



# **Annex E**



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est report annex authorized:	
avatava Cavaldu.	

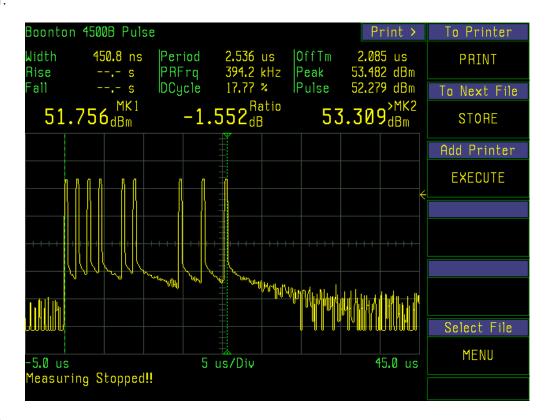
Karsten Geraldy Lab Manager Radio Communications & EMC

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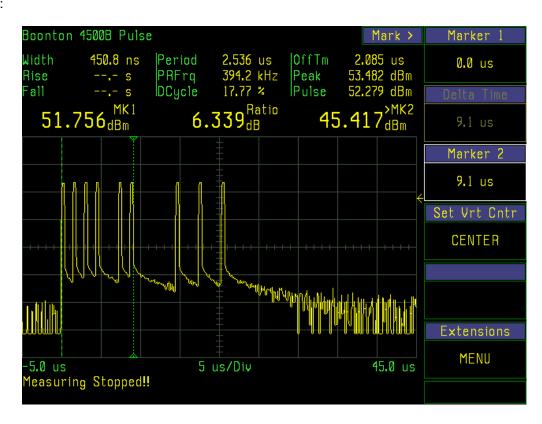


#### Plots - PPA - Mode A

#### Plot no. 1:



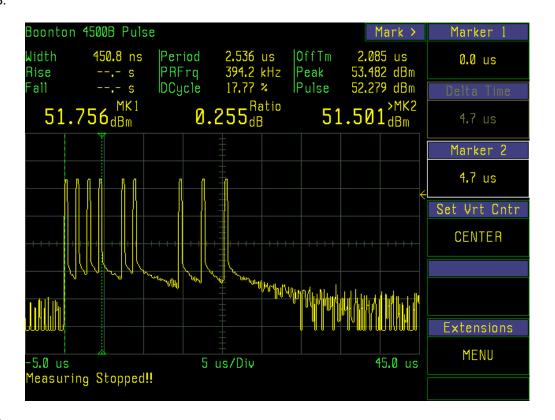
#### Plot no. 2:



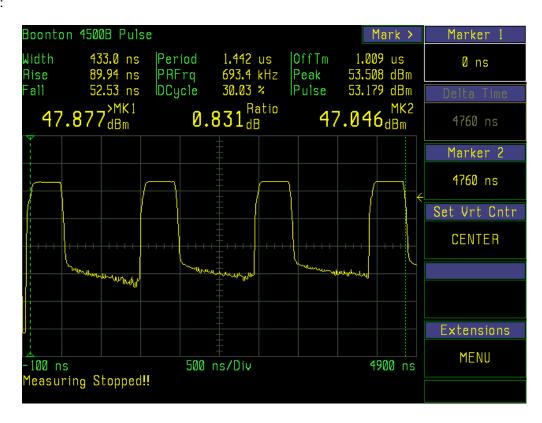
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#### Plot no. 3:



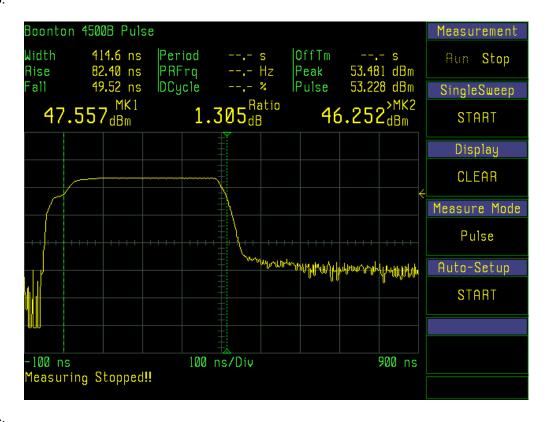
#### Plot no. 4:



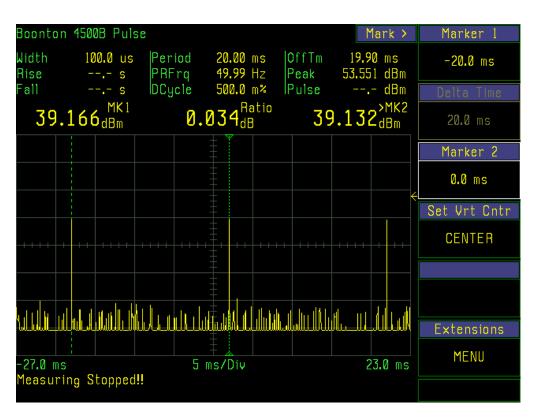
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#### Plot no. 5:



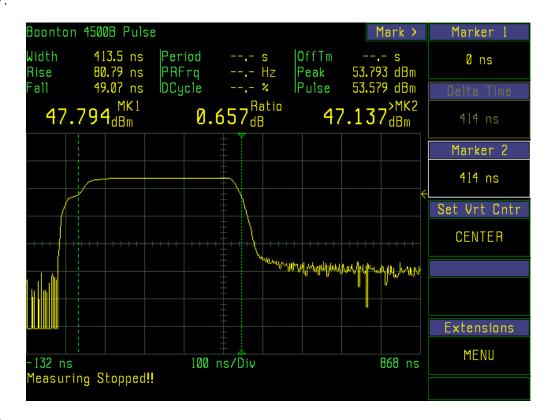
#### Plot no. 6:



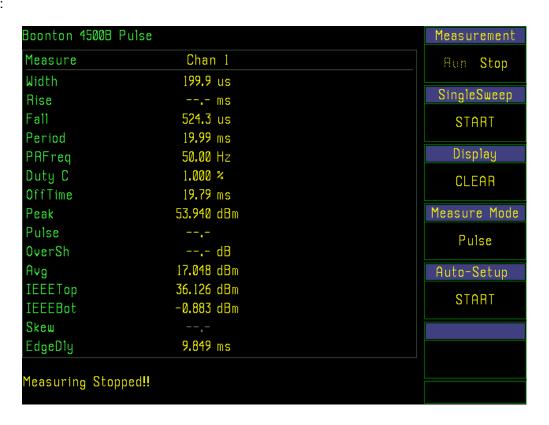
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#### Plot no. 7:



#### Plot no. 8:



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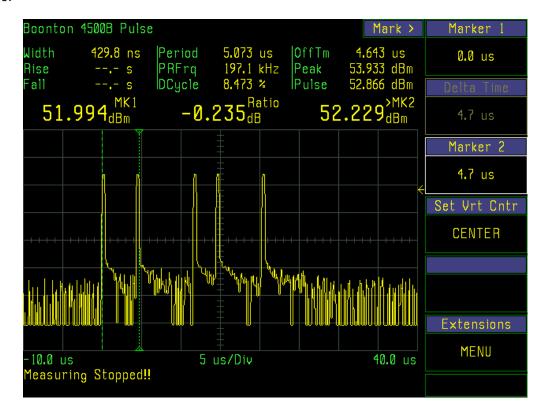


#### Plots - PPA - Mode C

#### Plot no. 9:

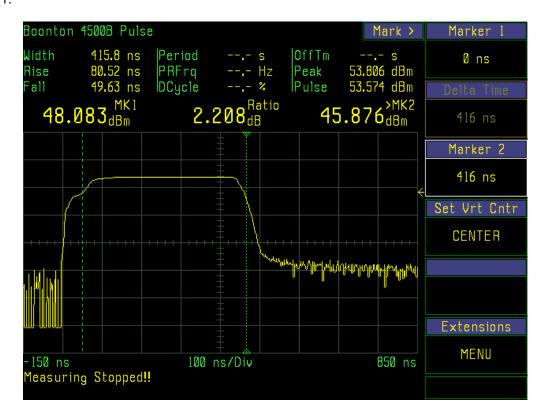


Plot no. 10:

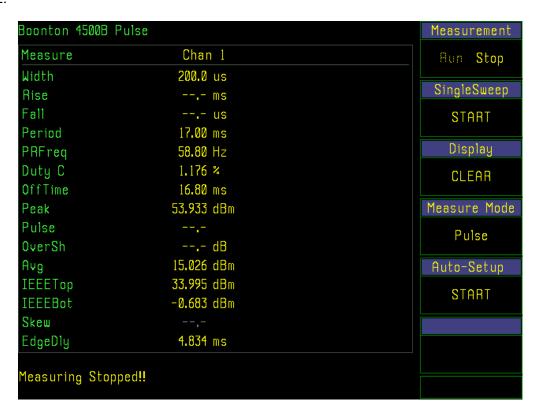




#### Plot no. 11:



#### Plot no. 12:

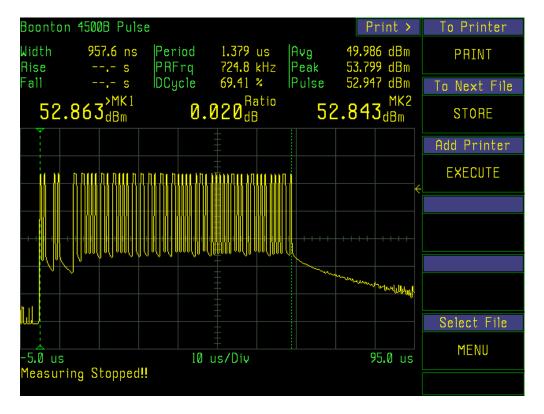


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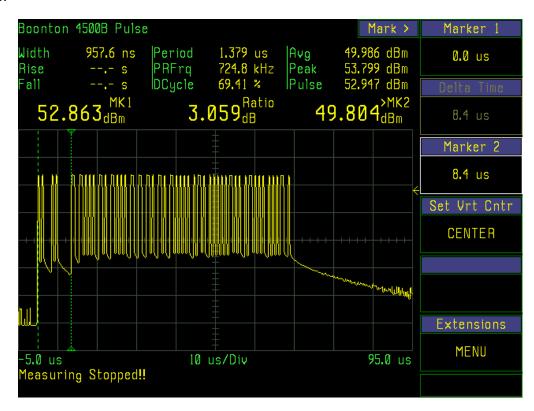


#### Plots - PPA - Mode S

#### Plot no. 13:



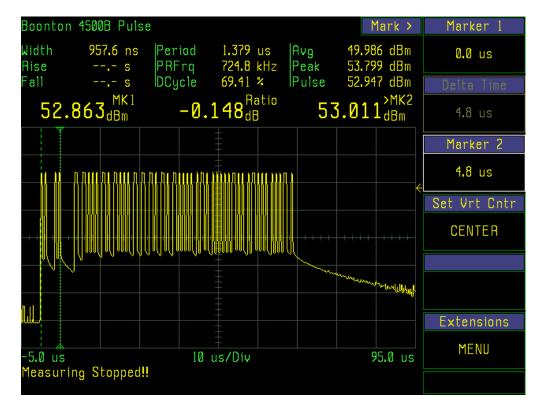
#### Plot no. 14:



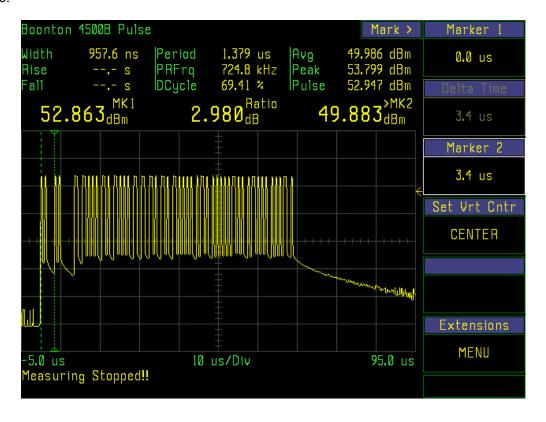
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#### Plot no. 15:

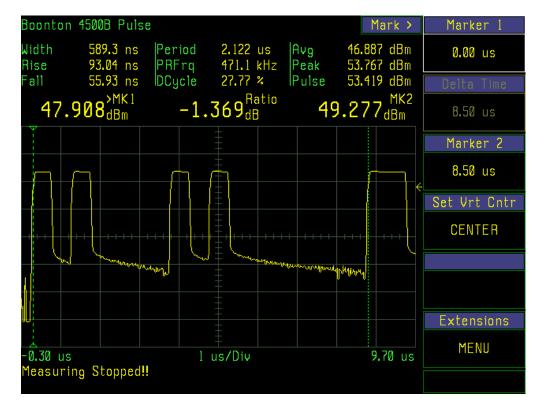


#### Plot no. 16:

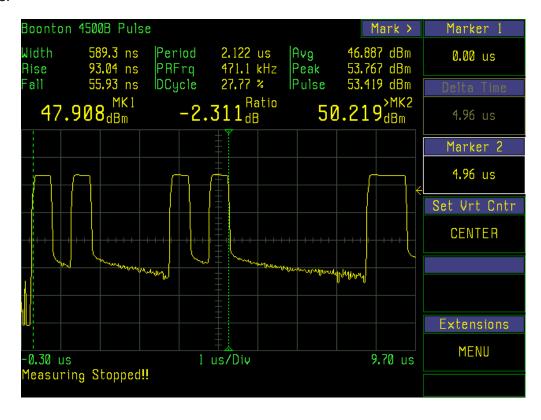




#### Plot no. 17:

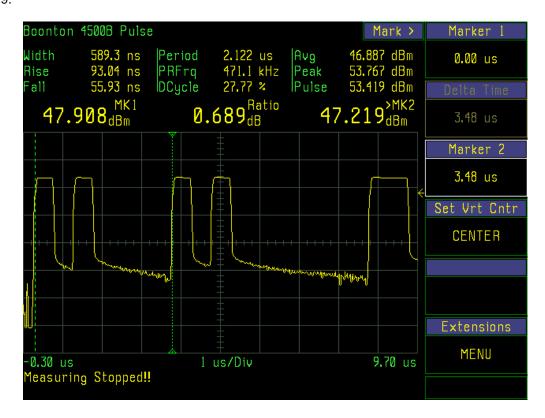


#### Plot no. 18:

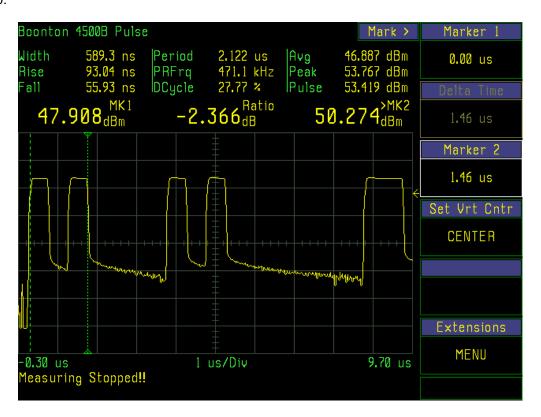




#### Plot no. 19:



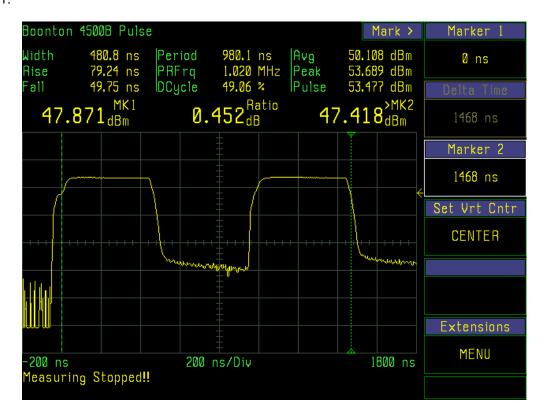
#### Plot no. 20:



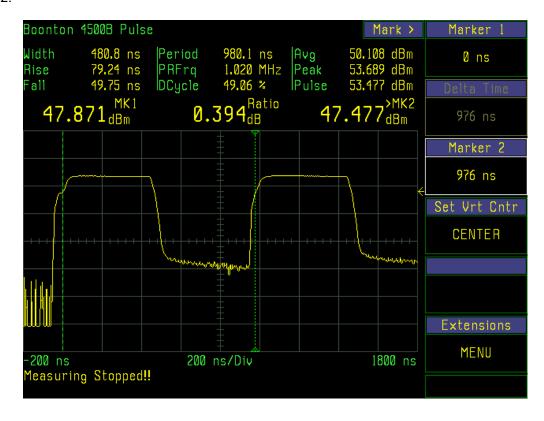
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#### Plot no. 21:



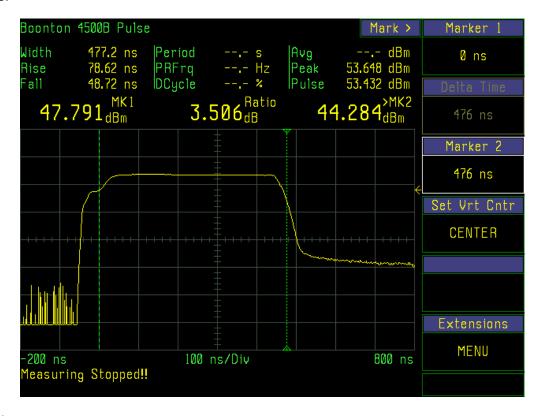
#### Plot no. 22:



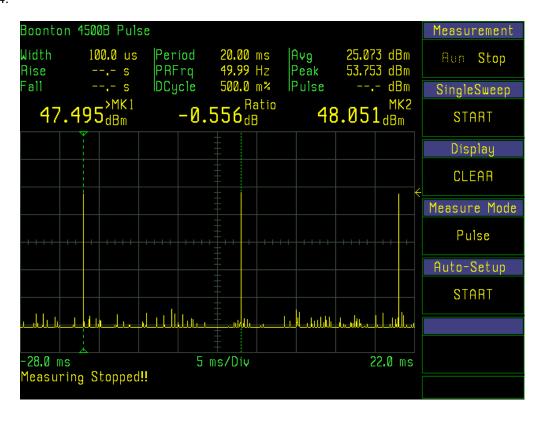
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#### Plot no. 23:

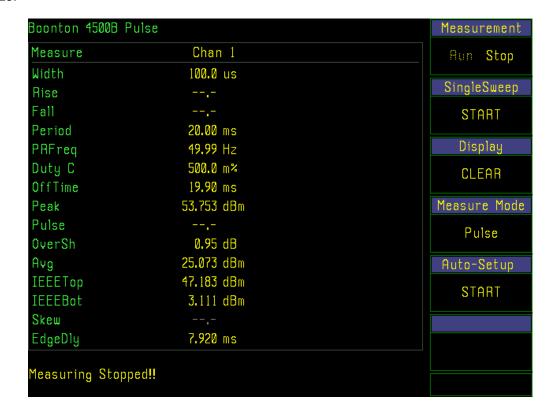


#### Plot no. 24:





#### Plot no. 25:



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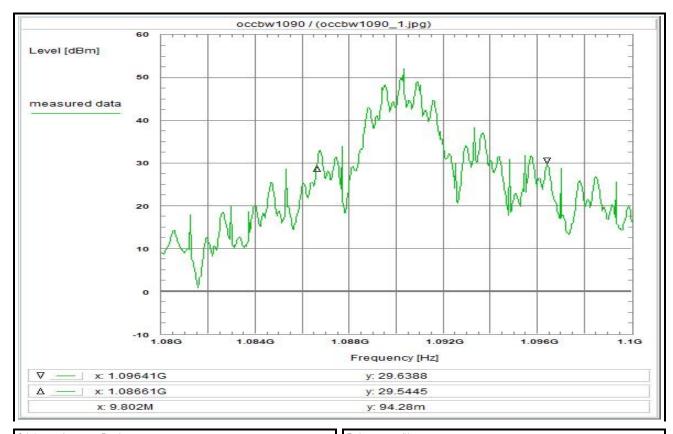


#### Plots - conducted emissions

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## Plot No. 1 (18)

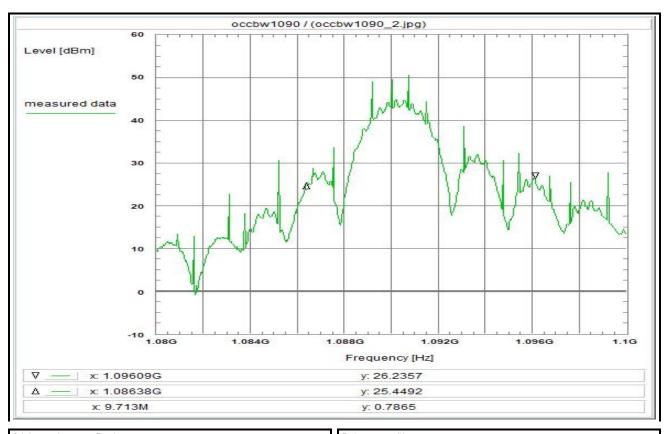


Subclause: -/-	Function test	Environment condition:			
	RF-carrier at 1090 MHz	Environment condition: Date & Time: Location: Temperature: Humidity: Voltage:	Thu 07/Mar/2019	9 11:21:52	
	Determination of the occupied bandwidth	Location:	CTC advanced C	SmbH, Laboratory RCE-Sat	
		Temperature:	22		
		Humidity:	35		
Limit:		Voltage:	28	Vdc	
no limits defined		voltago.			
		Setup of measurement ed	ruinment.		
		Start frequency:	1.08	GHz	
		Stop frequency:	11	GHz	
		Center frequency:	1.09		
		Frequency span:	20	MHz	
		Resolution-RW:	200		
		Video-RW:	1		
		Input attenuation:	30		
Test results:		Stap frequency: Stop frequency: Center frequency: Frequency span: Resolution-BW: Video-BW: Input attenuation: Trace-Mode: Detector-Mode:	Max-Hold	ub	
	able was not generated)	Detector-Mode:	Pos Peak		
ooo piot (ari expiloit te	ible had not generated)	Dotootol Wodo.	1 001 001		
Operating condition o	f DUT·	Correction:			
TX: Mode A	1001.	Directional counter	+	0.0 dB	
TAL MICCOAL		Directional coupler Coaxial cable (C220) DUT-Antenna Test antenna	+	0.0 dB	
Test setup:		DLIT-Antenna		0.7 dB 0.0 dBi	
see test report, chapte	er 6.2: hhai	Test antenna		0.0 dB	
see test report, chapt	er o.z. migj	BW correction factor (200		7.0 dB	
Test equipment:		Atten. between HPA and			
	er 6.2/6.3: C220, R001, U312	Attenuation (1312)	ieediloiii -	10.6 dB	
see test report, chapt	61 0.2/0.3. 0220, 1001, 0312	Attenuation (U012)	· ·	10.0 dB	
Remark:		Attenuation (U312) Attenuation (U023b) Power splitter TOTAL CORRECTION:	· ·	6.2 dB	
IXEMIAIK.		TOTAL CORRECTION:	· ·	43.5 dB	
		TOTAL CONNECTION.	т	40.5 db	
		Remarks:			
Took vooulte	Determination of the economical boundwidth	Determination of the occu	inied handwidth		
Test result:	Determination of the occupied bandwidth	The measured value is ab		marker)	
		(acc. to the definitions: 99			
		Max-Hold measurement.	1/0 UI lile lulai illea	iii powei)	
		wax-riolu measurement.			

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## Plot No. 2 (18)

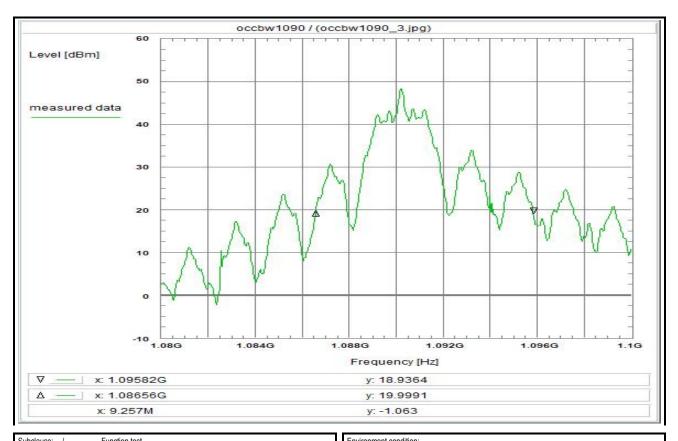


Subclause: -/- Function test	Environment condition:
RF-carrier at 1090 MHz	Date & Time: Thu 07/Mar/2019 11:16:47
Determination of the occupied bandwidth	Location: CTC advanced GmbH Laboratory RCE-Sat
	Temperature:   22 °C   Humidity:   35 %   Voltage:   28 Vdc
	Humidity: 35 %
Limit:	Voltage: 28 Vdc
no limits defined	
	Setup of measurement equipment:
	Start frequency: 1.08 GHz
	Stop frequency: 1.1 GHz
	Start frequency:         1.08         GHz           Stop frequency:         1.1         GHz           Center frequency:         1.09         GHz           Frequency span:         20         MHz           Resolution-BW:         200         kHz           Video-BW:         1         MHz           Input attenuation:         30         dB           Trace-Mode:         Max-Hold           Detector-Mode:         Pos Peak
	Frequency span: 20 MHz
	Resolution-BW: 200 kHz
	Video-BW: 1 MHz
	Input attenuation: 30 dB
Test results:	Trace-Mode: Max-Hold
see plot (an explicit table was not generated)	Detector-Mode: Pos Peak
Operating condition of DUT:	Correction:
TX: Mode C	Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 0.7 dB           DUT-Antenna         + 0.0 dBi           Test antenna         + 0.0 dB
	Coaxial cable (C220) + 0.7 dB
Test setup:	DUT-Antenna + 0.0 dBi
see test report, chapter 6.2: hhgj	Test antenna + 0.0 dB
	BW correction factor (200k -> 1M) + 7.0 dB
Test equipment:	Atten. between HPA and feedhom - 0.0 dB
see test report, chapter 6.2/6.3: C220, R001, U312	Attenuation (U312) + 19.6 dB
	Attenuation (U023b) + 10.0 dB
Remark:	Attenuation (U312) + 19.6 dB Attenuation (U023b) + 10.0 dB Power splitter + 6.2 dB TOTAL CORRECTION: + 43.5 dB
	TOTAL CORRECTION: + 43.5 dB
	P I .
	Remarks:
Test result: Determination of the occupied bandwidth	Determination of the occupied bandwidth
	The measured value is about 9.7 MHz (delta marker)
	(acc. to the definitions: 99% of the total mean power)
	Max-Hold measurement.

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## Plot No. 3 (18)

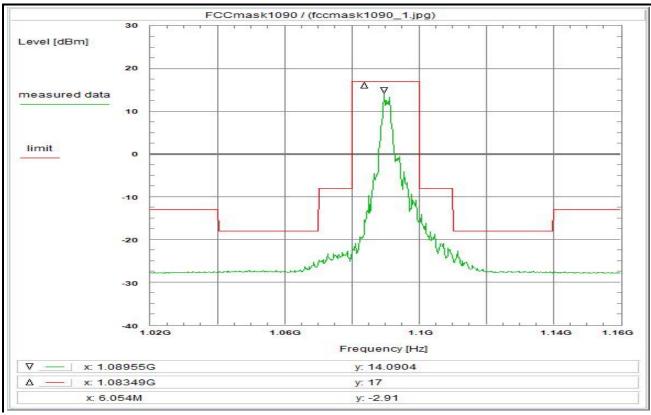


Subclause: -/- Function test	Environment condition:
RF-carrier at 1090 MHz	Date & Time: Thu 07/Mar/2019 11:12:09
Determination of the occupied bandwidth	Location: CTC advanced GmbH, Laboratory RCE-Sat
·	Temperature: 22 °C
	Humidity: 35 %
Limit:	Voltage: 28 Vdc
no limits defined	10.00go.
The little defined	Setup of measurement equipment:
	Start frequency: 1.08 GHz
	Ston frequency: 1.1 GHz
	Center frequency: 1.19 GHz
	Fraguency coan: 20 MHz
	Posolution PW: 200 kHz
	Video DW:
	Input ettenuation: 20 dD
Task associate.	Trees Made: May Held
Test results: see plot (an explicit table was not generated)	Stop frequency:
see plot (an explicit table was not generated)	Detector-wode: Pos Peak
O	O
Operating condition of DUT:	Correction:
TX: Mode S	Directional coupler
	Coaxial cable (C220) + 0.7 dB
Test setup:	DUT-Antenna + 0.0 dBi
see test report, chapter 6.2: hhgj	Test antenna + 0.0 dB
	BW correction factor + 0.0 dB
Test equipment:	Atten, between HPA and feedhorn - 0.0 dB
see test report, chapter 6.2/6.3: C220, R001, U312	Attenuation (U312) + 19.6 dB
	Attenuation (U023b) + 10.0 dB
Remark:	Power splitter + 6.2 dB
	Attenuation (U312) + 19.6 dB Attenuation (U023b) + 10.0 dB Power splitter + 6.2 dB TOTAL CORRECTION: + 36.5 dB
	Remarks:
Test result: Determination of the occupied bandwidth	Determination of the occupied bandwidth
	The measured value is about 9.25 MHz (delta marker)
	(acc. to the definitions: 99% of the total mean power)
	Max-Hold measurement.

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# Plot No. 4 (18)

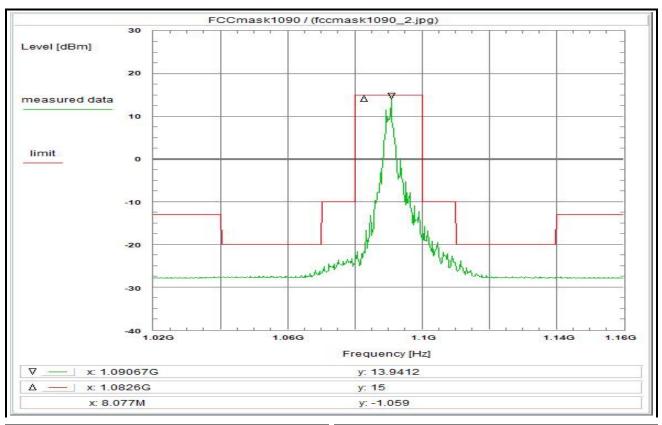


Subclause: -/- Spectrum mask	Environment condition:
RF-carrier at 1090 MHz	Date & Time: Wed 06/Mar/2019 16:48:30
Spectrum mask	Location: CTC advanced GmbH, Laboratory RCE-Sat
'	Temperature: 22 °C
	Humidity: 35 %
Limit:	Voltage: 28 Vdc
Limit acc. to FCC Part 87.139	25 745
Emilitados to 1 00 1 art 01.100	Setup of measurement equipment:
	Start frequency: 1.02 GHz
	Ston frequency: 1.16 CHz
	Contex frequency:
	Fraguency chap:
	Preductive DM: 140 MIZ
	Resolution-byv: I MHZ
	Video-BW: 1 MHZ
	Input attenuation: 30 dB
Test results:	Trace-Mode: Max-Hold
see plot (an explicit table was not generated)	Seat by Orlineasus enterin equipment.
Operating condition of DUT:	Correction:
TX: Mode A	Direction:
	Coaxial cable (C220) + 0.7 dB
Test setup:	DUT-Antenna + 0.0 dBi
see test report, chapter 6.2: hhgj	Test antenna + 0.0 dB
	BW correction factor + 0.0 dB
Test equipment:	Atten, between HPA and feedhorn - 0.0 dB
see test report, chapter 6.2/6.3: C220, R001, U312	Attenuation (U312) + 19.6 dB
	Attenuation (U023b) + 10.0 dB
Remark:	Power splitter + 6.2 dB
	Attenuation (U312) + 19.6 dB Attenuation (U023b) + 10.0 dB Power splitter + 6.2 dB TOTAL CORRECTION: + 36.5 dB
	Remarks:
Test result: Test passed	Spectrum mask according to picture 1
Test pussed	Max-Hold measurement.
	THE ATTENDANT OF THE AT
	Spectrum mask based on 20 MHz bandwidth and 15 dBm mean power.
	opodium made badda on 20 mm2 bandmath and 10 abin moun ponor.
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## Plot No. 5 (18)

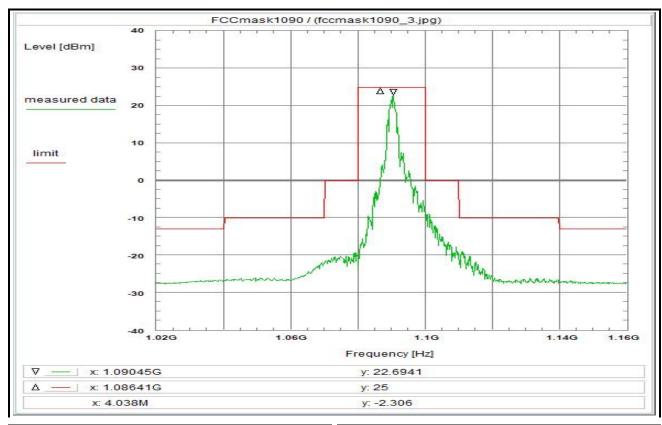


Subclause: -/- Spectrum mask	Environment condition:
RF-carrier at 1090 MHz	Date & Time: Wed 06/Mar/2019 16:46:07
Spectrum mask	Location: CTC advanced GmbH, Laboratory RCE-Sat Temperature: 22 °C Humidity: 35 % Voltage: 28 Vdc
.,	Temperature: 22 °C
	Humidity: 35 %
<u>Limit:</u>	Voltage: 28 Vdc
Limit acc. to FCC Part 87.139	20 740
Limit doo. to 1 00 1 dit 07.100	Setup of measurement equipment:
	4.00 011
	Ston frequency: 1.16 GHz
	Center frequency: 1.10 GHz
	Frequency span: 140 MHz
	Posalution PW: 1 MHz
	Video DW:
	VIUEO-DVV. I WITZ
Total and the	Input attenuation: 30 dB
Test results:	Start frequency:   1.02   GHz
see plot (an explicit table was not generated)	Detector-wode: RIMS
O Pro Pro CDUT	O. W. Sing
Operating condition of DUT:	Correction:
TX: Mode C	Correction:           Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 0.7 dB           DUT-Antenna         + 0.0 dBi           Test antenna         + 0.0 dB           BW correction factor         + 0.0 dB           Atten. between HPA and feedhorn         - 0.0 dB
	Coaxial cable (C220) + 0.7 dB
Test setup:	DUT-Antenna + 0.0 dBi
see test report, chapter 6.2: hhgj	Test antenna + 0.0 dB
	BW correction factor + 0.0 dB
Test equipment:	Atten. between HPA and feedhorn - 0.0 dB
see test report, chapter 6.2/6.3: C220, R001, U312	Attenuation (U312) + 19.6 dB
	Attenuation (U023b) + 10.0 dB
Remark:	Attenuation (U312) + 19.6 dB Attenuation (U023b) + 10.0 dB Power splitter + 6.2 dB TOTAL CORRECTION: + 36.5 dB
	TOTAL CORRECTION: + 36.5 dB
	Remarks:
Test result: Test passed	Spectrum mask according to picture 1
	Max-Hold measurement.
	Spectrum mask based on 20 MHz bandwidth and 15 dBm mean power.
	<u>'</u>

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## Plot No. 6 (18)

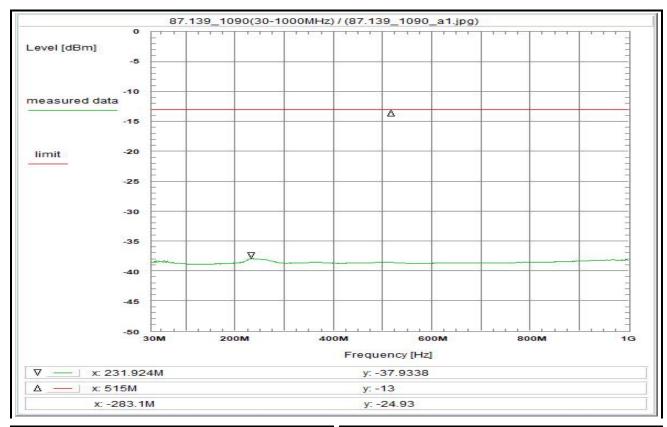


Subclause: -/- Spectrum mask	Environment condition:
RF-carrier at 1090 MHz	Date & Time: Thu 07/Mar/2019 13:51:07
Spectrum mask	Location: CTC advanced GmbH, Laboratory RCE-Sat Temperature: 22 °C Humidity: 35 %
.,	Temperature: 22 °C
	Humidity: 35 %
<u>Limit:</u>	Voltage: 28 Vdc
Limit acc. to FCC Part 87.139	20 140
Emilit doc. to 1 00 1 dit 01.100	Setup of measurement equipment:
	4.00 011
	Ston frequency: 1.02 GHz
	Center frequency: 1.10 GHz
	Frequency span: 140 MHz
	Possilution PW: 1 MHz
	Video DW:
	VIGEO-DVV. I WITZ
Total and the	Input attenuation: 30 dB
Test results:	Start frequency:   1.02   GHz
see plot (an explicit table was not generated)	Detector-wode: RIMS
O P PP CDUT	O. and Francisco
Operating condition of DUT: TX: Mode S	Correction:
TX: Mode S	Correction:           Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 0.7 dB           DUT-Antenna         + 0.0 dBi           Test antenna         + 0.0 dB           BW correction factor         + 0.0 dB           Atten. between HPA and feedhorn         - 0.0 dB
	Coaxial cable (C220) + 0.7 dB
Test setup:	DUT-Antenna + 0.0 dBi
see test report, chapter 6.2: hhgj	Test antenna + 0.0 dB
	BW correction factor + 0.0 dB
Test equipment:	Atten. between HPA and feedhorn - 0.0 dB
see test report, chapter 6.2/6.3: C220, R001, U312	Attenuation (U312) + 19.6 dB
	Attenuation (U023b) + 10.0 dB
Remark:	Power splitter + 6.2 dB
	Attenuation (U312) + 19.6 dB Attenuation (U023b) + 10.0 dB Power splitter + 6.2 dB TOTAL CORRECTION: + 36.5 dB
	Remarks:
Test result: Test passed	Spectrum mask according to picture 1
	Max-Hold measurement.
	Spectrum mask based on 20 MHz bandwidth and 25 dBm mean power.
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#### Plot No. 7 (18)

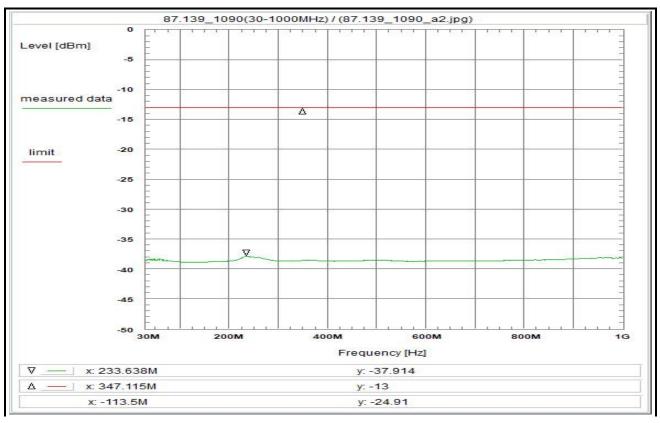


Subclause: -/- Spurious emissions RF-carrier at 1090 MHz Examination of the frequency range 30 MHz - 1000 MHz  Limit: Limit acc. to 87.139_1090: -13.0 dBm/1MHz	Environment condition:           Date & Time:         Thu 07/Mar/2019 09:14:36           Location:         CTC advanced GmbH, Laboratory RCE-Sat           Temperature:         22 °C           Humidity:         35 %           Voltage:         28 Vdc           Setup of measurement equipment:         Start frequency:           Start frequency:         1 GHz           Center frequency:         515 MHz           Frequency span:         970 MHz
Test results: see plot (an explicit table was not generated)  Operating condition of DUT:	Start frequency:   30   MHz
TX: Mode A  Test setup: see test report, chapter 6.2: hhgj  Test equipment: see test report, chapter 6.2/6.3: C220, R001, U312  Remark:	Controllor:   Controllor:
<u>Test result:</u> Test passed	TOTAL CORRECTION: + 36.2 dB  Remarks: Spurious emissions under normal test conditions Max-Hold measurement.

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#### Plot No. 8 (18)

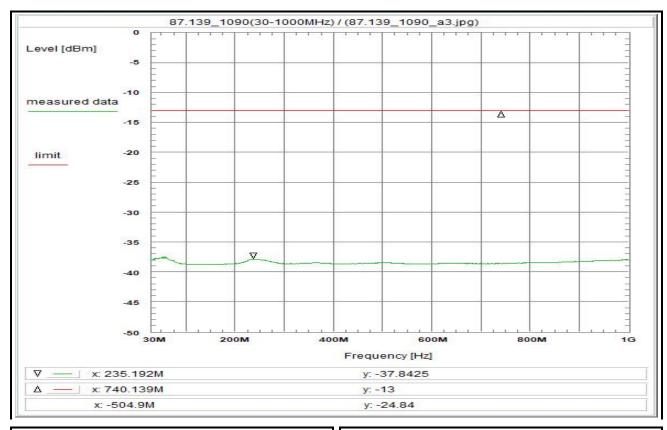


Subclause: -/- Spurious emissions RF-carrier at 1090 MHz Examination of the frequency range 30 MHz - 1000 MHz	Environment condition:         Date & Time:         Thu 07/Mar/2019 09:26:39           Location:         CTC advanced GmbH, Laboratory RCE-Sat           Temperature:         22 °C           Humidity:         35 %           Voltage:         28 Vdc
Limit acc. to 87.139_1090: -13.0 dBm/1MHz  Test results: see plot (an explicit table was not generated)	Setup of measurement equipment:           Start frequency:         30         MHz           Stop frequency:         1         GHz           Center frequency:         515         MHz           Frequency span:         970         MHz           Resolution-BW:         1         MHz           Video-BW:         1         MHz           Input attenuation:         20         dB           Trace-Mode:         Max-Hold           Detector-Mode:         RMS
Operating condition of DUT: TX: Mode C  Test setup: see test report, chapter 6.2: hhgj  Test equipment: see test report, chapter 6.2/6.3: C220, R001, U312  Remark:	Correction:         Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 0.5 dB           DUT-Antenna         + 0.0 dBi           Test antenna         + 0.0 dB           BW correction factor         + 0.0 dB           Atten. between HPA and feedhom         - 0.0 dB           Attenuation (U312)         + 19.5 dB           Attenuation (U023b)         + 10.0 dB           Power splitter         + 6.2 dB           TOTAL CORRECTION:         + 36.2 dB
Test result: Test passed	Remarks: Spurious emissions under normal test conditions Max-Hold measurement.

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## Plot No. 9 (18)

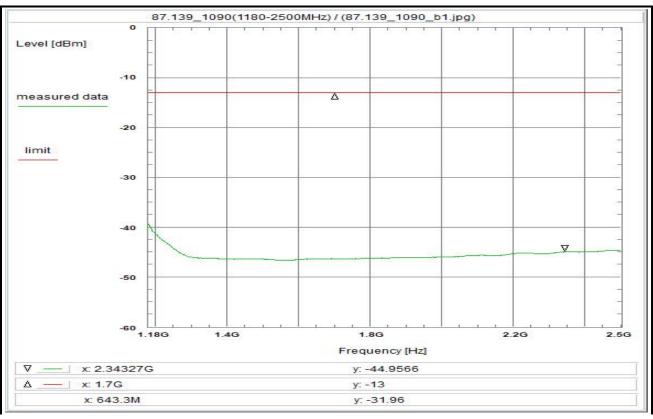


Subclause: -/- Spurious emissions	Environment condition:
RF-carrier at 1090 MHz	Date & Time: Thu 07/Mar/2019 13:55:09
Examination of the frequency range 30 MHz - 1000 MHz	Location: CTC advanced GmbH, Laboratory RCE-Sat
Examination of the frequency range 30 Miriz - 1000 Miriz	Temperature: 22 °C
	Humidity: 35 %
1:1	
Limit:	Voltage: 28 Vdc
Limit acc. to 87.139_1090.3: -36.0 dBm/1MHz	
	Setup of measurement equipment:
	Start frequency: 30 MHz
	Stop frequency: 1 GHz
	Center frequency: 515 MHz
	Frequency span: 970 MHz
	Resolution-BW: 1 MHz
	Video-BW: 1 MHz
	Input attenuation: 20 dB
Test results:	Stat   requency:   30   MHz
see plot (an explicit table was not generated)	Detector-Mode: RMS
Operating condition of DUT:	Correction:
TX: Mode S	Directional coupler + 0.0 dB
	Correction:           Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 0.5 dB           DUT-Antenna         + 0.0 dB           Test antenna         + 0.0 dB           BW correction factor         + 0.0 dB           Atten. between HPA and feedhorn         - 0.0 dB
Test setup:	DUT-Antenna + 0.0 dBi
see test report, chapter 6.2: hhqi	Test antenna + 0.0 dB
ood toot roport, ortopics ore: migj	BW correction factor + 0.0 dB
Test equipment:	Atten between HPA and feedhorn - 0.0 dB
see test report, chapter 6.2/6.3: C220, R001, U312	Attenuation (1312) + 19.5 dB
000 toot roport, unupter 0.270.0. 0220, 10001, 0012	Attenuation (U023h) + 10.0 dB
Remark:	Power solitter + 6.2 dB
Toman.	Attenuation (U0312) + 19.5 dB Attenuation (U023b) + 10.0 dB Power splitter + 6.2 dB TOTAL CORRECTION: + 36.2 dB
	TOTAL GOTTALOTION. TOULE UB
	Remarks:
Test result: Test passed	Spurious emissions under normal test conditions
<u>Test result:</u> Test passed	Max-Hold measurement.
	Wax-Hold Heastrement.

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## Plot No. 10 (18)

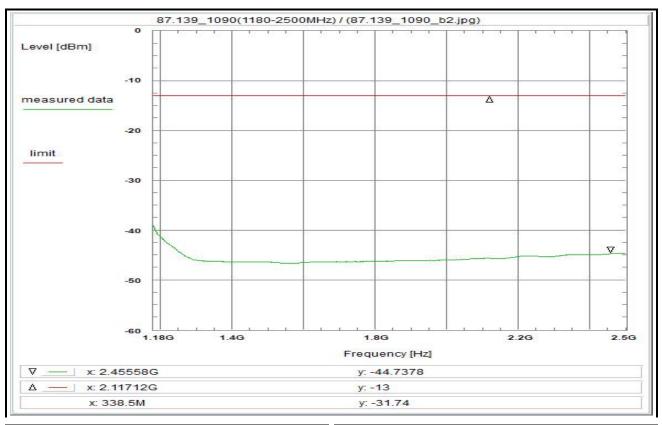


Subclause: -/- Spurious emissions RF-carrier at 1090 MHz Examination of the frequency range 1180 MHz - 2500 MHz	Environment condition: Date & Time: Thu 07/Mar/2019 09:41:03 Location: CTC advanced GmbH, Laboratory RCE-Sat
<u>Limit:</u> Limit acc. to 87.139_1090: -13.0 dBm/1MHz	Temperature:         22 °C           Humidity:         35 %           Voltage:         28 Vdc
Test results: see plot (an explicit table was not generated)	Setup of measurement equipment:         1.18         GHz           Start frequency:         2.5         GHz           Center frequency:         1.84         GHz           Frequency span:         1.32         GHz           Resolution-BW:         1         MHz           Video-BW:         1         MHz           Input attenuation:         20         dB           Trace-Mode:         Max-Hold           Detector-Mode:         RMS
Operating condition of DUT: TX: Mode A	Correction:
Test setup: see test report, chapter 6.2: higj	One close
Test equipment: see test report, chapter 6.2/6.3: C220, F132, R001, U312  Remark:	Atten. between HPA and feedhorn - 0.0 dB Attenuation (U312) + 19.6 dB Power splitter + 6.0 dB HPF (F132) + 1.1 dB TOTAL CORRECTION: + 27.6 dB
<u>Test result:</u> Test passed	Remarks: Spurious emissions under normal test conditions Max-Hold measurement.

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## Plot No. 11 (18)

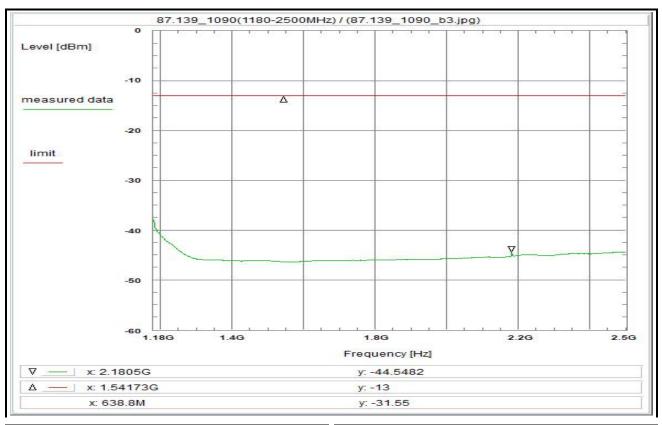


Subclause: -/- Spurious emissions RF-carrier at 1090 MHz Examination of the frequency range 1180 MHz - 2500 MHz  Limit:	Environment condition:         Date & Time:         Thu 07/Mar/2019 09:42:47           Location:         CTC advanced GmbH, Laboratory RCE-Sat           Temperature:         22 °C           Humidity:         35 %           Voltage:         28 Vdc
Limit acc. to 87.139_1090: -13.0 dBm/1MHz  Test results: see plot (an explicit table was not generated)	Setup of measurement equipment: Start frequency: Stop frequency: Center frequency: 1.84 GHz Center frequency: 1.84 GHz Frequency span: 1.32 GHz Resolution-BW: 1 MHz Video-BW: 1 MHz Input attenuation: 20 dB Trace-Mode: Max-Hold Detector-Mode: RMS
Operating condition of DUT: TX: Mode C  Test setup: see test report, chapter 6.2: higj  Test equipment: see test report, chapter 6.2/6.3: C220, F132, R001, U312  Remark:	Correction:         Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 0.9 dB           DUT-Antenna         + 0.0 dB           Test antenna         + 0.0 dB           BW correction factor         + 0.0 dB           Atten. between HPA and feedhorn         - 0.0 dB           Attenuation (U312)         + 19.6 dB           Power splitter         + 6.0 dB           HPF (F132)         + 1.1 dB           TOTAL CORRECTION:         + 27.6 dB
Test result: Test passed	Remarks: Spurious emissions under normal test conditions Max-Hold measurement.

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## Plot No. 12 (18)

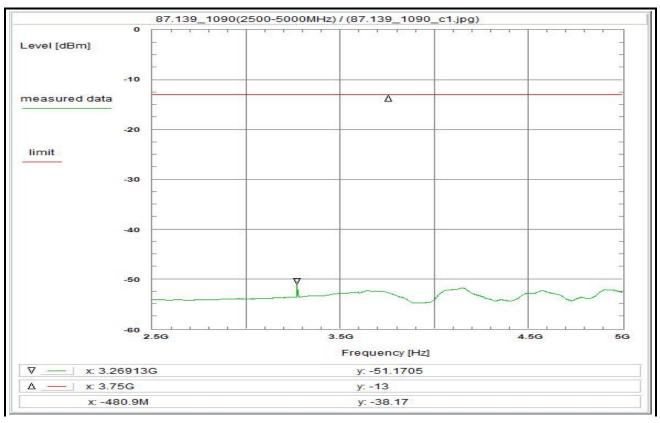


Subclause: -/- Spurious emissions RF-carrier at 1090 MHz Examination of the frequency range 1180 MHz - 2500 MHz	Environment condition:         Date & Time:         Thu 07/Mar/2019 14:05:12           Location:         CTC advanced GmbH, Laboratory RCE-Sat           Temperature:         22 °C           Humidity:         35 %
Limit: Limit acc. to 87.139_1090: -13.0 dBm/1MHz  Test results: see plot (an explicit table was not generated)	Voltage:         28         Vdc           Setup of measurement equipment:         Start frequency:         1.18         GHz           Stop frequency:         2.5         GHz           Center frequency:         1.84         GHz           Frequency span:         1.32         GHz           Resolution-BW:         1         MHz           Video-BW:         1         MHz           Input attenuation:         20         dB           Trace-Mode:         Max-Hold           Detector-Mode:         RMS
Operating condition of DUT: TX: Mode S  Test setup: see test report, chapter 6.2: higj  Test equipment: see test report, chapter 6.2/6.3: C220, F132, R001, U312  Remark:	Correction:         Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 0.9 dB           DUT-Antenna         + 0.0 dBi           Test antenna         + 0.0 dB           BW correction factor         + 0.0 dB           Atten. between HPA and feedhom         - 0.0 dB           Attenuation (U312)         + 19.6 dB           Power splitter         + 6.2 dB           HPF (F132)         + 1.1 dB           TOTAL CORRECTION:         + 27.8 dB
Test result: Test passed	Remarks: Spurious emissions under normal test conditions Max-Hold measurement.  Marker shows 2nd harmonic.

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## Plot No. 13 (18)

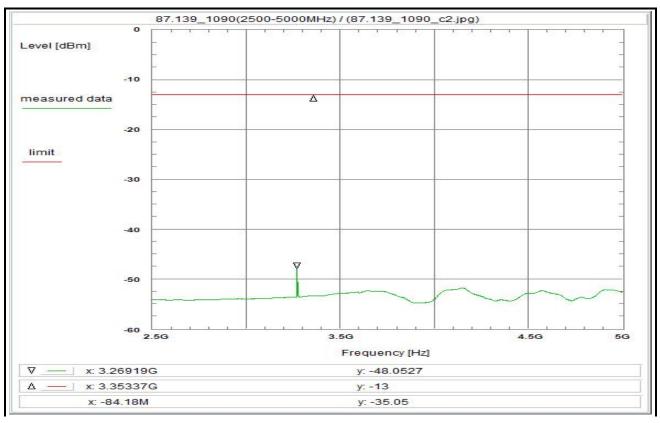


Subclause: -/- Spurious emissions RF-carrier at 1090 MHz Examination of the frequency range 2500 MHz - 5000 MHz	Environment condition:         Date & Time:         Thu 07/Mar/2019 09:49:54           Location:         CTC advanced GmbH, Laboratory RCE-Sat           Temperature:         22 °C           Humidity:         35 %           Voltage:         28 Vdc
Limit acc. to 87.139_1090: -13.0 dBm/1MHz  Test results: see plot (an explicit table was not generated)	Setup of measurement equipment:         2.5         GHz           Stop frequency:         5         GHz           Center frequency:         3.75         GHz           Frequency span:         2.5         GHz           Resolution-BW:         1         MHz           Video-BW:         1         MHz           Input attenuation:         10         dB           Trace-Mode:         Max-Hold           Detector-Mode:         RMS
Operating condition of DUT: TX: Mode A  Test setup: see test report, chapter 6.2: higj  Test equipment: see test report, chapter 6.2/6.3: C220, F150, R001, U312  Remark:	Correction:         Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 1.3 dB           DUT-Antenna         + 0.0 dB           Test antenna         + 0.0 dB           BW correction factor         + 0.0 dB           Atten. between HPA and feedhom         - 0.0 dB           Attenuation (U312)         + 19.7 dB           Power splitter         + 6.0 dB           HPF (F150)         + 0.4 dB           TOTAL CORRECTION:         + 27.4 dB
<u>Test result:</u> Test passed	Remarks: Spurious emissions under normal test conditions Max-Hold measurement.  Marker shows 3rd harmonic.

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## Plot No. 14 (18)

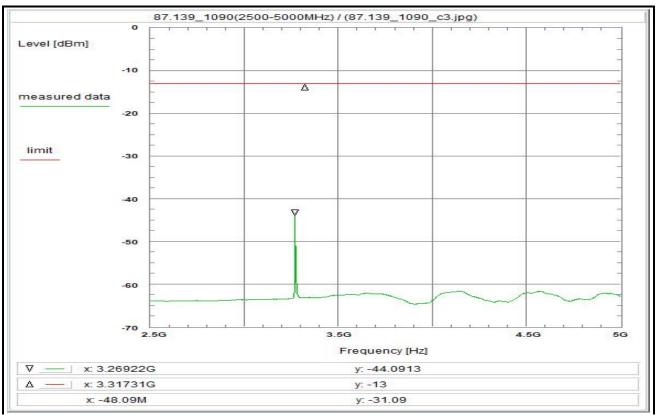


Subclause: -/- Spurious emissions RF-carrier at 1090 MHz Examination of the frequency range 2500 MHz - 5000 MHz	Environment condition:         Date & Time:         Thu 07/Mar/2019 09:51:28           Location:         CTC advanced GmbH, Laboratory RCE-Sat           Temperature:         22 °C           Humidity:         35 %           Voltage:         28 Vdc
Limit acc. to 87.139_1090: -13.0 dBm/1MHz  Test results: see plot (an explicit table was not generated)	Setup of measurement equipment:         2.5         GHz           Stop frequency:         5         GHz           Center frequency:         3.75         GHz           Frequency span:         2.5         GHz           Resolution-BW:         1         MHz           Video-BW:         1         MHz           Input attenuation:         10         dB           Trace-Mode:         Max-Hold           Detector-Mode:         RMS
Operating condition of DUT: TX: Mode C  Test setup: see test report, chapter 6.2: higj  Test equipment: see test report, chapter 6.2/6.3: C220, F150, R001, U312  Remark:	Correction:         Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 1.3 dB           DUT-Antenna         + 0.0 dB           Test antenna         + 0.0 dB           BW correction factor         + 0.0 dB           Atten. between HPA and feedhom         - 0.0 dB           Attenuation (U312)         + 19.7 dB           Power splitter         + 6.0 dB           HPF (F150)         + 0.4 dB           TOTAL CORRECTION:         + 27.4 dB
Test result: Test passed	Remarks: Spurious emissions under normal test conditions Max-Hold measurement.  Marker shows 3rd harmonic.

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## Plot No. 15 (18)

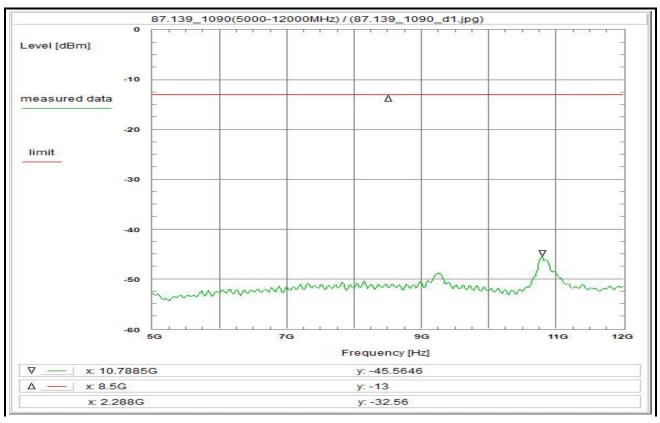


	1
Subclause: -/- Spurious emissions	Environment condition:
RF-carrier at 1090 MHz	Date & Time: Thu 07/Mar/2019 14:08:54
Examination of the frequency range 2500 MHz - 5000 MHz	Location: CTC advanced GmbH, Laboratory RCE-Sat
	Temperature: 22 °C
	Humidity: 35 %
Limit:	Voltage: 28 Vdc
Limit acc. to 87.139 1090.3: -30.0 dBm/1MHz	
	Setup of measurement equipment:
	Start frequency: 2.5 GHz
	Stop frequency: 5 GHz
	Center frequency: 3.75 GHz
	Frequency span: 2.5 GHz
	Resolution-BW: 1 MHz
	Video-BW: 1 MHz
	Input attenuation: 0 dB
Test results:	Start frequency:         2.5         GHz           Stop frequency:         5         GHz           Center frequency:         3.75         GHz           Frequency span:         2.5         GHz           Resolution-BW:         1         MHz           Video-BW:         1         MHz           Input attenuation:         0         dB           Trace-Mode:         Max-Hold           Detector-Mode:         RMS
see plot (an explicit table was not generated)	Detector-Mode: RMS
see plot (all explicit table was not generated)	Delector-wode. Rivis
Occasion and disease DUT.	0
Operating condition of DUT:	Correction:         Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 1.3 dB           DUT-Antenna         + 0.0 dBi           Test antenna         + 0.0 dB           BW correction factor         + 0.0 dB
TX: Mode S	Directional coupler + 0.0 dB
	Coaxial cable (C220) + 1.3 dB
Test setup:	DUT-Antenna + 0.0 dBi
see test report, chapter 6.2: higj	Test antenna + 0.0 dB
	BW correction factor + 0.0 dB
Test equipment:	Aften, between HPA and feedhorn - 0.0 dB
see test report, chapter 6.2/6.3: C220, F150, R001, U312	Attenuation (U312) + 19.7 dB  Power splitter + 6.2 dB  HPF (F150) + 0.4 dB  TOTAL CORRECTION: + 27.6 dB
	Power splitter + 6.2 dB
Remark:	HPF (F150) + 0.4 dB
	TOTAL CORRECTION: + 27.6 dB
	Remarks:
Test result: Test passed	Spurious emissions under normal test conditions
	Max-Hold measurement.
	Marker shows 3rd harmonic.
	. 1

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## Plot No. 16 (18)

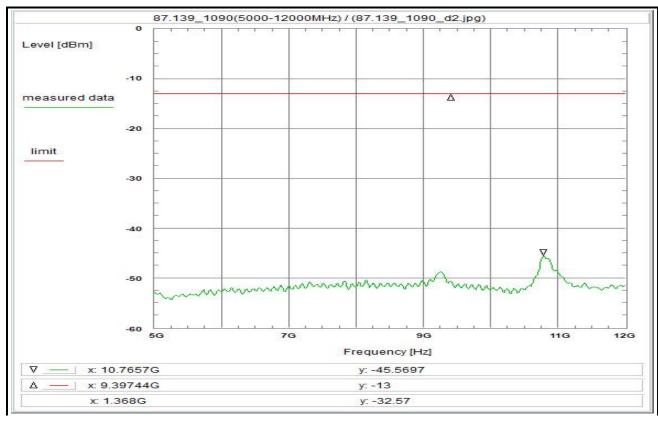


Subclause: -/- Spurious emissions RF-carrier at 1090 MHz Examination of the frequency range 5000 MHz - 12000 MHz  Limit:	Environment condition:         Date & Time:         Thu 07/Mar/2019 09:56:08           Location:         CTC advanced GmbH, Laboratory RCE-Sat           Temperature:         22 °C           Humidity:         35 %           Voltage:         28 Vdc
Limit acc. to 87.139_1090: -13.0 dBm/1MHz  Test results: see plot (an explicit table was not generated)	Setup of measurement equipment:           Start frequency:         5         GHz           Stop frequency:         12         GHz           Center frequency:         8.5         GHz           Frequency span:         7         GHz           Resolution-BW:         1         MHz           Video-BW:         1         MHz           Input attenuation:         10         dB           Trace-Mode:         Max-Hold           Detector-Mode:         RMS
Operating condition of DUT: TX: Mode A  Test setup: see test report, chapter 6.2: higj  Test equipment: see test report, chapter 6.2/6.3: C220, F150, R001, U312  Remark:	Correction:         Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 2.1 dB           DUT-Antenna         + 0.0 dBi           Test antenna         + 0.0 dB           BW correction factor         + 0.0 dB           Atten. between HPA and feedhorn         - 0.0 dB           Attenuation (U312)         + 19.8 dB           Power splitter         + 6.0 dB           HPF (F150)         + 3.1 dB           TOTAL CORRECTION:         + 31.0 dB
Test result: Test passed	Remarks: Spurious emissions under normal test conditions Max-Hold measurement.

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## Plot No. 17 (18)

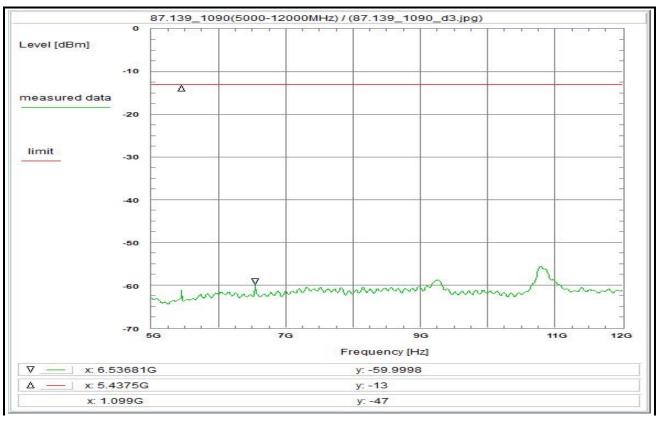


Subclause: -/- Spurious emissions RF-carrier at 1090 MHz Examination of the frequency range 5000 MHz - 12000 MHz	Environment condition:         Date & Time:         Thu 07/Mar/2019 10:18:12           Location:         CTC advanced GmbH, Laboratory RCE-Sat           Temperature:         22 °C           Humidity:         35 %
Limit: Limit acc. to 87.139_1090: -13.0 dBm/1MHz  Test results:	Voltage:         28         Vdc           Setup of measurement equipment:         Start frequency:         5         GHz           Stop frequency:         12         GHz           Center frequency:         8.5         GHz           Frequency span:         7         GHz           Resolution-BW:         1         MHz           Video-BW:         1         MHz           Input attenuation:         10         dB           Trace-Mode:         Max-Hold           Detector-Mode:         RMS
see plot (an explicit table was not generated)  Operating condition of DUT: TX: Mode C  Test setup: see test report, chapter 6.2: higj  Test equipment: see test report, chapter 6.2/6.3: C220, F150, R001, U312  Remark:	Detector-Mode:         RMS           Correction:         Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 2.1 dB           DUT-Antenna         + 0.0 dBi           Test antenna         + 0.0 dB           BW correction factor         + 0.0 dB           Atten. between HPA and feedhorn         - 0.0 dB           Attenuation (U312)         + 19.8 dB           Power splitter         + 6.0 dB           HPF (F150)         + 3.1 dB           TOTAL CORRECTION:         + 31.0 dB
<u>Test result:</u> Test passed	Remarks: Spurious emissions under normal test conditions Max-Hold measurement.

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## Plot No. 18 (18)



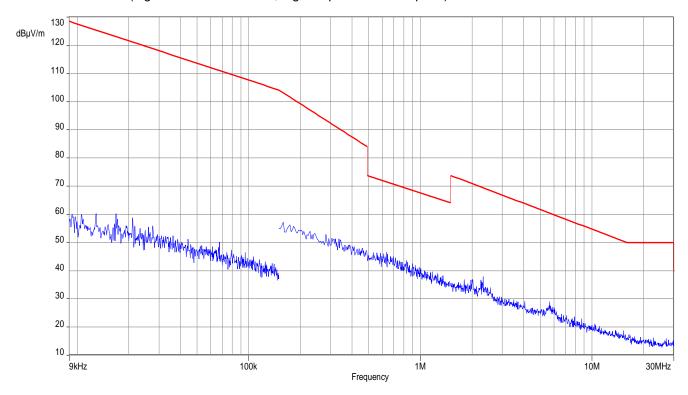
Subclause: -/- Spurious emissions	Environment condition:
RF-carrier at 1090 MHz	Date & Time: Thu 07/Mar/2019 14:10:56
Examination of the frequency range 5000 MHz - 12000 MHz	Location: CTC advanced GmbH, Laboratory RCE-Sat
	Temperature: 22 °C
	Humidity: 35 %
Limit:	Voltage: 28 Vdc
Limit acc. to 87.139 1090.3: -30.0 dBm/1MHz	
· · · · · · · · · · · · · · · · · · ·	Setup of measurement equipment:
	Start frequency: 5 GHz
	Stop frequency: 12 GHz
	Center frequency: 8.5 GHz
	Frequency span: 7 GHz
	Resolution-BW: 1 MHz
	Video-BW: 1 MHz
	Input attenuation: 0 dB
Test results:	Start frequency:         5         GHz           Stop frequency:         12         GHz           Center frequency:         8.5         GHz           Frequency span:         7         GHz           Resolution-BW:         1         MHz           Video-BW:         1         MHz           Input attenuation:         0         dB           Trace-Mode:         Max-Hold           Detector-Mode:         RMS
see plot (an explicit table was not generated)	Detector-Mode: RMS
see plot (an explicit table was not generated)	Detector-wode. Rivis
Operation and distance DIT.	C
Operating condition of DUT:	Correction:         Directional coupler         + 0.0 dB           Coaxial cable (C220)         + 2.1 dB           DUT-Antenna         + 0.0 dBi           Test antenna         + 0.0 dB           BW correction factor         + 0.0 dB
TX: Mode S	Directional coupler + 0.0 dB
<b>-</b>	Coaxial cable (C220) + 2.1 dB
Test setup:	DUT-Antenna + 0.0 dBi
see test report, chapter 6.2: higj	Test antenna + 0.0 dB
	BW correction factor + 0.0 dB
Test equipment:	Atten, between HPA and feedhorn - 0.0 dB
see test report, chapter 6.2/6.3: C220, F150, R001, U312	Attenuation (U312) + 19.8 dB
	Power splitter + 6.2 dB
Remark:	(F150) + 3.1 dB
	Attenuation (U312) + 19.8 dB  Power splitter + 6.2 dB  (F150) + 3.1 dB  TOTAL CORRECTION: + 31.2 dB
	Remarks:
Test result: Test passed	Spurious emissions under normal test conditions
	Max-Hold measurement.
	Plot shows 5th and 6th harmonic.

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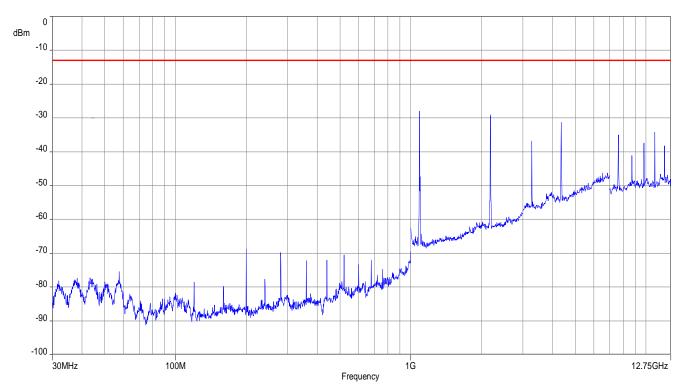


#### Plots - radiated emissions

Plot No. 1: Mode S (highest mean Tx-Power, highest power consumption)

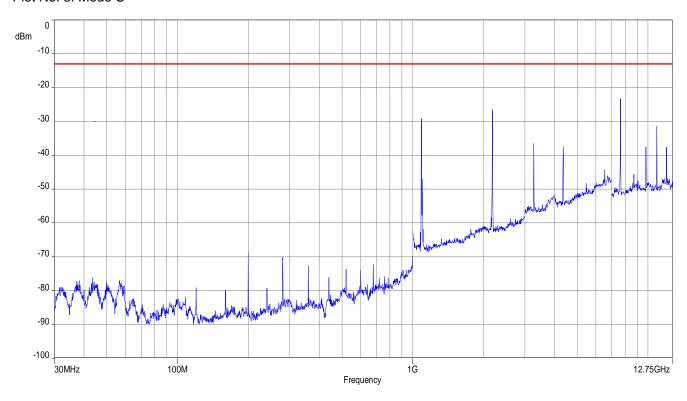


Plot No. 2: Mode A

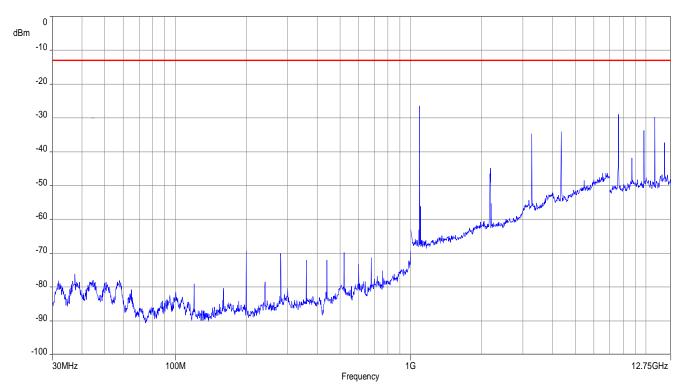




Plot No. 3: Mode C



Plot No. 4: Mode S





# **Document history**

Version	Applied changes	Date of release
	Initial release	2019-04-05

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