; Temperature: 21°C
Operator:	Lor
Comments:	empty battery at test begin

EUT Information

Manufacturer:	Renesas Electronics GmbH
Model:	Y-CHARGE-IT
Type:	-
EUT:	-
HW version:	V1.30
SW version:	V1.0.137
SVN:	TBD
Config:	-
Serial number:	#4
Connected Interfaces:	-
Power Supply:	3.7 V/DC Internal Battery(Type: CP1254A)
Comments:	-

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)
0.261250	---	6.78	51.39
0.261250	18.48	---	61.39
0.471250	---	16.20	46.49
0.471250	27.26	---	56.49
0.696094	---	8.25	46.00
0.696094	19.03	---	56.00
2.070938	---	5.84	46.00
2.070938	16.38	---	56.00

1.02_TX_125kHz_Loading_Battery+BTLE TX

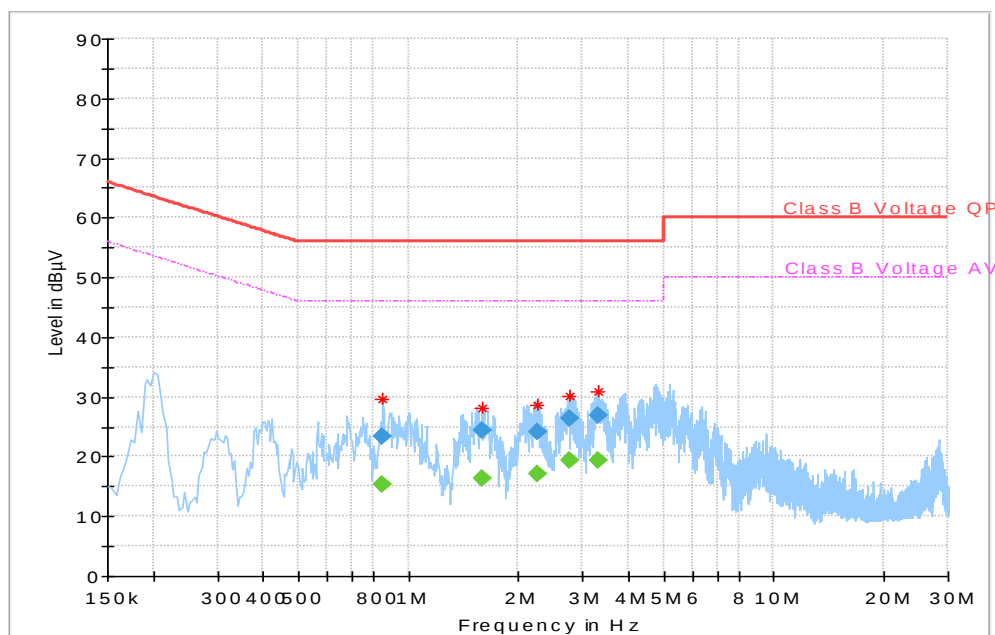
Common Information

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 / Part 18.307 / EN55011 Class B
Operating Mode:	Wireless Charging battery Li-Io CP1254/ 3.7V nominal voltage + BTLE TX
Measured on line:	N/L1
Diagram details:	Shows the peak values as a sum of measured ports in maxhold mode
Environmental Conditions:	Humidity: 40.5%rH; Temperature: 21°C
Operator:	Lor
Comments:	empty battery at test begin

EUT Information

Manufacturer:	Renesas Electronics GmbH
Model:	Y-CHARGE-IT
Type:	-
EUT:	-
HW version:	V1.30
SW version:	V1.0.137
SVN:	TBD
Config:	-
Serial number:	#4
Connected Interfaces:	-
Power Supply:	3.7 V/DC Internal Battery(Type: CP1254A)
Comments:	-

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Correction (dB)
0.849219	---	15.31	46.00	30.69	15000.0	9.000	L1	GN	0.2
0.849219	23.39	---	56.00	32.61	15000.0	9.000	L1	GN	0.2
1.599219	---	16.39	46.00	29.61	15000.0	9.000	L1	GN	0.3
1.599219	24.39	---	56.00	31.61	15000.0	9.000	L1	GN	0.3
2.259375	---	17.02	46.00	28.98	15000.0	9.000	L1	GN	0.2
2.259375	24.14	---	56.00	31.86	15000.0	9.000	L1	GN	0.2
2.759375	---	19.38	46.00	26.62	15000.0	9.000	L1	GN	0.3
2.759375	26.28	---	56.00	29.72	15000.0	9.000	L1	GN	0.3
3.321875	---	19.36	46.00	26.64	15000.0	9.000	L1	GN	0.4
3.321875	26.82	---	56.00	29.18	15000.0	9.000	L1	GN	0.4

1.2. Measurement diagrams according FCC 18.305

Diagram No. 2.05a_CHARGE IT-WPT-Mode-ATPC Battery Charge-125 kHz-Spectrum

Test description:	Date: 23.08.2017 Page 1 of 1
Test site and distance:	Magnetic Field Strength Measurement related to 30/300 m distance
Version of Testsoftware:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Distance correction:	EMC32 V9.25.0
Technical Data:	used accord. table, pls. see test report
Rec. antenna (pre-scan):	Please see page 2 for detailed data of measurement setup
Used filter:	height 1.00 m, parallel and 90° to EUT polarisation
Test specification:	bypass
Operator:	FCC 18.305 Non ISM Limits@300m
Operating conditions:	APh
	Continuous TX-WPT Mode-ATPC Battery Charge Mode- 125 kHz

EUT Information

Manufacturer:	Renesas Electronics GmbH
Model:	Y-CHARGE-IT
Type:	-

EUT:	-
HW version:	V1.30
SW version:	V1.0.137
SVN:	TBD
Config:	-
Serial number:	#4
Connected Interfaces:	-
Power Supply:	3.7 V/DC Internal Battery(Type: CP1254A)
Comments:	-

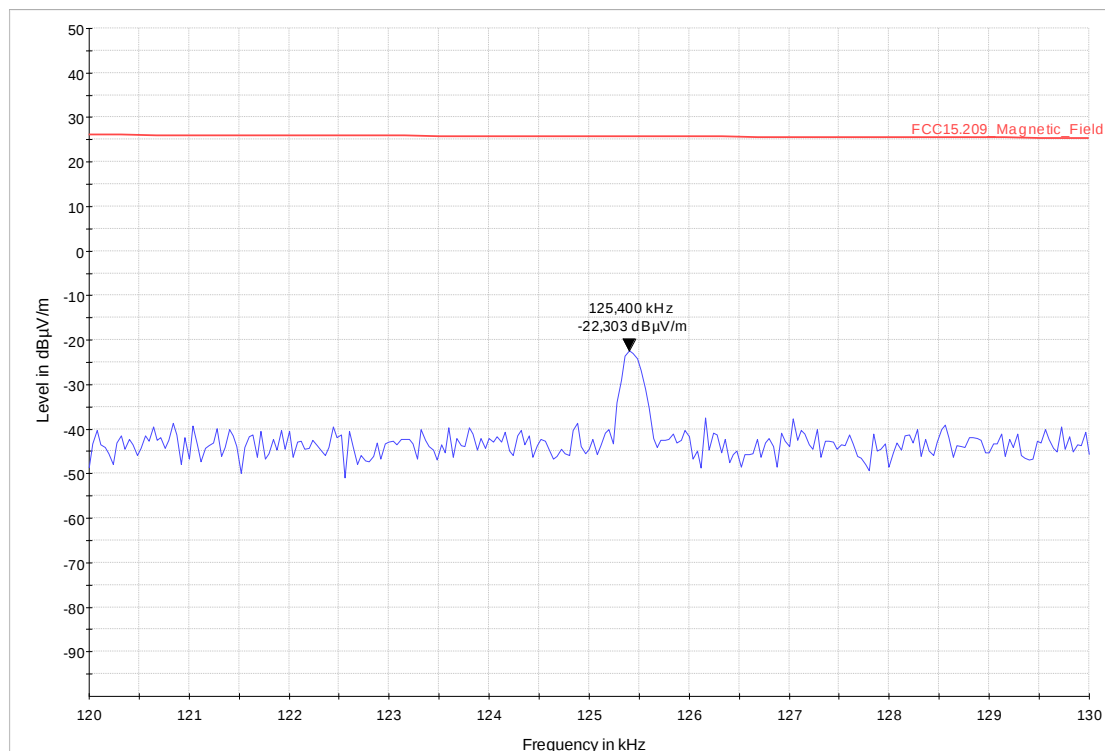


Diagram No. 2.11_CHARGE IT-WPT-Mode-ATPC Battery Charge-125 kHz

Date: 23.08.2017	Page 1 of 1
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:	HEI
Operating conditions:	Continuous TX-WPT Mode-ATPC Battery Charge Mode- 125 kHz

EUT Information

Manufacturer:	Renesas Electronics GmbH
Model:	Y-CHARGE-IT
Type:	-

EUT:	-
HW version:	V1.30
SW version:	V1.0.137
SVN:	TBD
Config:	-
Serial number:	#4
Connected Interfaces:	-
Power Supply:	3.7 V/DC Internal Battery(Type: CP1254A)
Comments:	Carrier on diagram on 125.40kHz

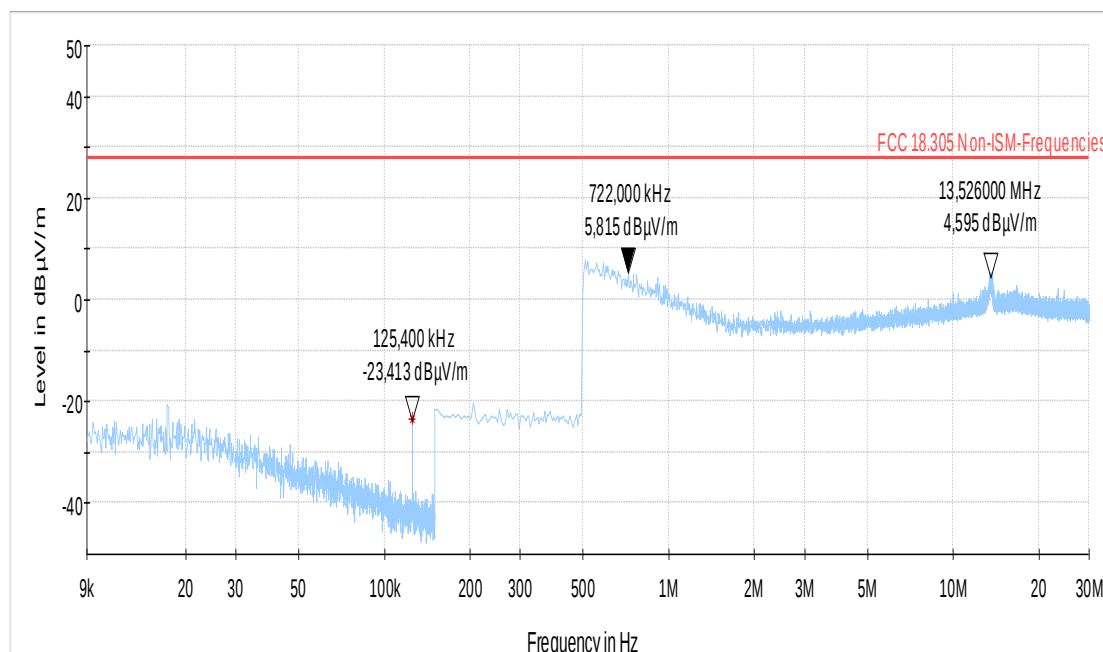


Diagram No. 2.13_CHARGE IT-WPT-Mode-ATPC Battery Charge-125 kHz+BTLE TX

Date: 23.08.2017	Page 1 of 1
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:	HEI
Operating conditions:	Continuous TX-WPT Mode-ATPC Battery Charge Mode- 125 kHz + BTLE TX

EUT Information

Manufacturer:	Renesas Electronics GmbH
Model:	Y-CHARGE-IT
Type:	-

EUT:	-
HW version:	V1.30
SW version:	V1.0.137
SVN:	TBD
Config:	-
Serial number:	#4
Connected Interfaces:	-
Power Supply:	3.7 V/DC Internal Battery(Type: CP1254A)
Comments:	Carrier on diagram on 125.40kHz

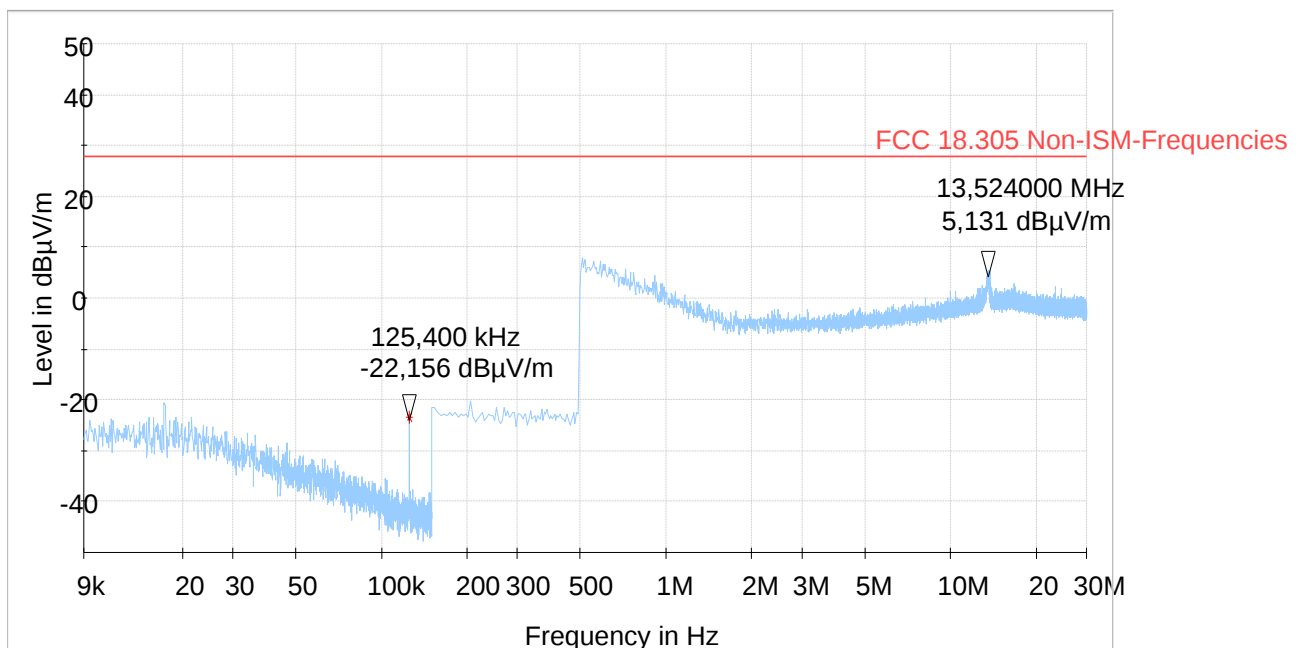


Diagram No. 3.04a_CHARGE IT-WPT-Mode-ATPC Battery Charge-125 kHz

Test description:	23.08.2017 Page 1 of 1
Test site and distance:	Electric Field Strength Measurement
Version of Testsoftware:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Distance correction:	EMC32 V9.25.0
Used filter:	not used
Technical Data:	not used
Test specification.:	please see page 2 for detailed data of measurement setup
Operator:	FCC 18.305 Non ISM Limits @ 3m
Operating conditions:	HEI
	Continuous TX-WPT Mode-ATPC Battery Charge Mode- 125 kHz

EUT Information

Manufacturer:	Renesas Electronics GmbH
Model:	Y-CHARGE-IT
Type:	-

EUT:	-
HW version:	V1.30
SW version:	V1.0.137
SVN:	TBD
Config:	-
Serial number:	#4
Connected Interfaces:	-
Power Supply:	3.7 V/DC Internal Battery(Type: CR1254A)
Comments:	-

Full Spectrum

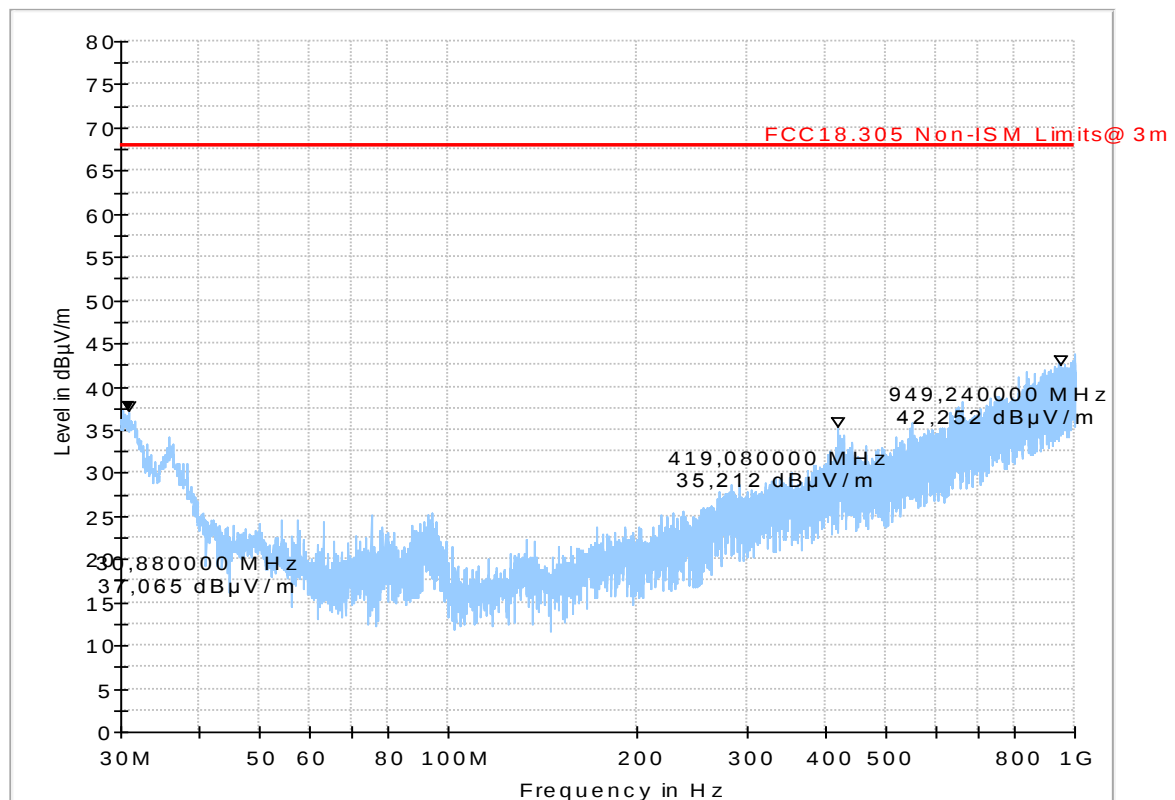


Diagram No. 3.04c_CHARGE IT-WPT-Mode-ATPC Battery Charge-125 kHz + BTLE-TX

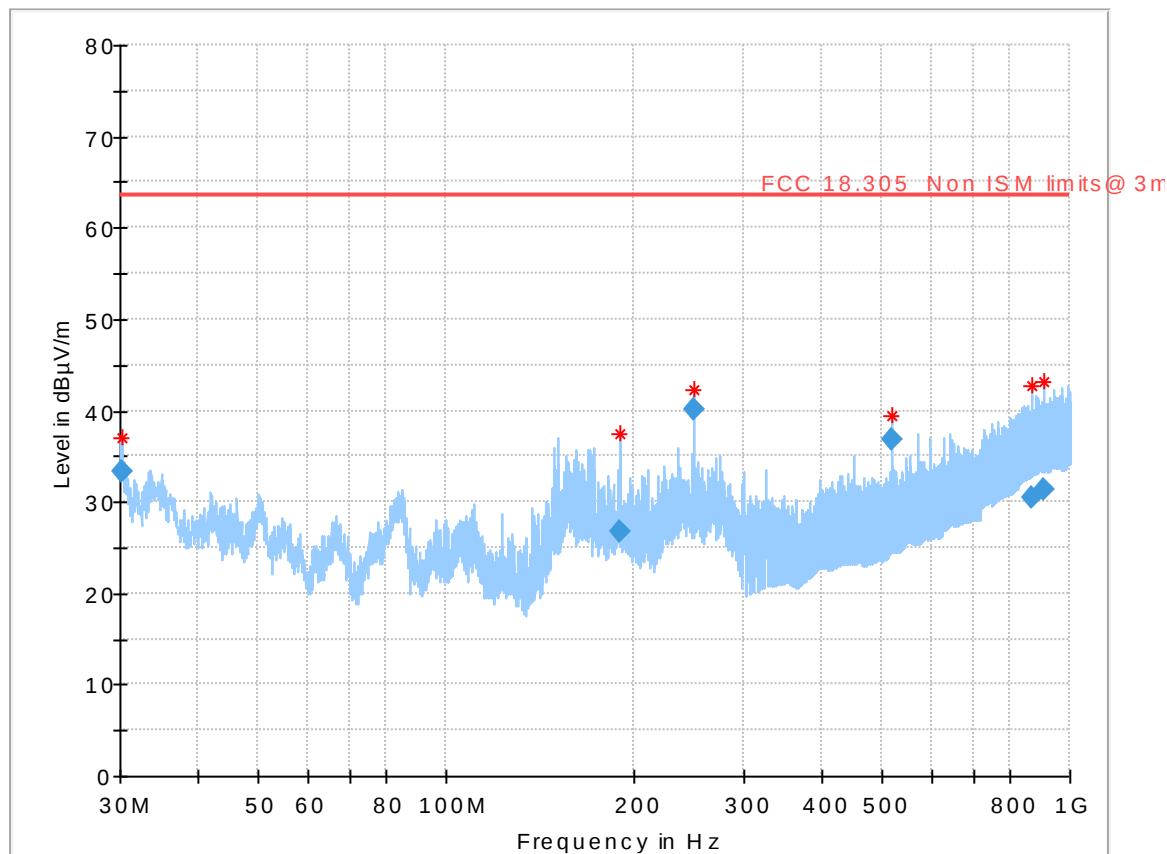
Test description:	23.08.2017 Page 1 of 1
Test site and distance:	Electric Field Strength Measurement
Version of Testsoftware:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Distance correction:	EMC32 V9.25.0
Used filter:	not used
Technical Data:	not used
Test specification.:	please see page 2 for detailed data of measurement setup
Operator:	FCC 18.305 Non ISM Limits @ 3m
Operating conditions:	HEI
	Continuous TX-WPT Mode-ATPC Battery Charge Mode- 125 kHz + BT LE TX

EUT Information

Manufacturer:	Renesas Electronics GmbH
Model:	Y-CHARGE-IT
Type:	-

EUT:	-
HW version:	V1.30
SW version:	V1.0.137
SVN:	TBD
Config:	-
Serial number:	#4
Connected Interfaces:	-
Power Supply:	3.7 V/DC Internal Battery(Type: CR1254A)
Comments:	-

Full Spectrum



1.3. Measurement diagrams according FCC RSS-216

Diagram No. 2.12_CHARGE IT-WPT-Mode-ATPC Battery Charge-125 kHz

Test description:	Date: 23.08.2017 Page 1 of 1
Test site and distance:	Magnetic Field Strength Measurement related to 3 m distance
Version of Testsoftware:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Distance correction:	EMC32 V9.25.0
Technical Data:	used accord. table, pls. see test report
Rec. antenna (pre-scan):	Please see page 2 for detailed data of measurement setup
Used filter:	height 1.00 m, parallel and 90° to EUT polarisation
Test specification:	bypass
Operator:	RSS-216-Issue 2 / EN55011: 2016
Operating conditions:	HEI
	Continuous TX-WPT Mode-ATPC Battery Charge Mode- 125 kHz

EUT Information

Manufacturer:	Renesas Electronics GmbH
Model:	Y-CHARGE-IT
Type:	-

EUT:	-
HW version:	V1.30
SW version:	V1.0.137
SVN:	TBD
Config:	-
Serial number:	#4
Connected Interfaces:	-
Power Supply:	3.7 V/DC Internal Battery(Type: CR1254A)
Comments:	-

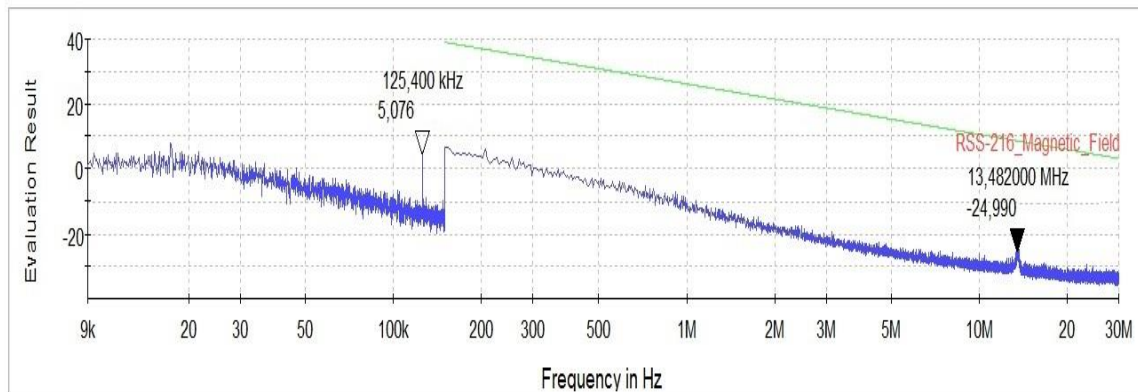


Diagram No. 3.04b_CHARGE IT-WPT-Mode-ATPC Battery Charge-125 kHz

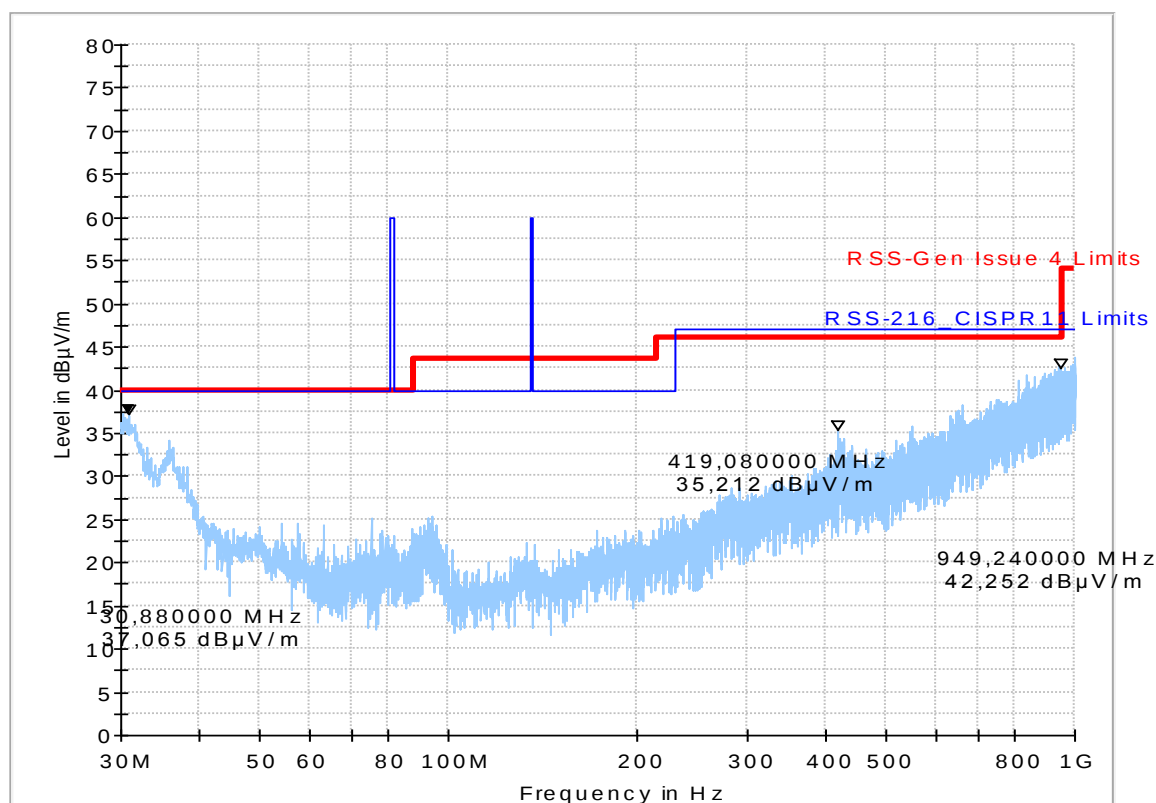
Test description:	23.08.2017 Page 1 of 1
Test site and distance:	Electric Field Strength Measurement
Version of Testsoftware:	Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance
Distance correction:	EMC32 V9.25.0
Used filter:	not used
Technical Data:	not used
Test specification.:	please see page 2 for detailed data of measurement setup
Operator:	RSS-216; RSS-Gen., Issue 4
Operating conditions:	HEI
	Continuous TX-WPT Mode-ATPC Battery Charge Mode- 125 kHz

EUT Information

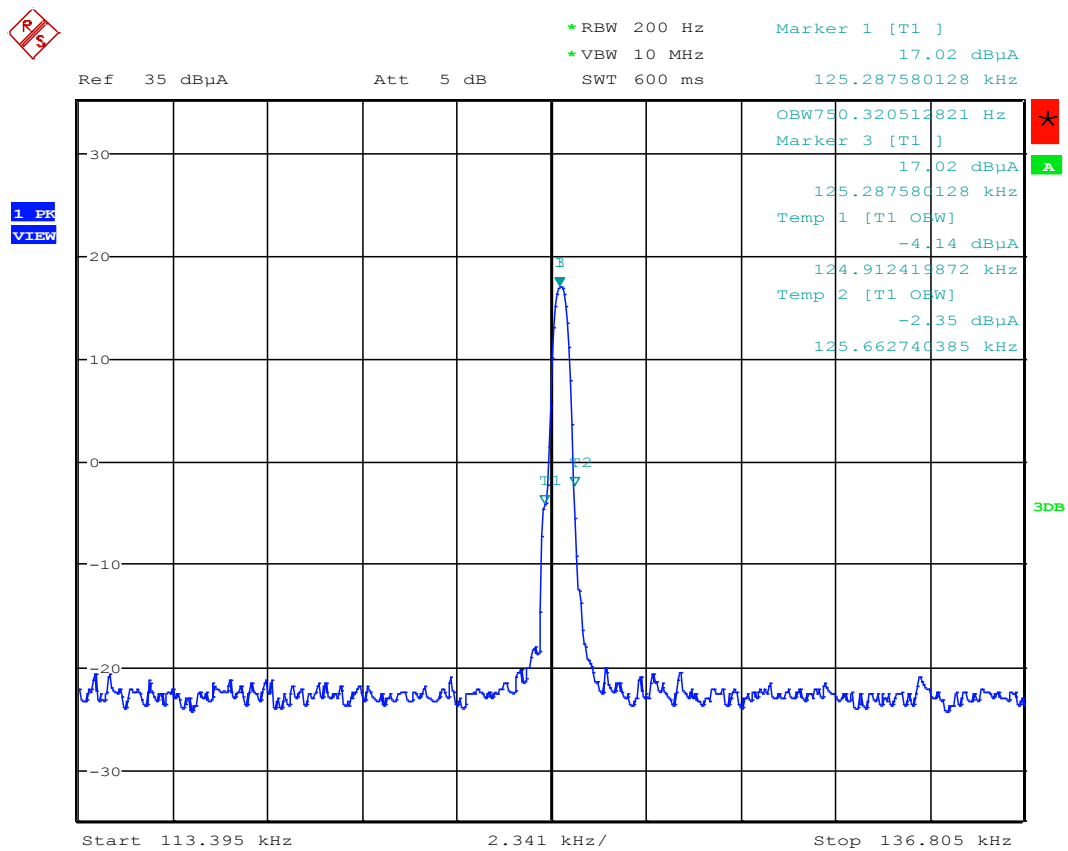
Manufacturer:	Renesas Electronics GmbH
Model:	Y-CHARGE-IT
Type:	-

EUT:	-
HW version:	V1.30
SW version:	V1.0.137
SVN:	TBD
Config:	-
Serial number:	#4
Connected Interfaces:	-
Power Supply:	3.7 V/DC Internal Battery(Type: CR1254A)
Comments:	-

Full Spectrum



1.4. Occupied bandwidth



Date: 11.SEP.2017 11:45:08