Annex 1: Diagrams
to TEST REPORT
No.: 2-20795542b/11

According to:
FCC Regulations
FCC Part 22H/24E
FCC Part 15.207C
FCC Part 15.209C
&
IC Regulations
RSS-132, Issue 2
RSS-133, Issue 5
RSS-Gen, Issue 2

for

Cinterion Wireless Modules GmbH

Quad-Band GSM/GPRS Module BGS2-W
FCC-ID: QIPBGS2
IC: 7830A-BGS2

Laboratory Accreditation and Listings			
DAkkS Deutsche Akkreditierungsstelle D-PL-12047-01-01	FCC MRA US-EU 0003	Industry Canada Reg. No.: 3462D-1 3462D-2	VCCI Reg. No.: R-2665, R-2666 C-2914, T-1967 G-301
CTIA Authorized Test Lab LAB CODE 20011130-00		Wi Fi ALLIANCE AUTHORIZED RF LABORATORY	
accredited according to DIN EN ISO/IEC 17025			

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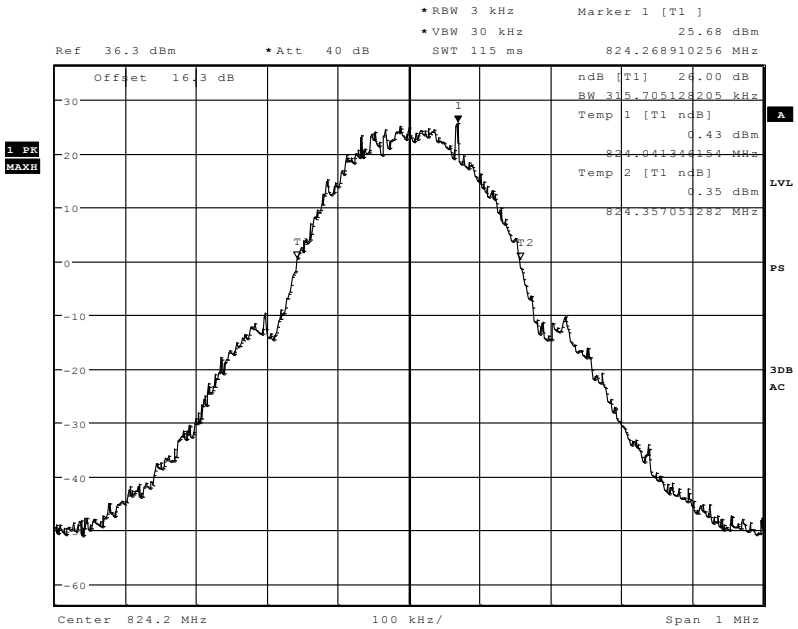
1. Diagrams

1.1. 26dBc Emission bandwidth

GSM 850



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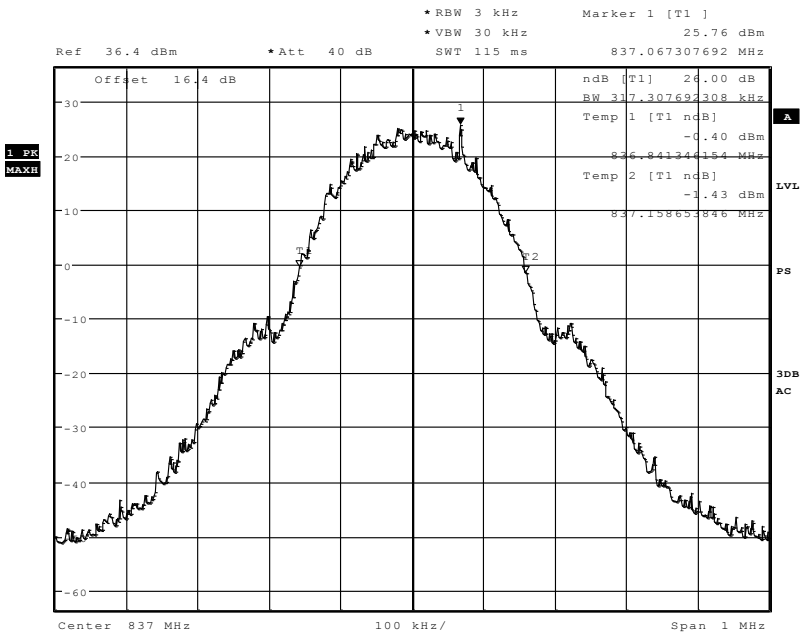
Channel 128



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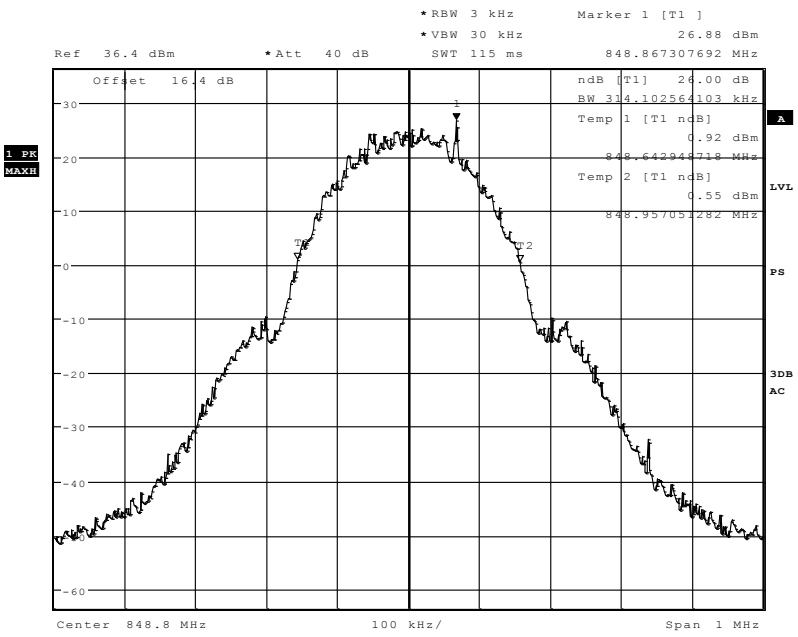

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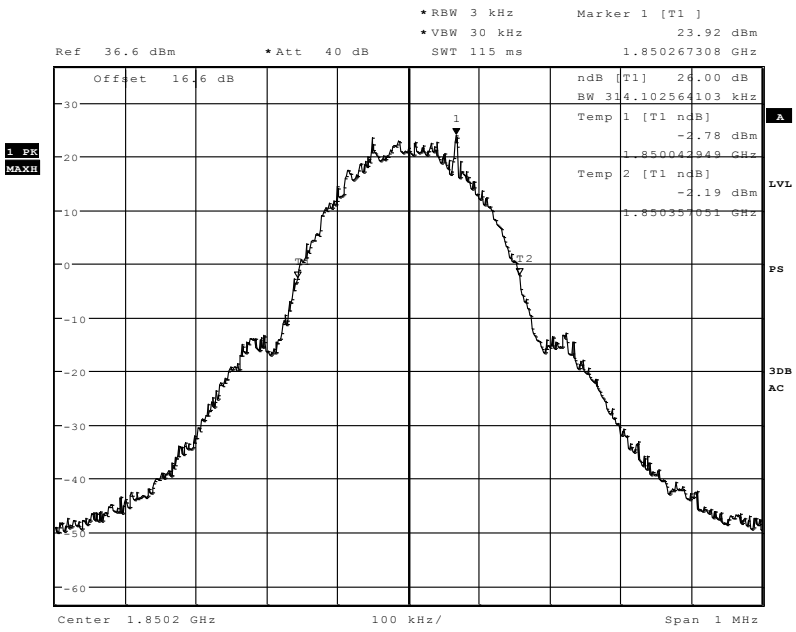
Channel 251

GSM 1900



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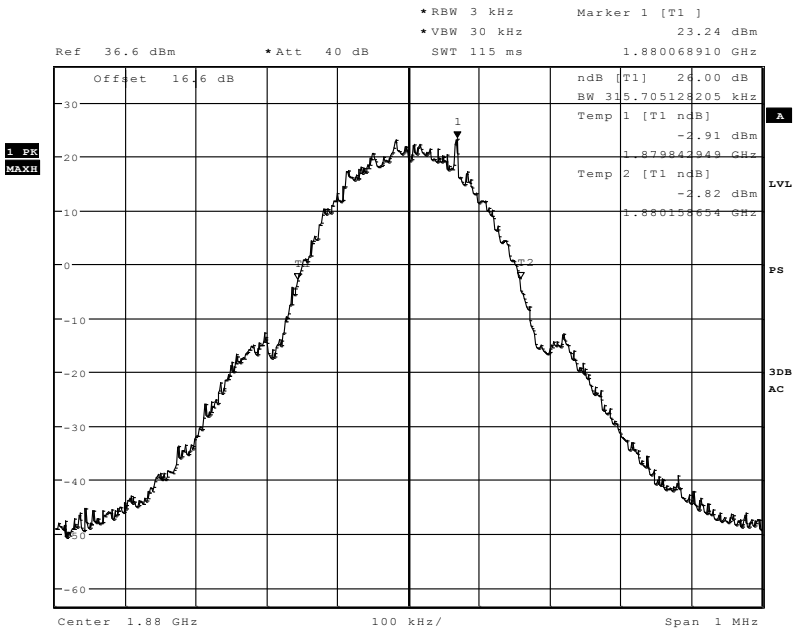

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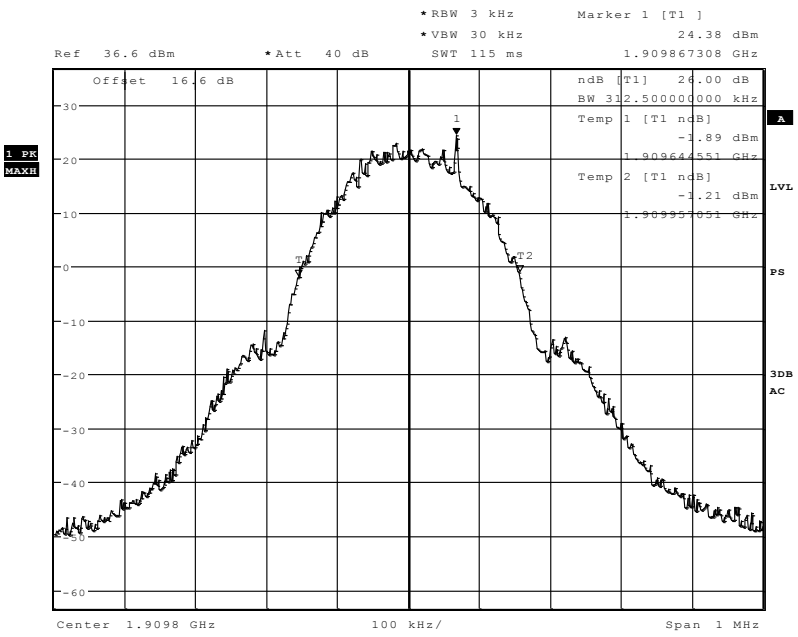
Channel 661



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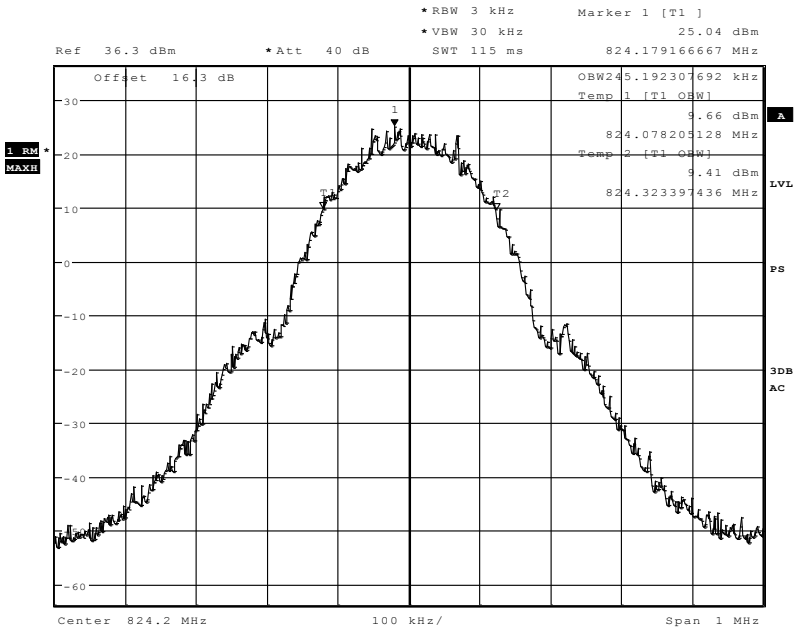
Channel 810

1.2. 99% Occupied bandwidth

GSM 850



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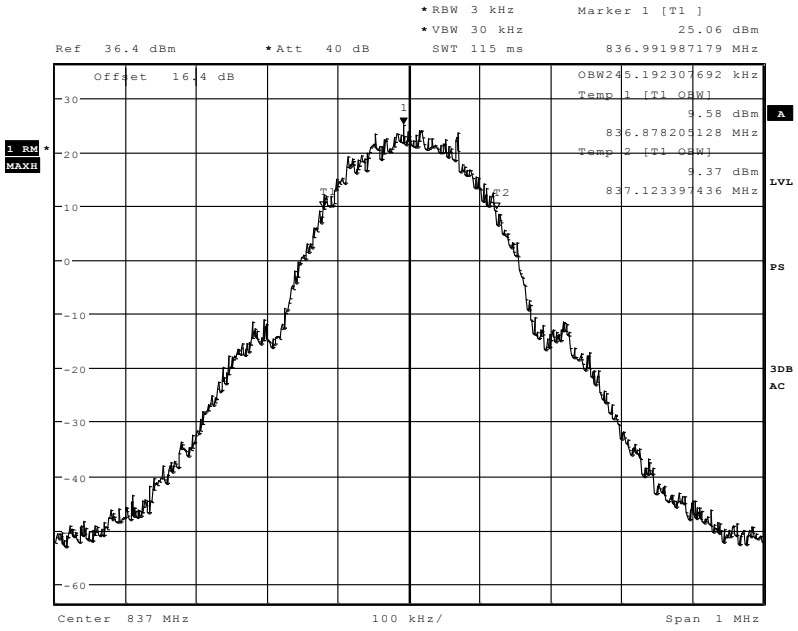

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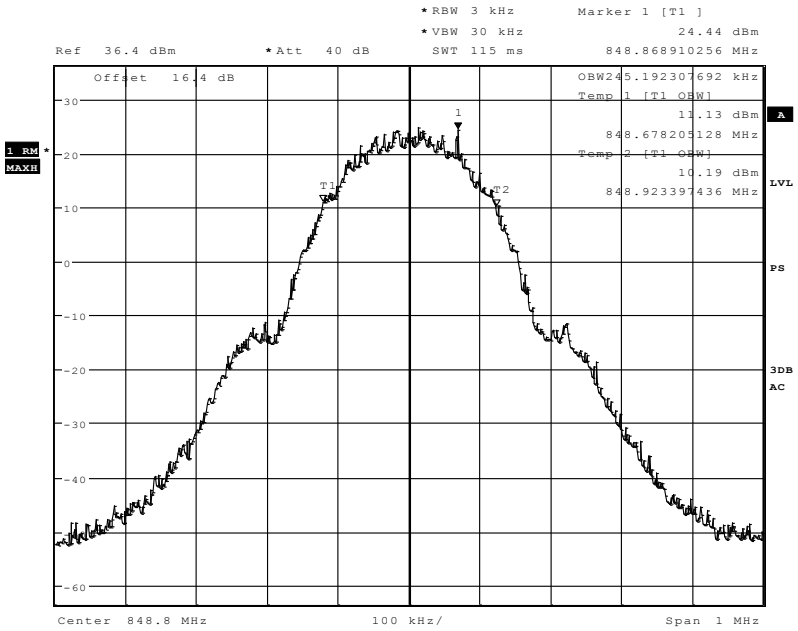

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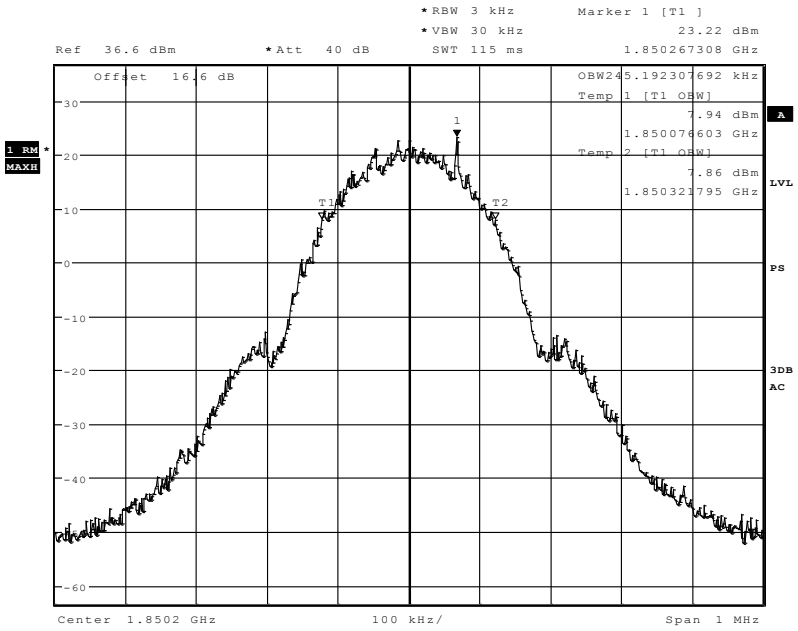
Channel 251

GSM 1900



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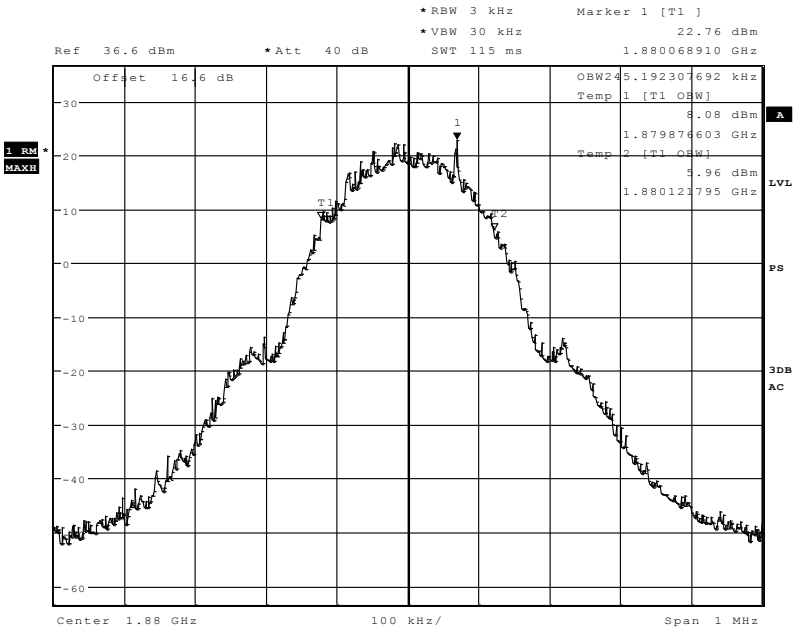

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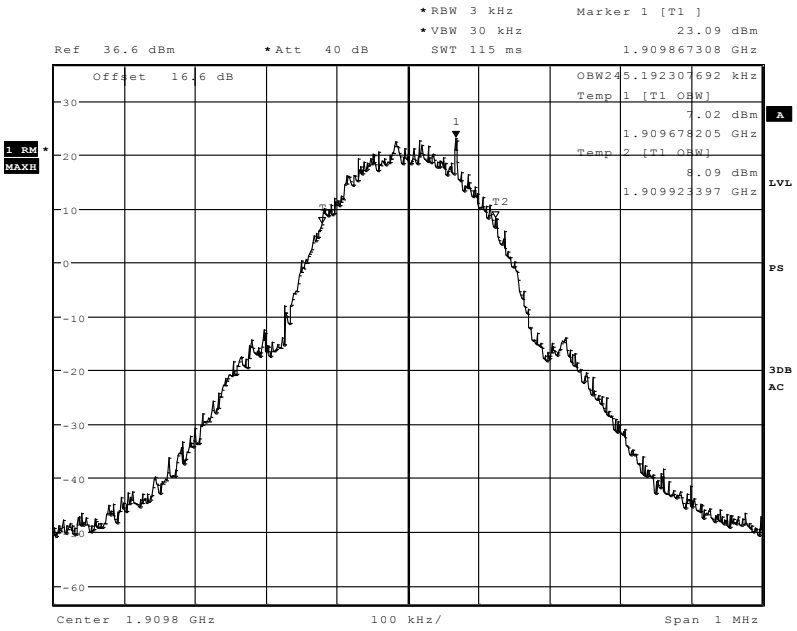
Channel 661



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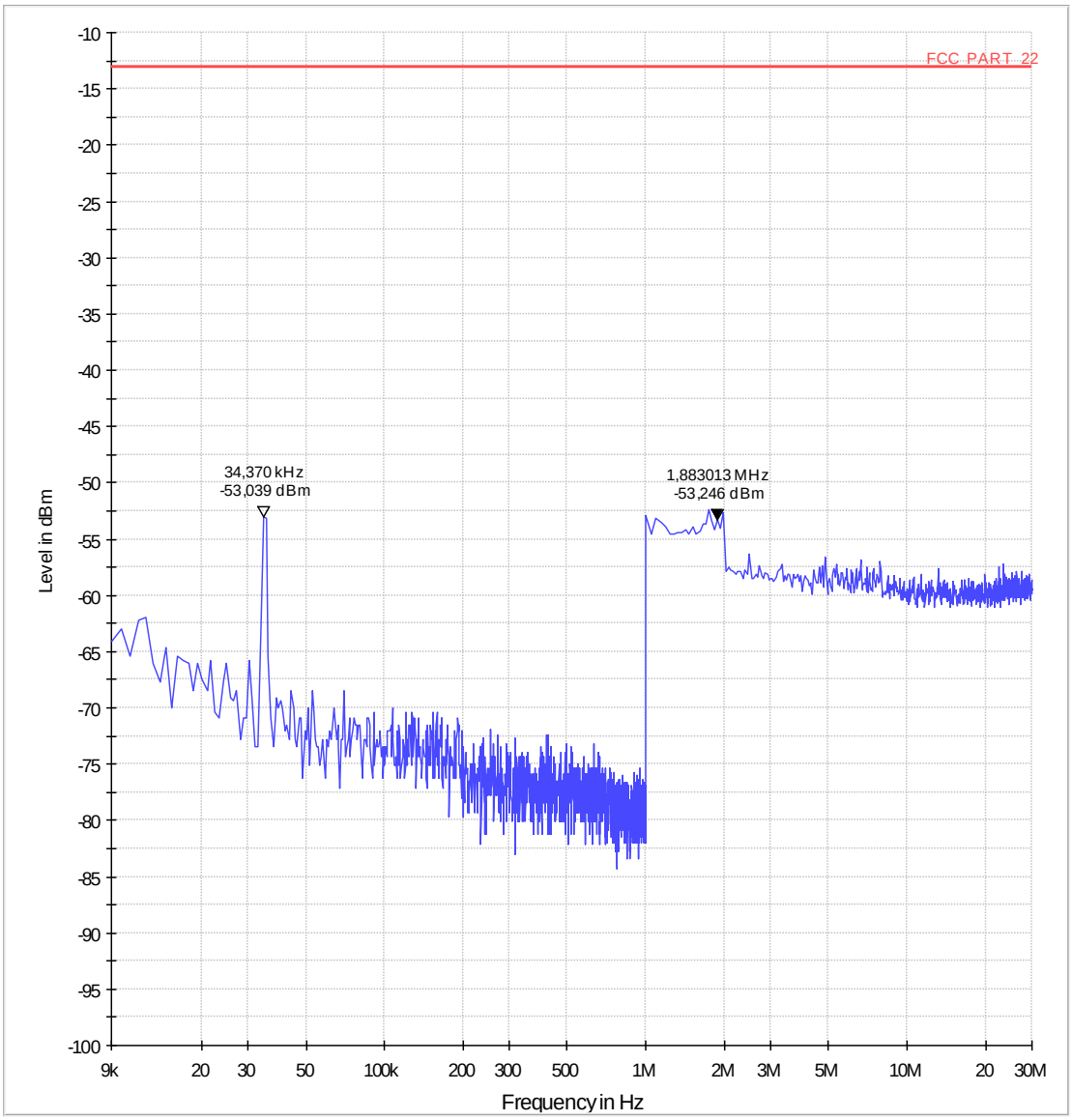
Channel 810

1.3. Spurious emissions conducted – GSM850 Mode (TX-mode)

Diagram No. 14.01 (Channel 128)



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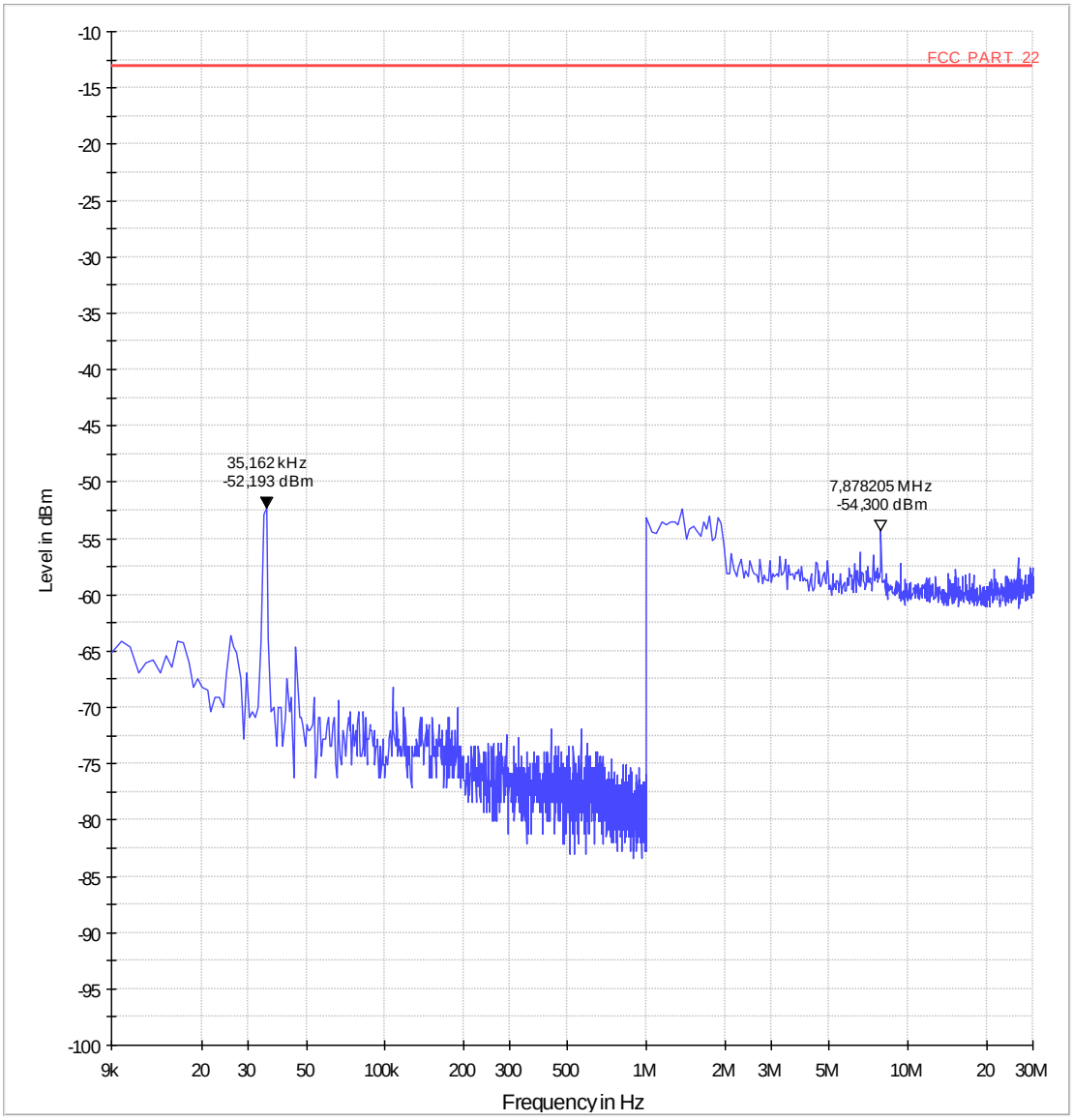

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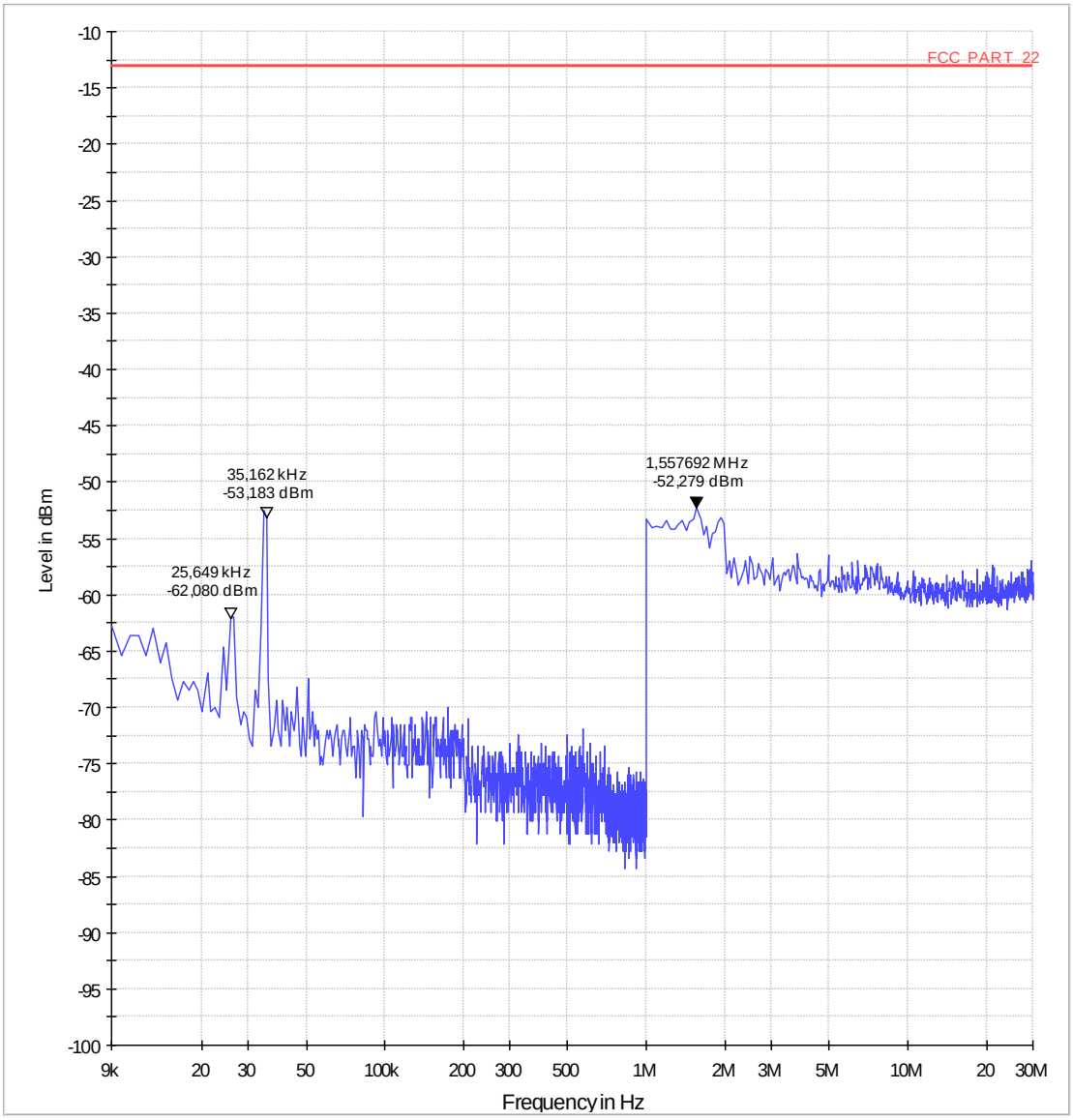
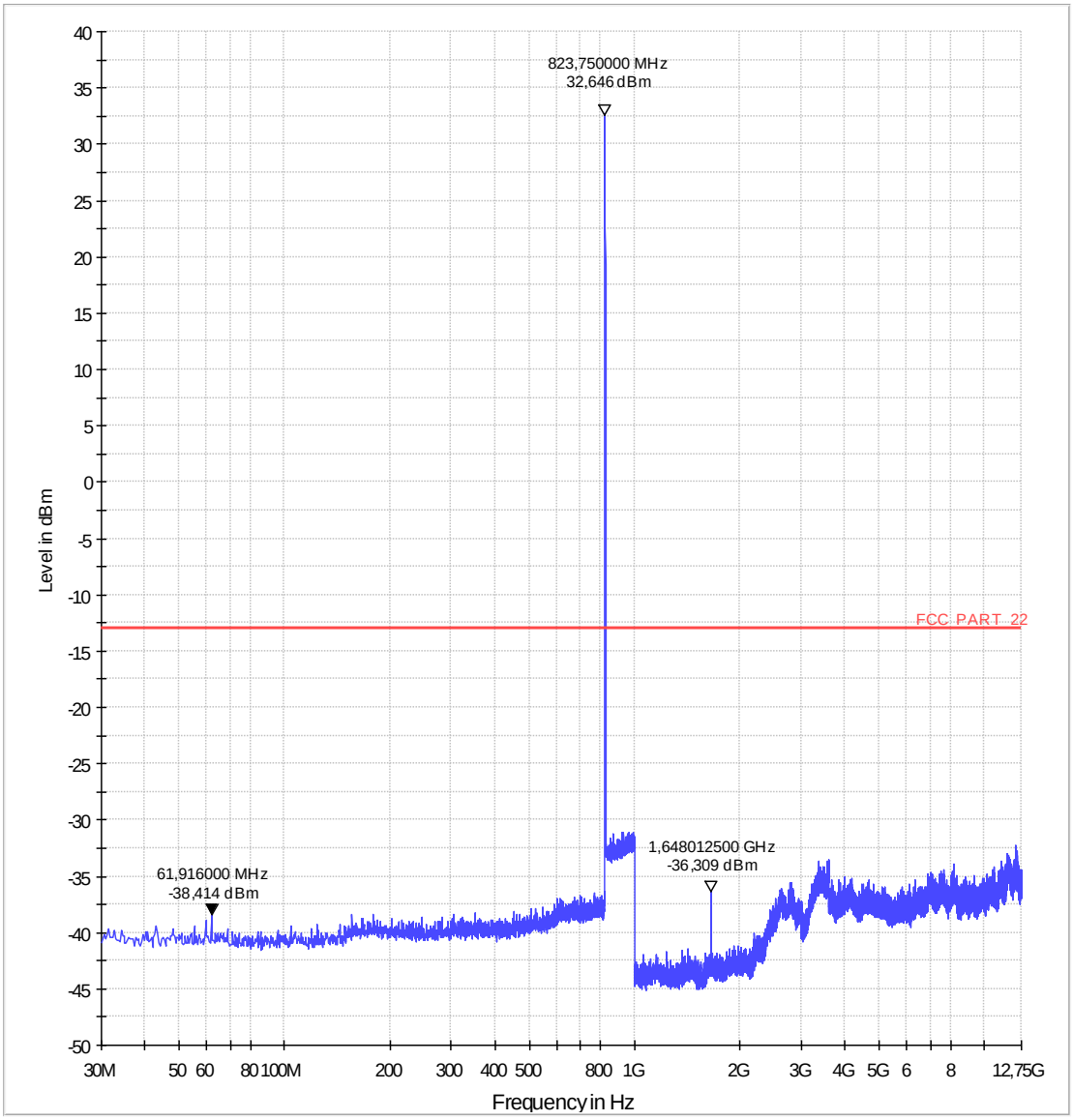


Diagram No. 14.04 (Channel 128)



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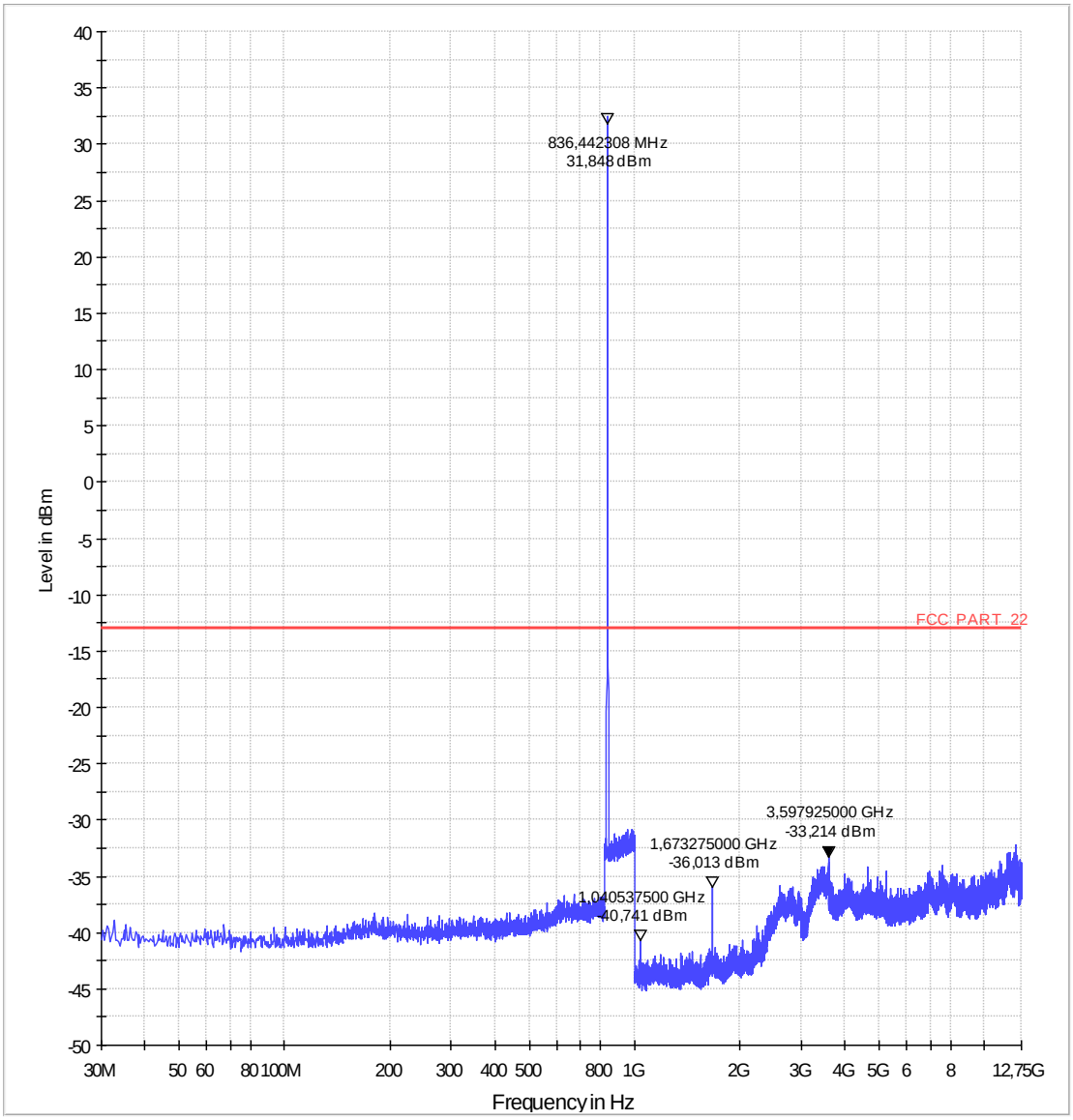

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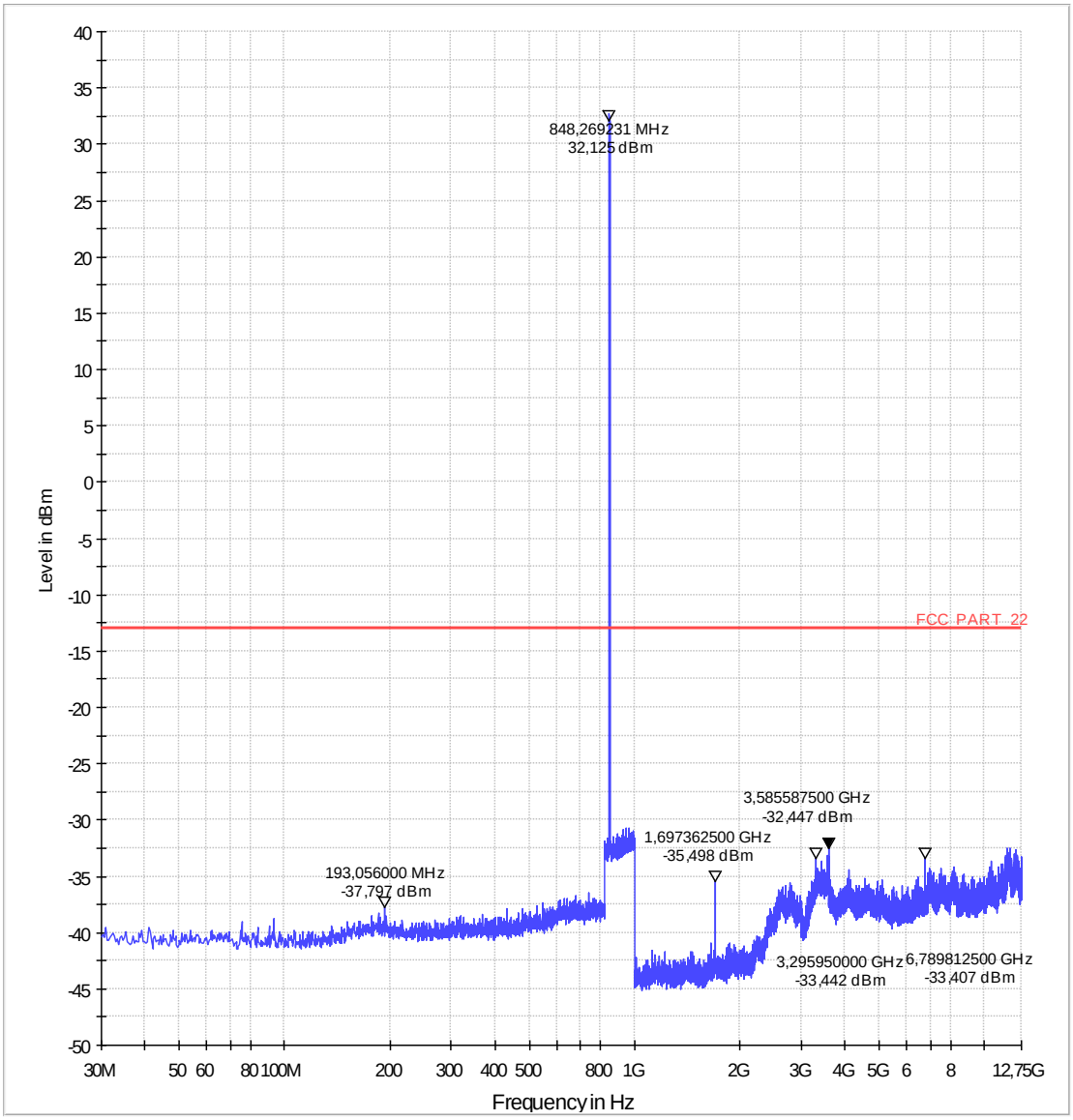

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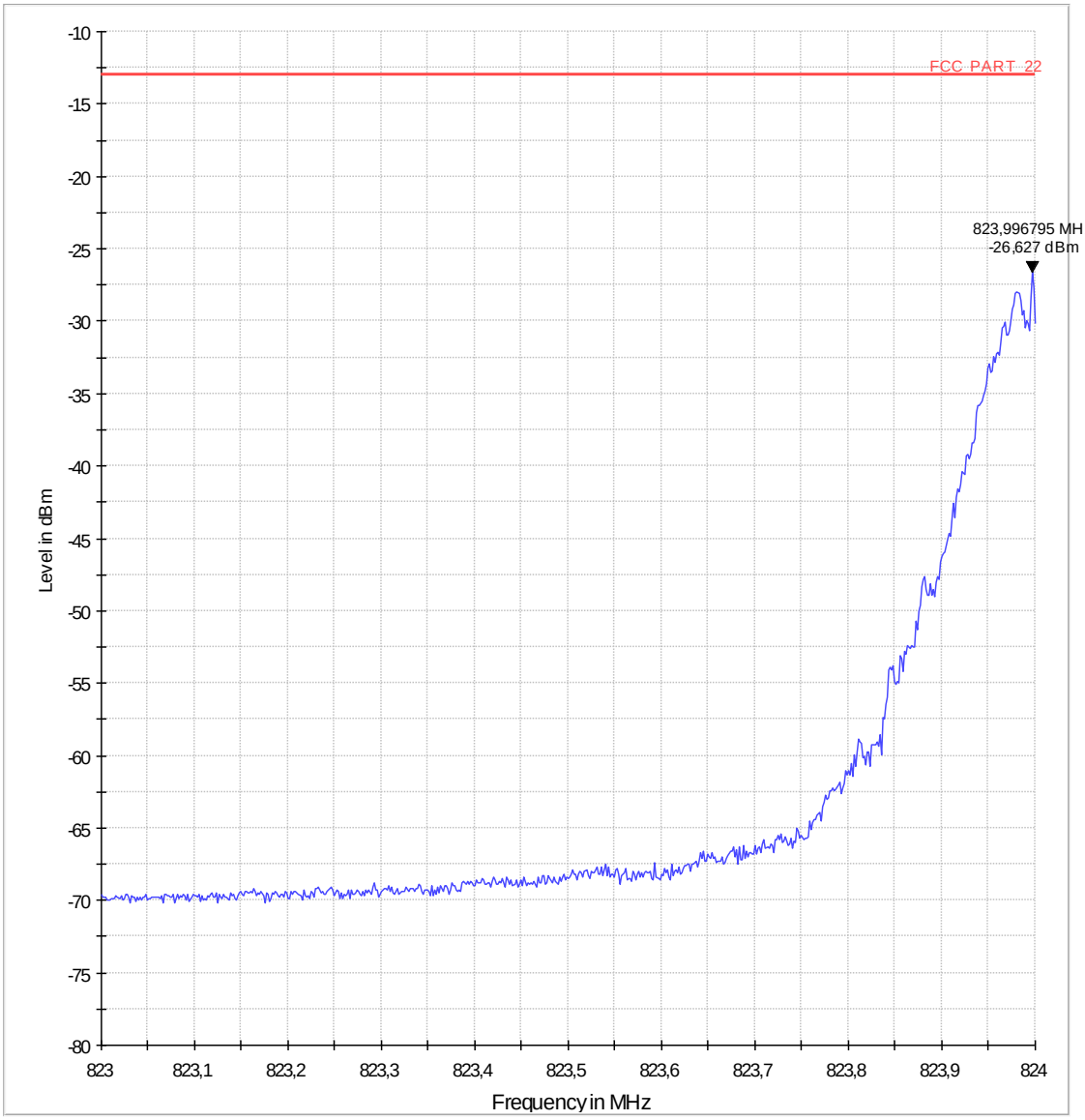

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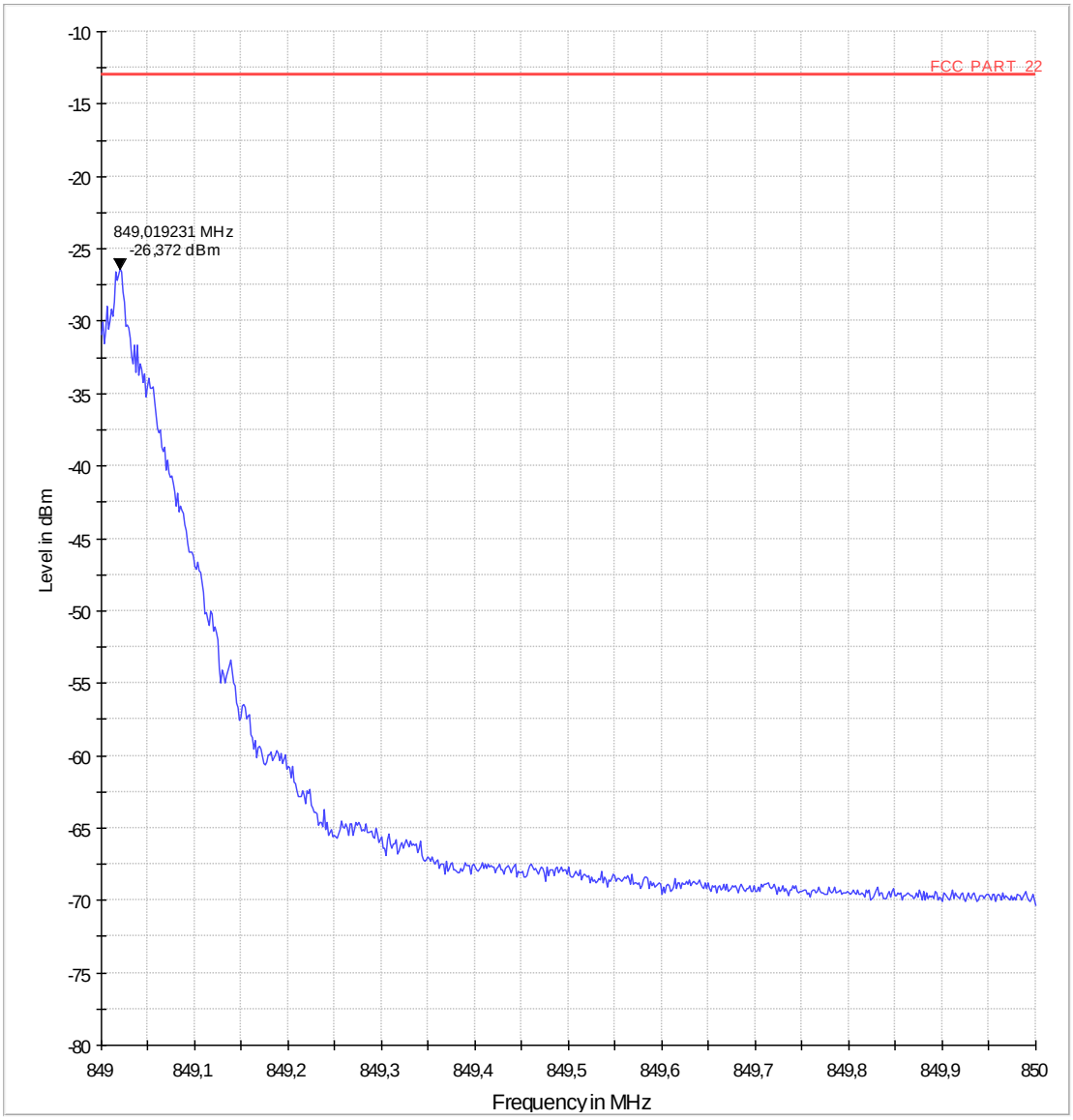
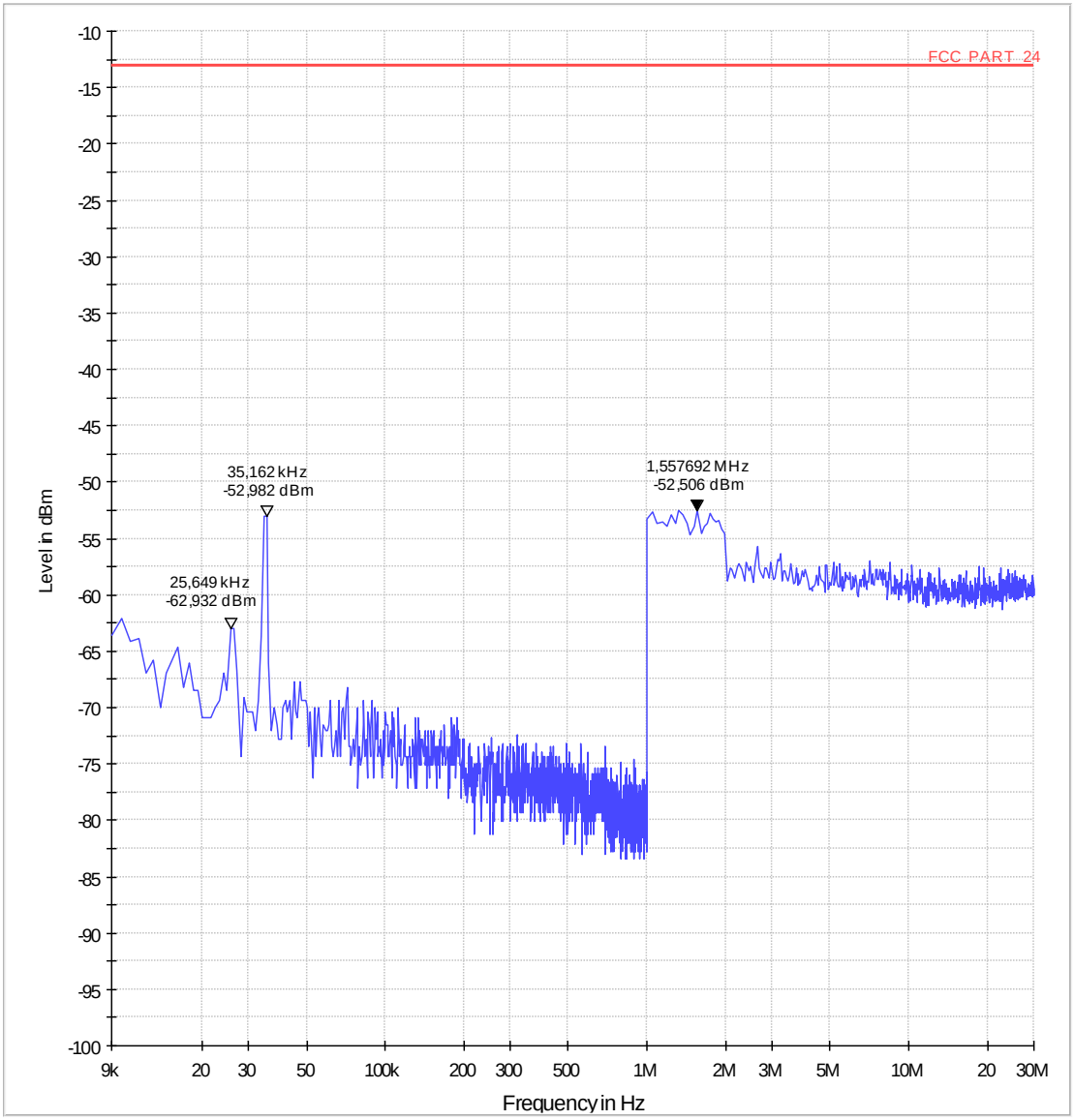


1.4. Spurious emissions conducted – GSM1900 Mode (TX-mode)

Diagram no. 14.09 (Channel 512)



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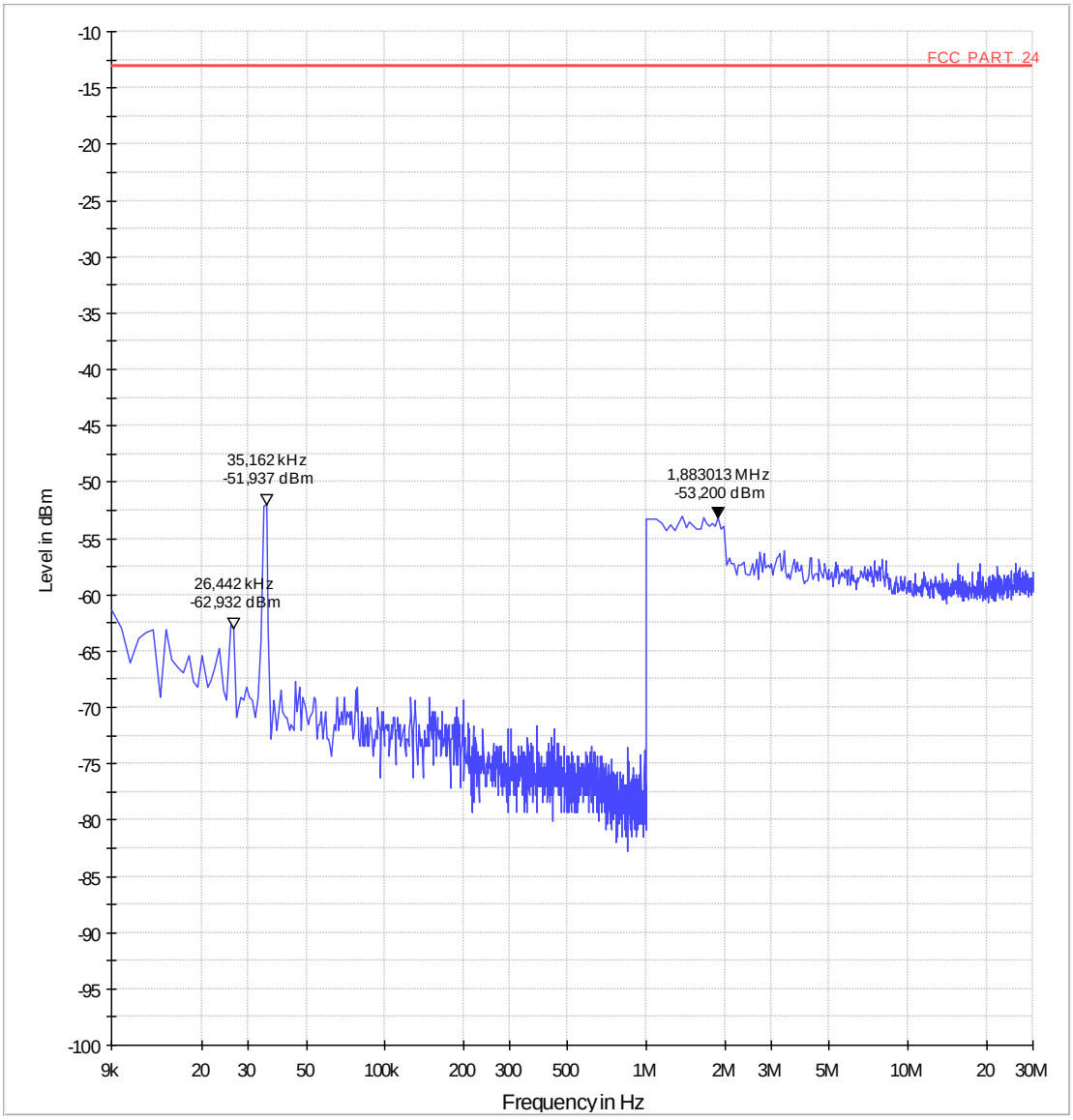

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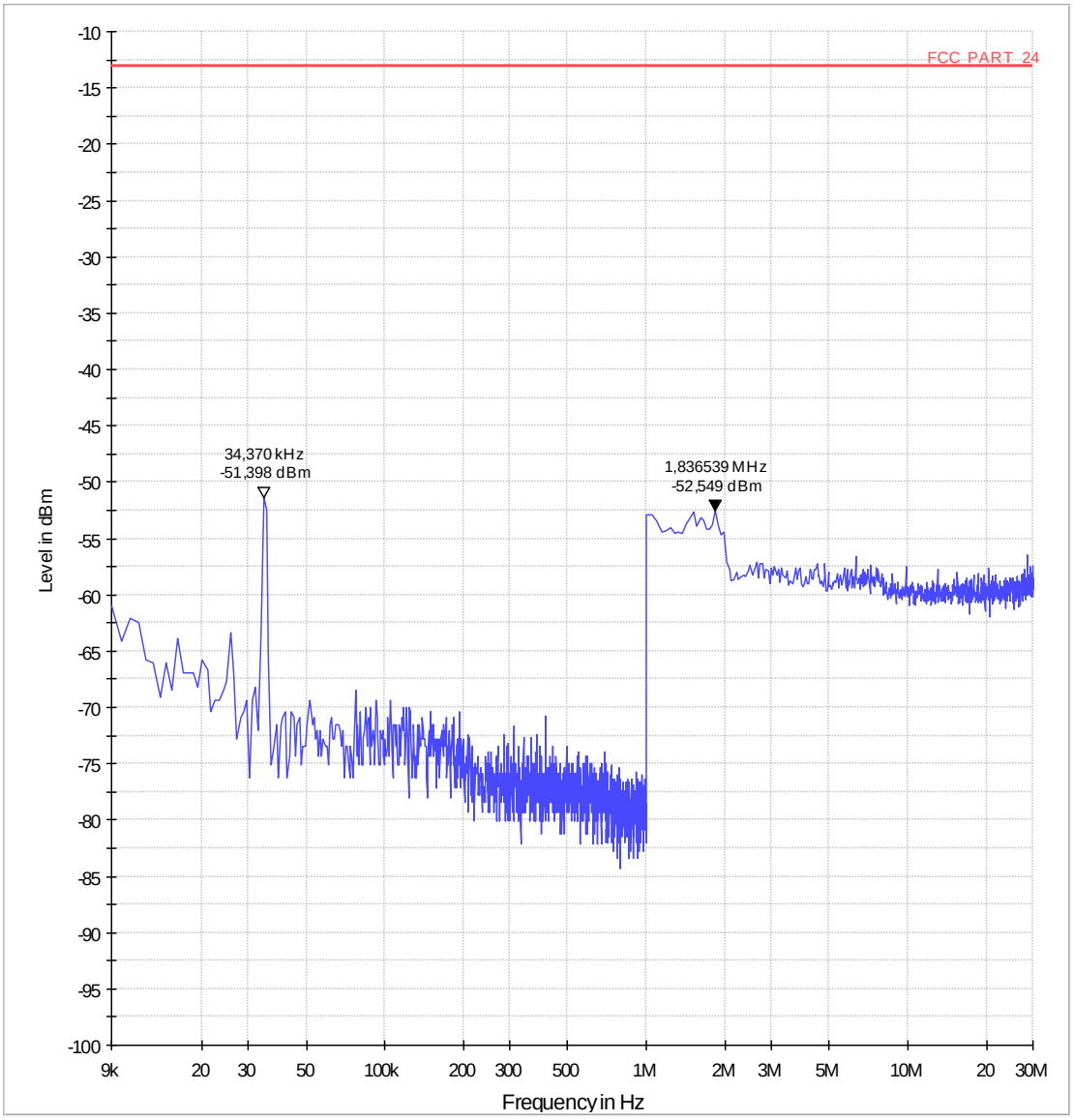

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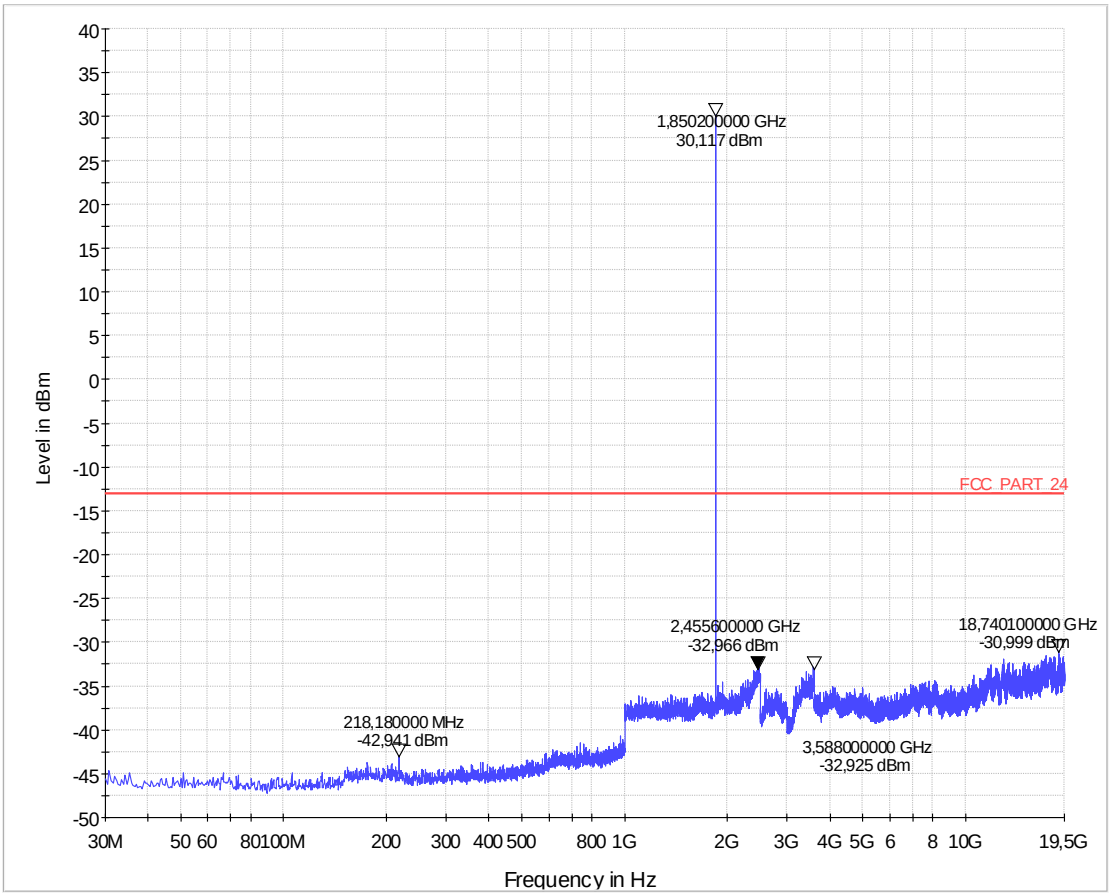

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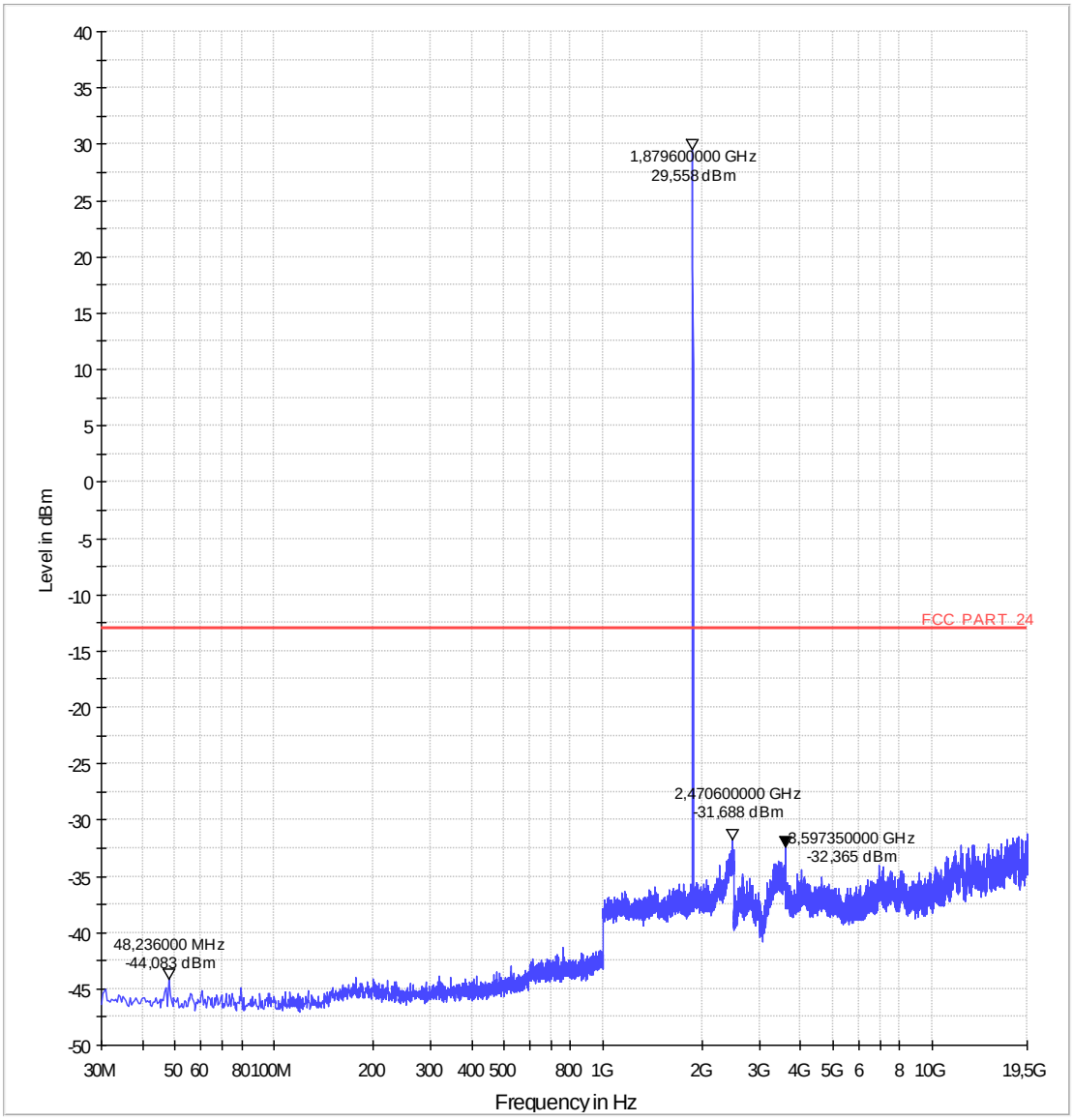

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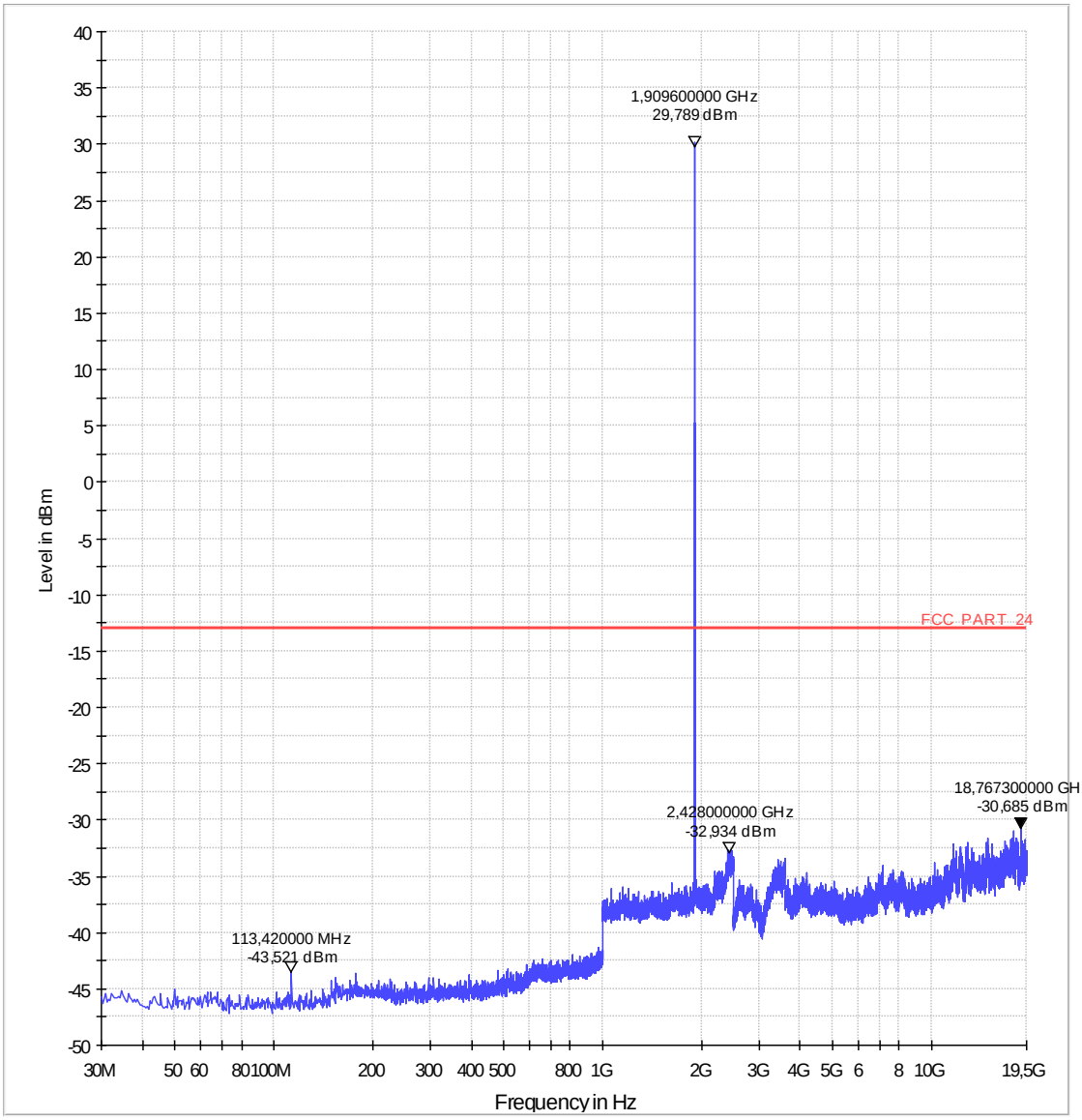

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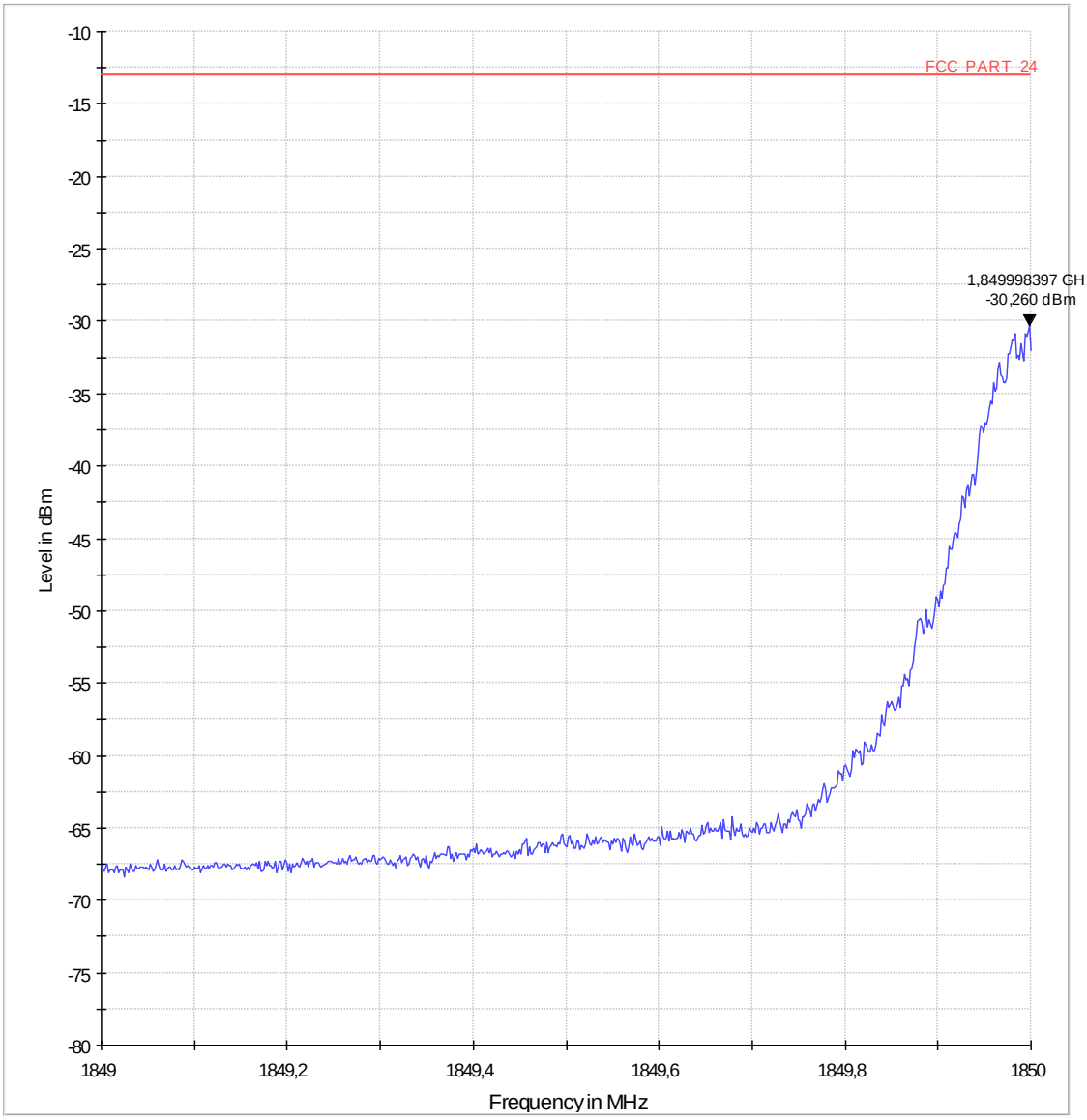
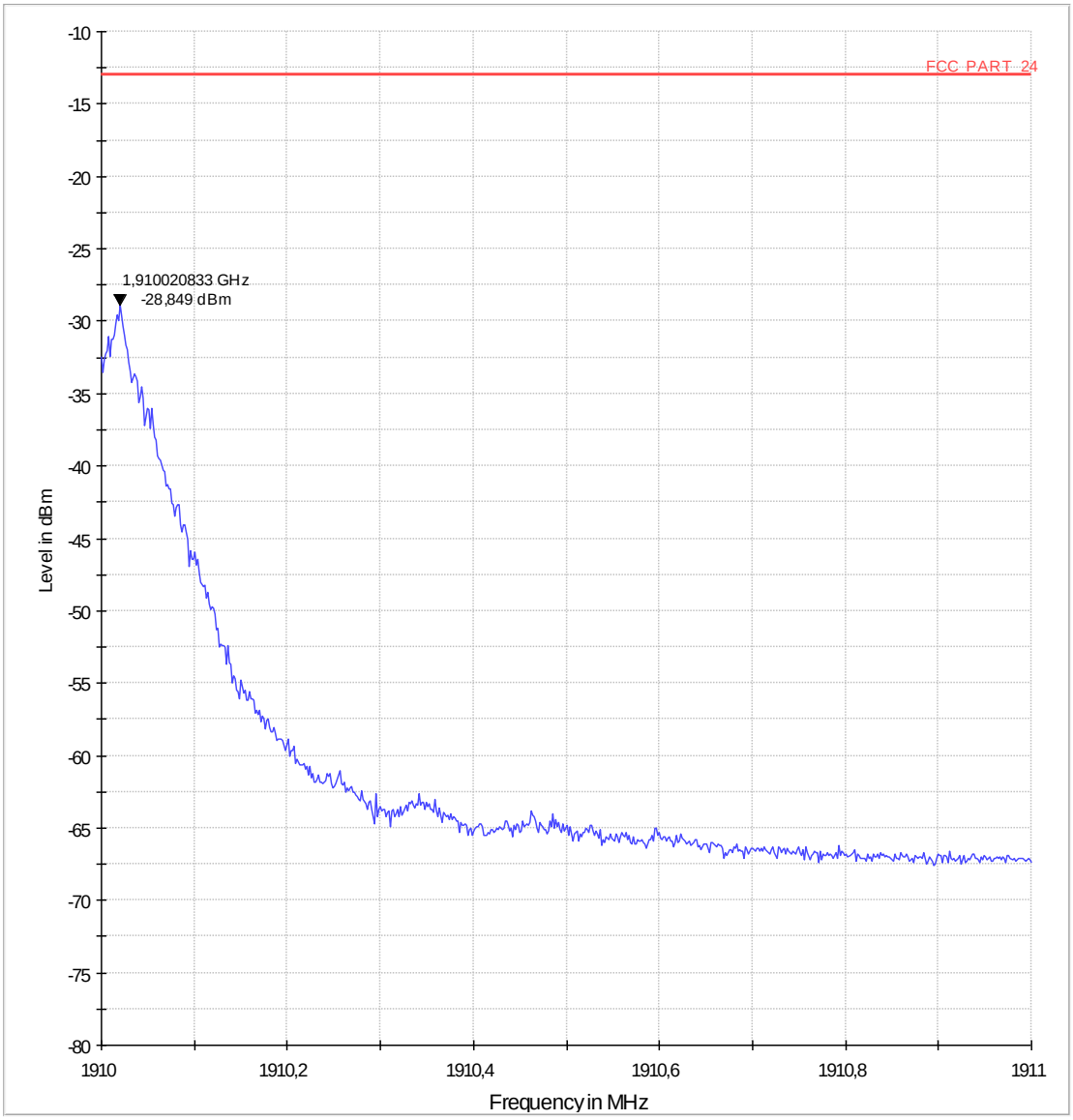
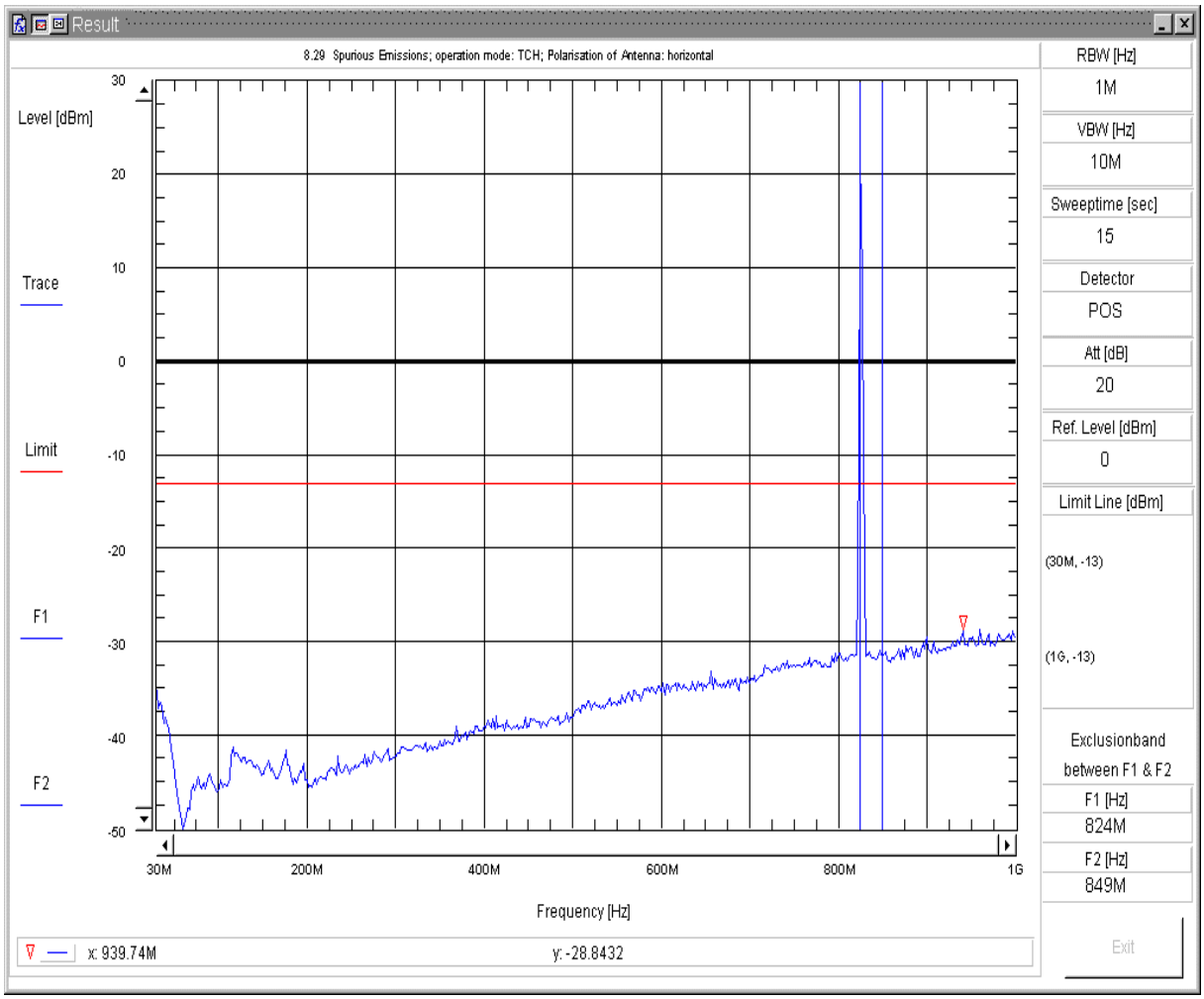


Diagram no. 14.16b (Channel 810)



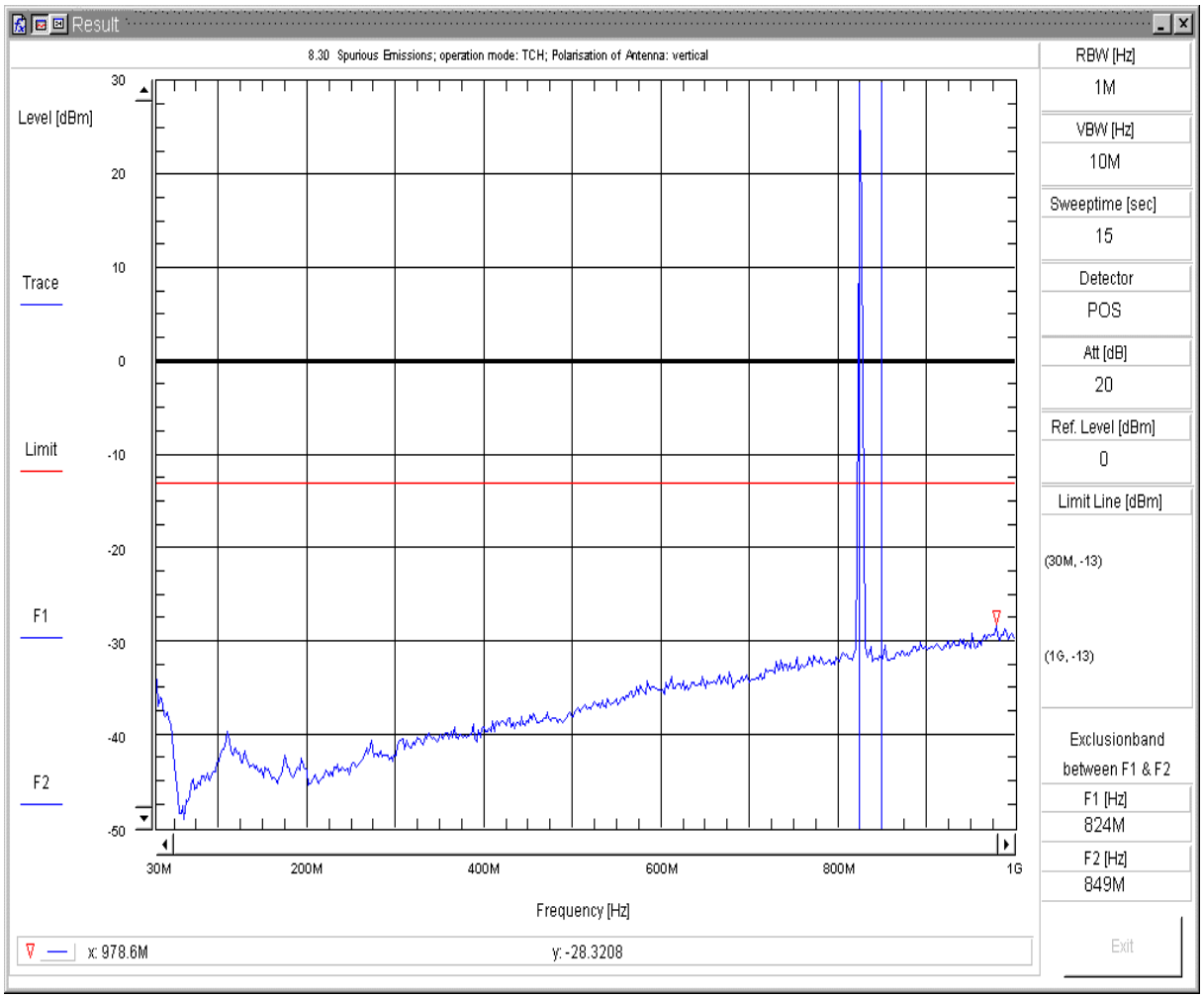
1.5. Spurious emissions radiated – GSM850 Mode



8.29 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_H
Sweepnr: Sweep1
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 128
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

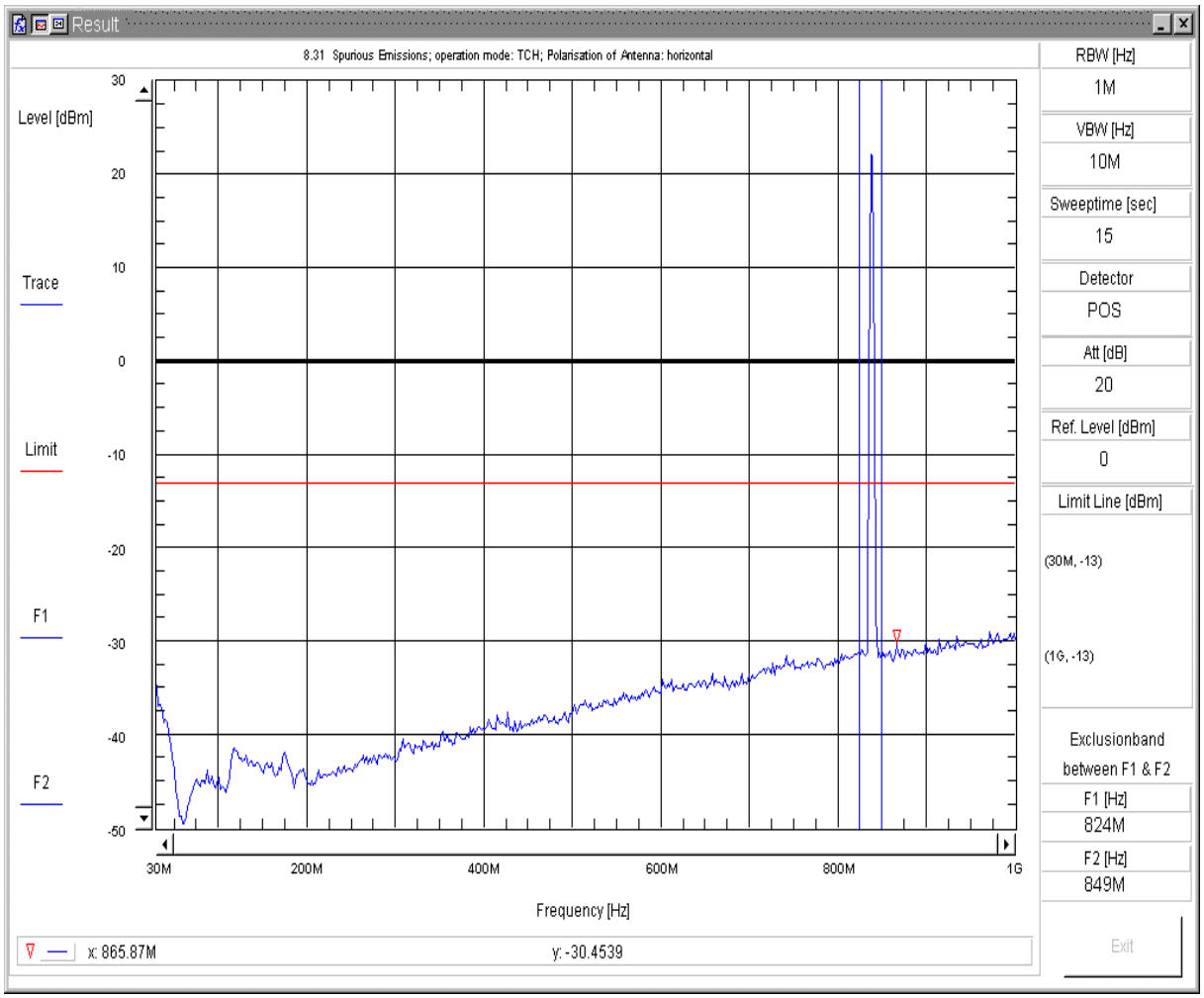
Fri 04/Feb/2011 15:21:47pff Spurious Emissions V7.2.5



8.30 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_V
Sweepnr: Sweep1
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 128
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

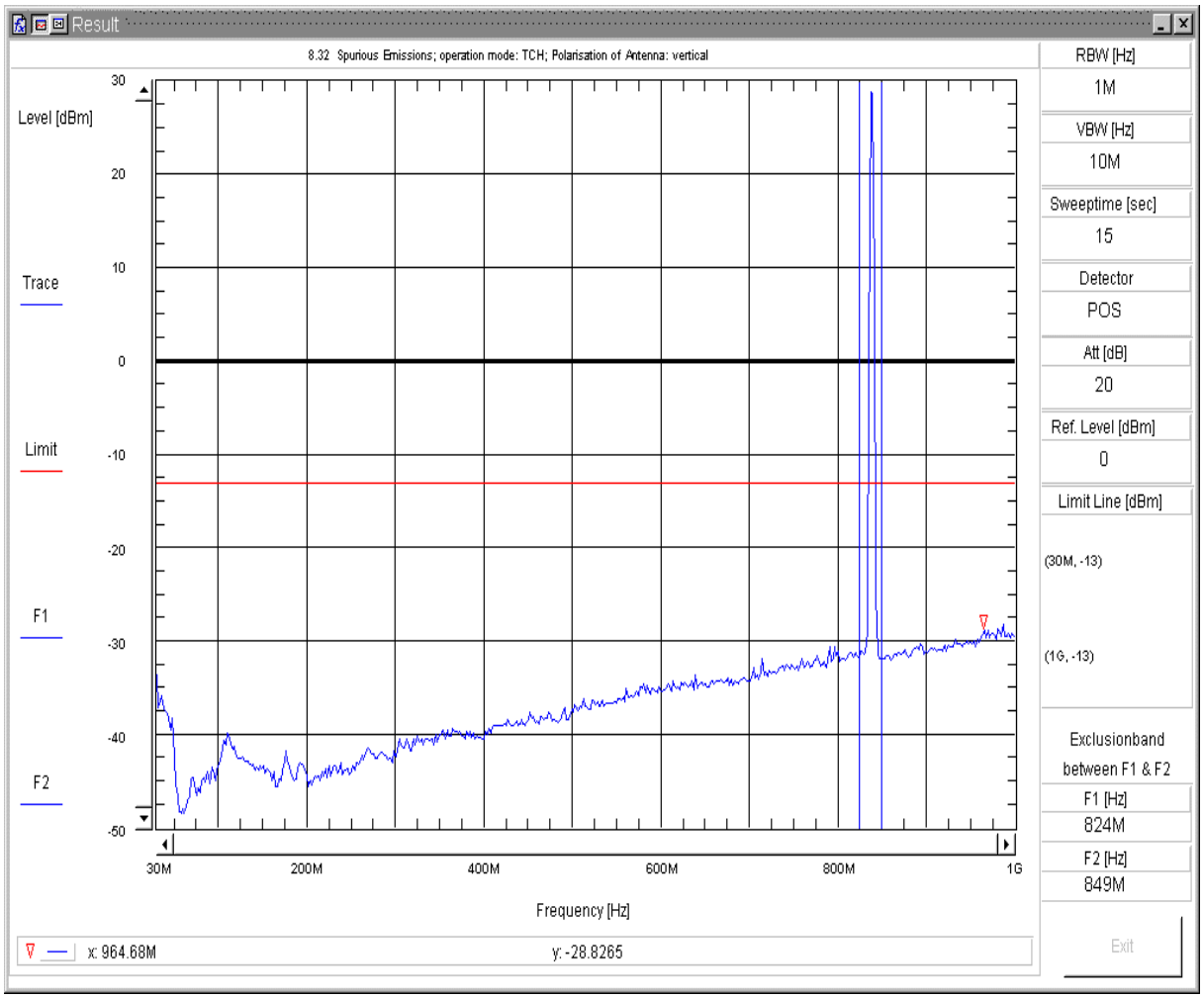
Fri 04/Feb/2011 15:27:09ppf Spurious Emissions V7.2.5



8.31 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_H
Sweepnr: Sweep1
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 192
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

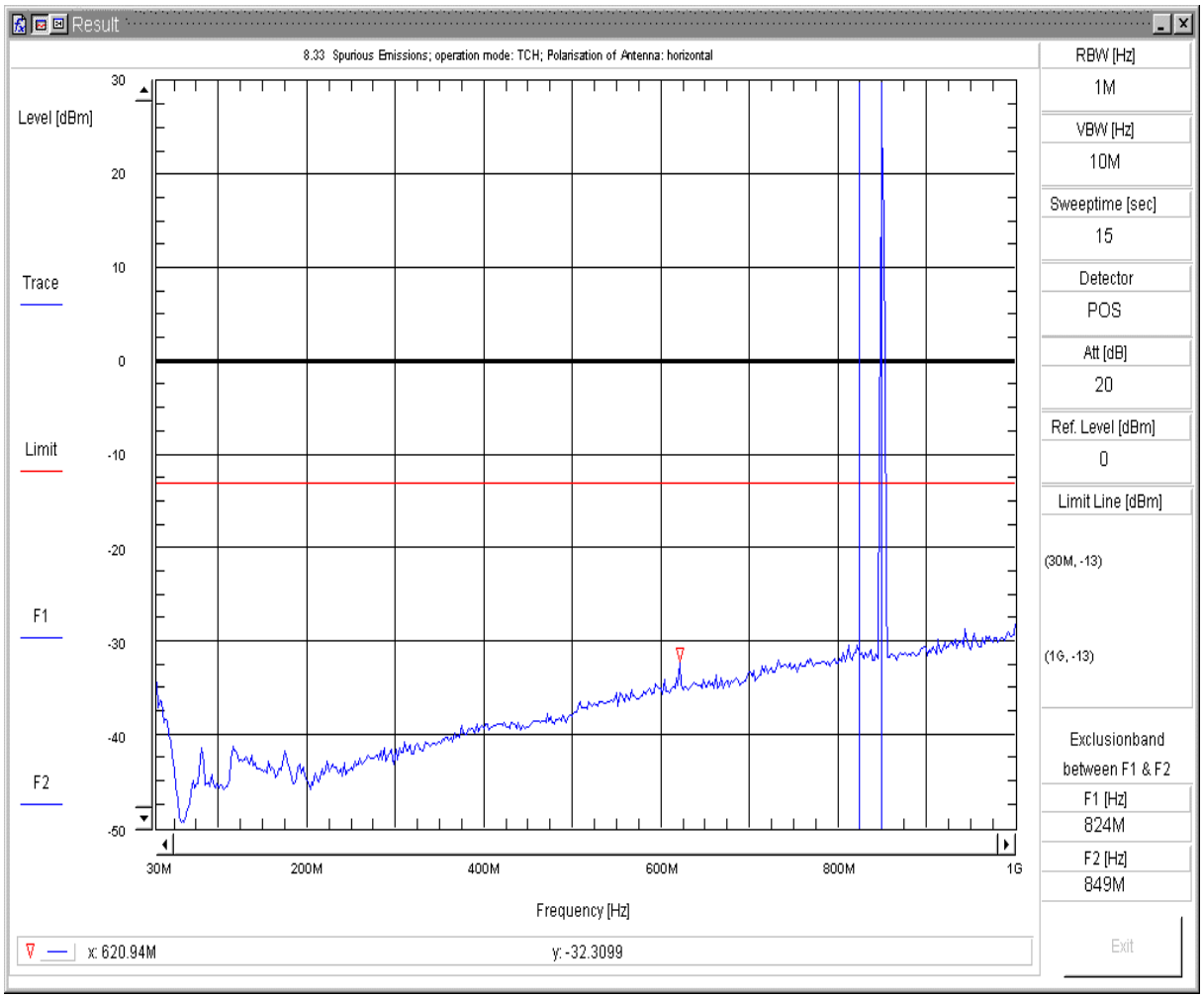
Fri 04/Feb/2011 16:50:41pff Spurious Emissions V7.2.5



8.32 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_V
Sweepnr: Sweep1
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 192
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

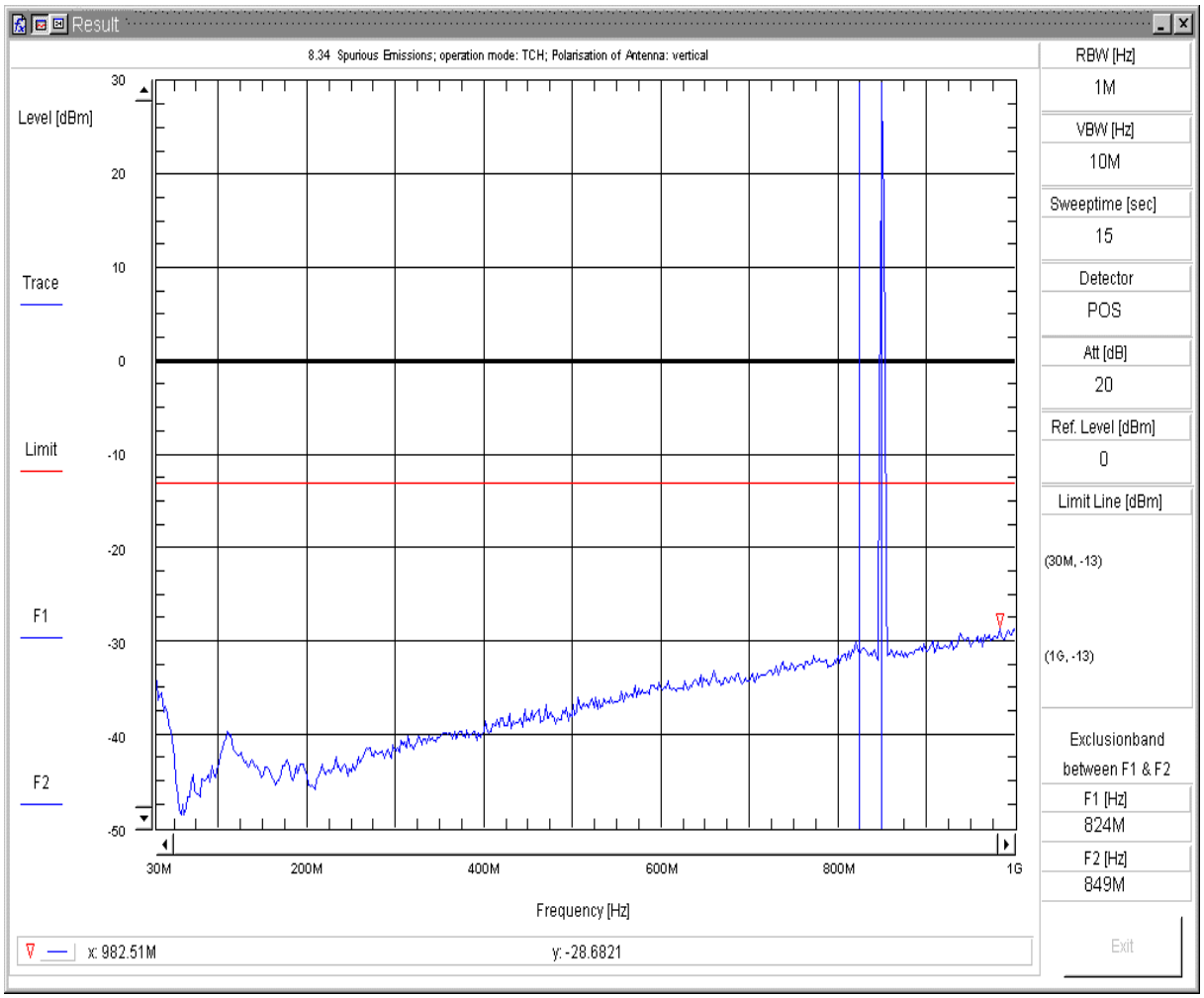
Fri 04/Feb/2011 16:57:37ppf Spurious Emissions V7.2.5



8.33 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_H
Sweepnr: Sweep1
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 251
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

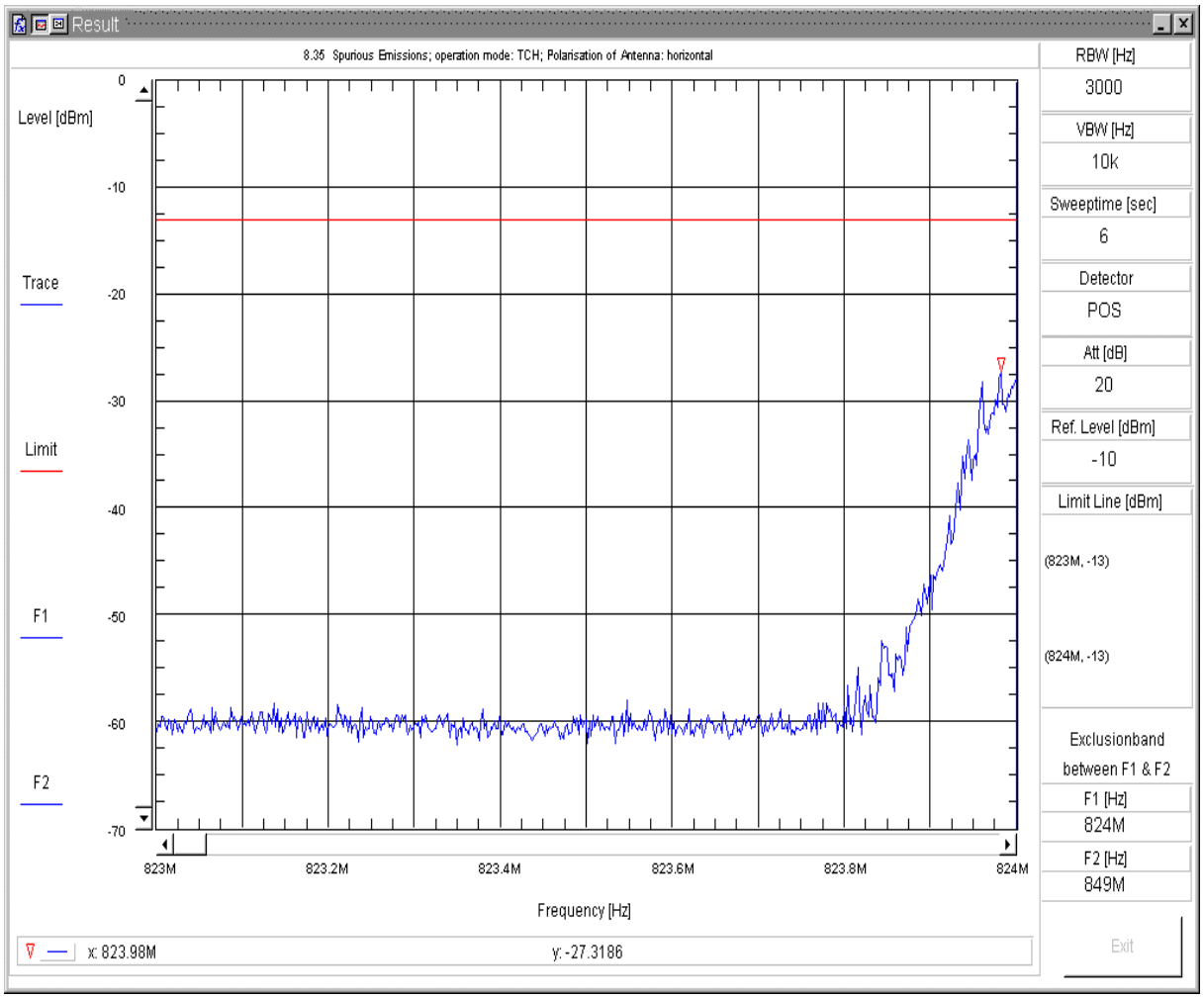
Fri 04/Feb/2011 17:07:36pff Spurious Emissions V7.2.5



8.34 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_V
Sweepnr: Sweep1
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 251
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

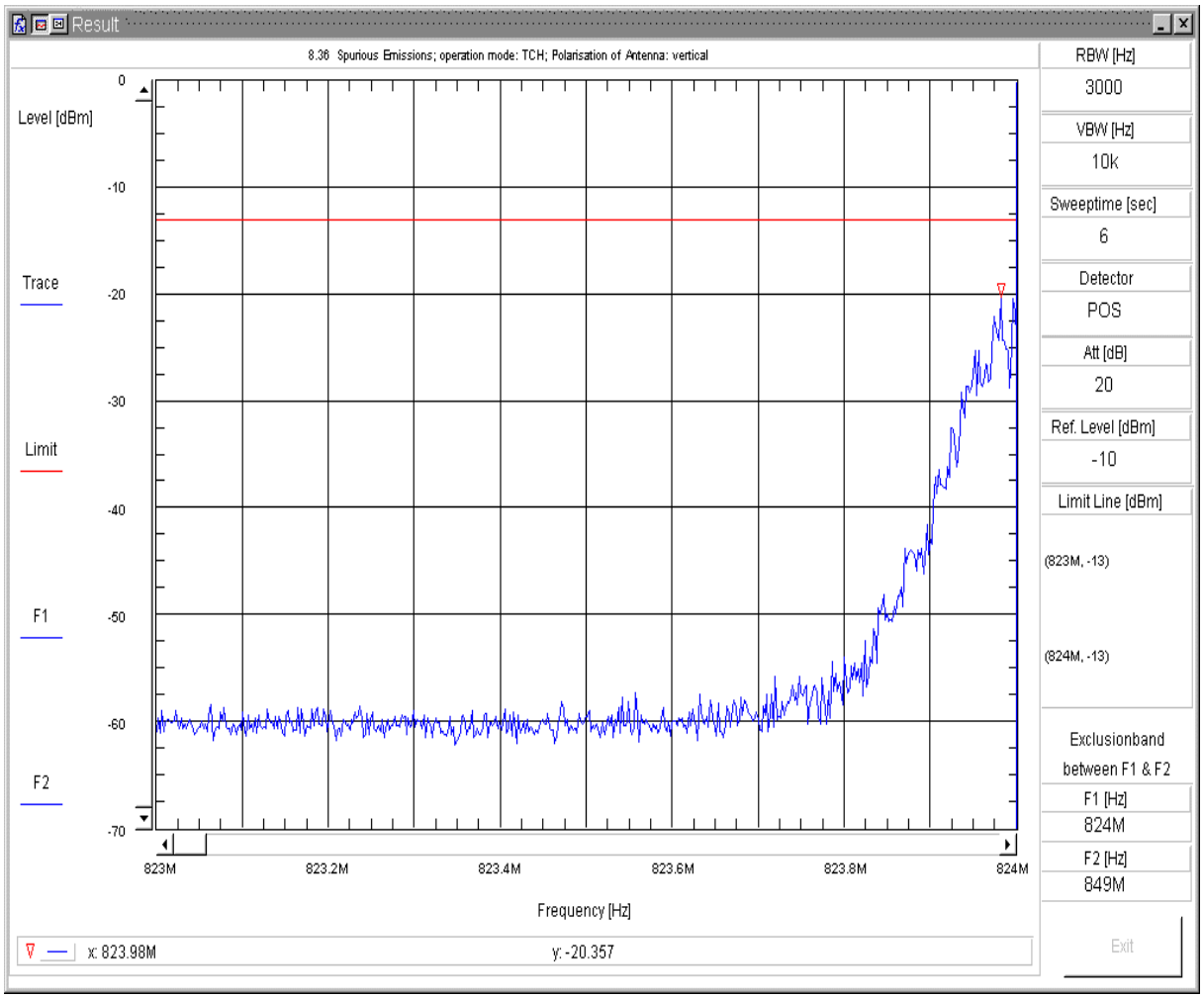
Fri 04/Feb/2011 17:03:23ppf Spurious Emissions V7.2.5



8.35 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_H
Sweepnr: Sweep2
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 128
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

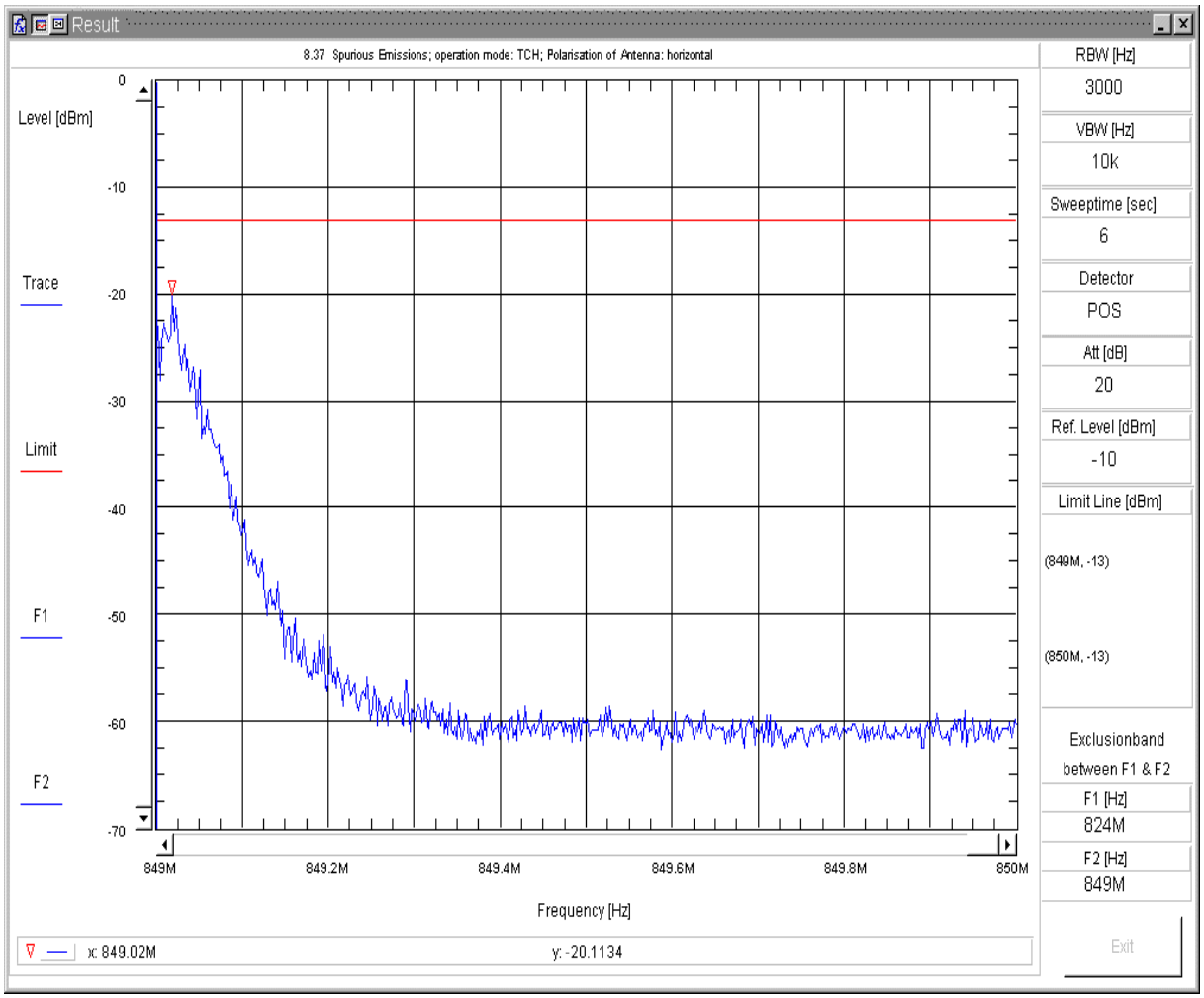
Fri 04/Feb/2011 15:36:05pff Spurious Emissions V7.2.5



8.36 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_V
Sweepnr: Sweep2
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 128
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

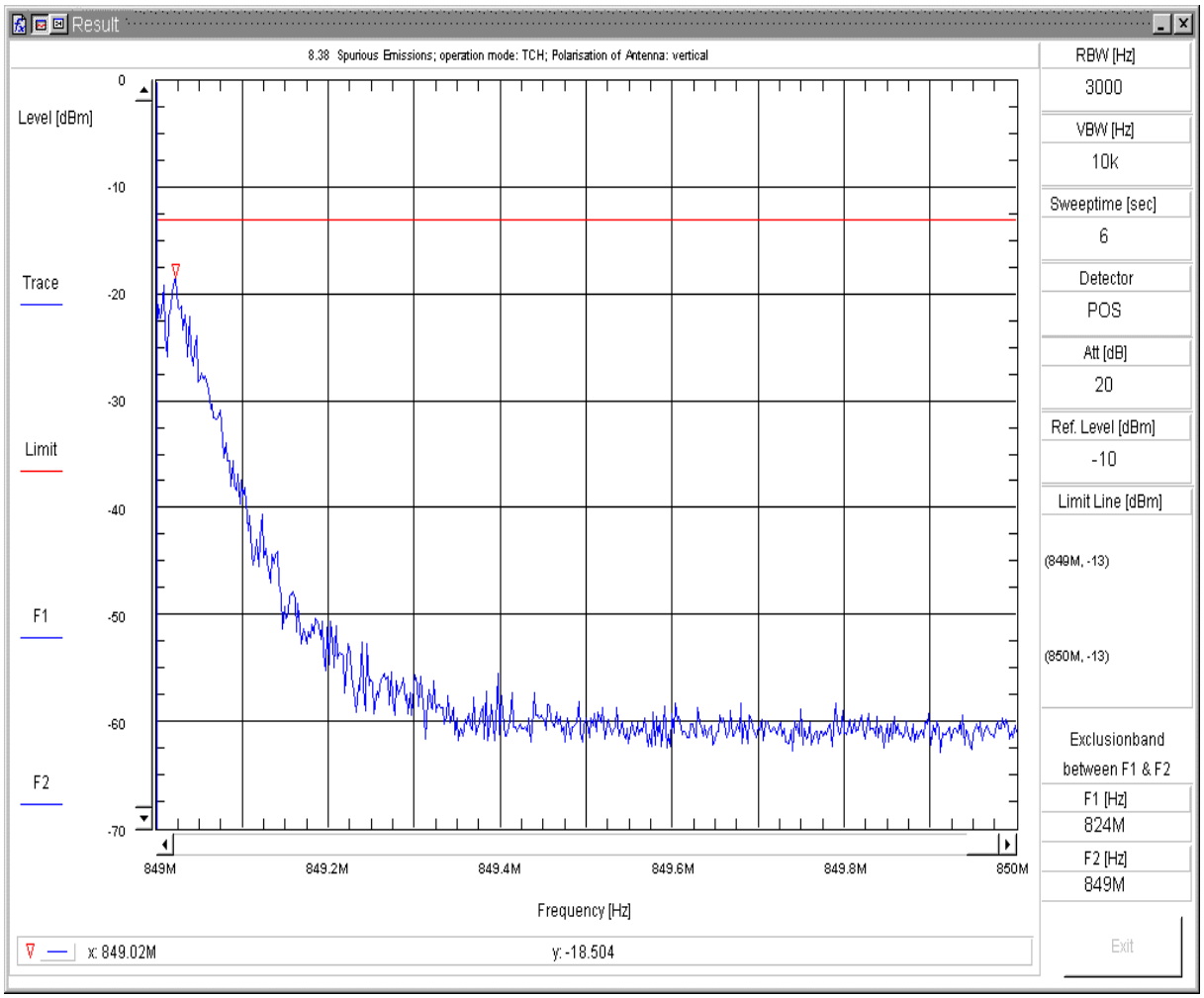
Fri 04/Feb/2011 15:32:23ppf Spurious Emissions V7.2.5



8.37 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_H
Sweepnr: Sweep3
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 251
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

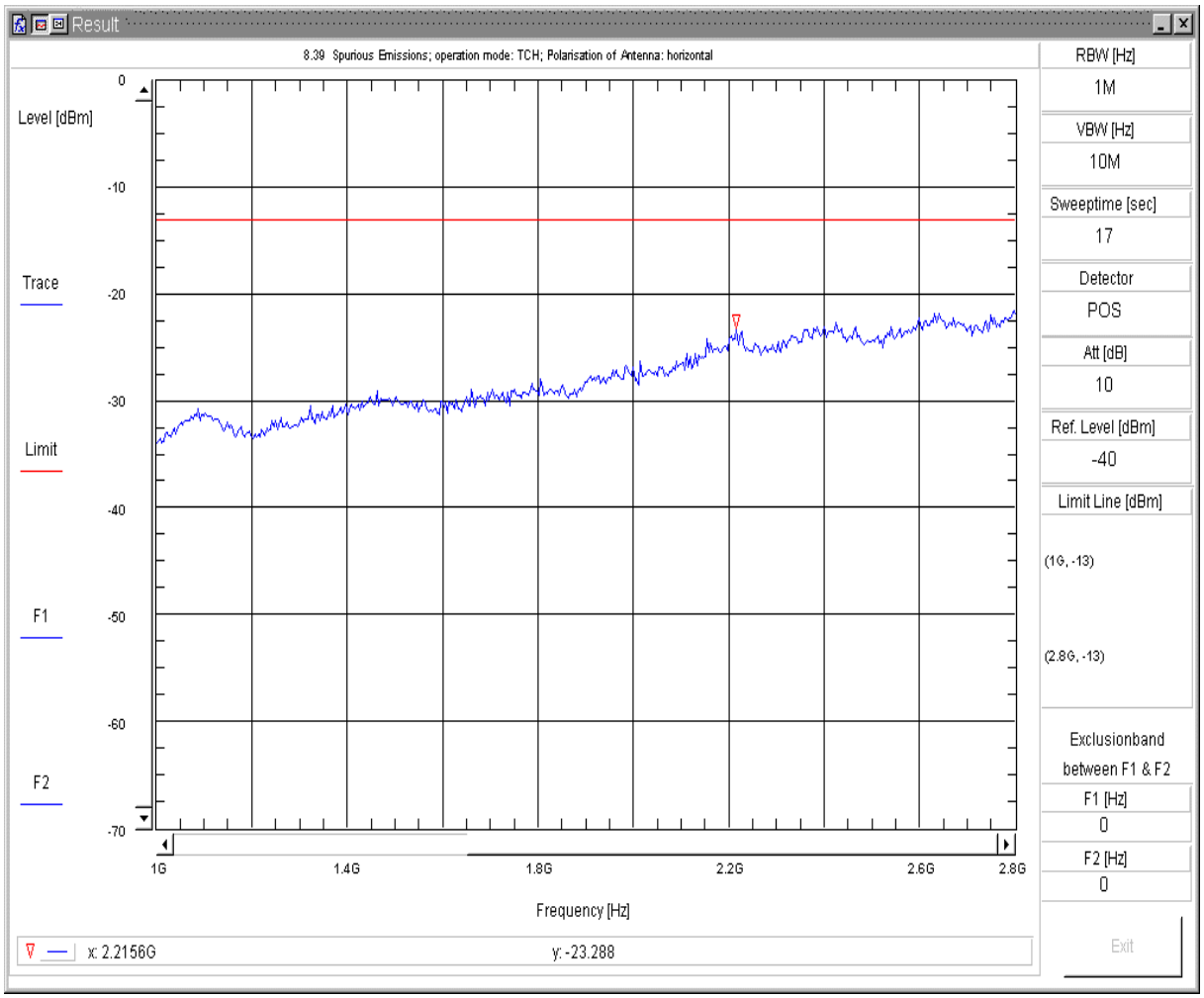
Fri 04/Feb/2011 17:11:56pff Spurious Emissions V7.2.5



8.38 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_V
Sweepnr: Sweep3
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 251
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

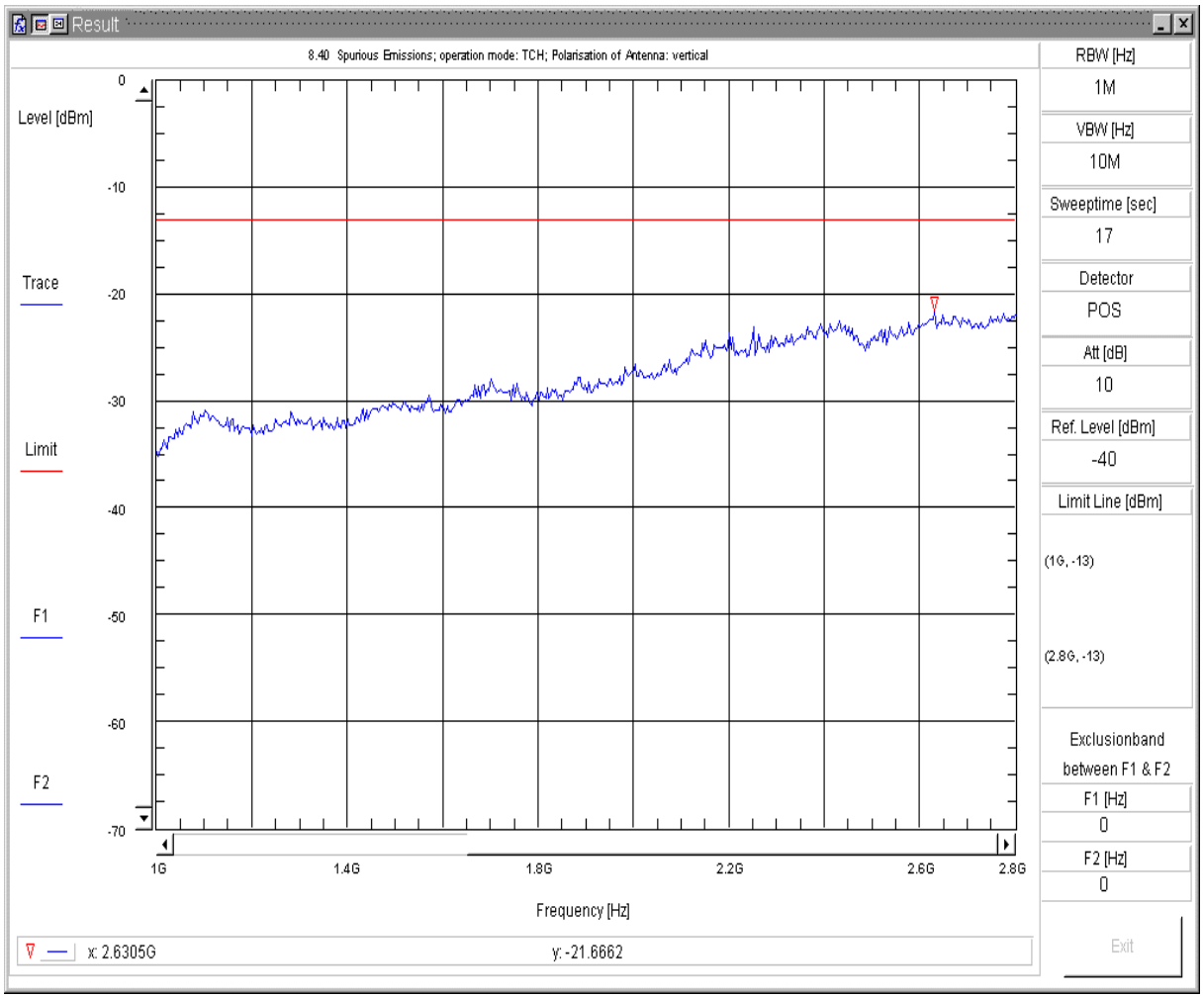
Fri 04/Feb/2011 17:15:06ppf Spurious Emissions V7.2.5



8.39 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_H
Sweepnr: Sweep4
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 128
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

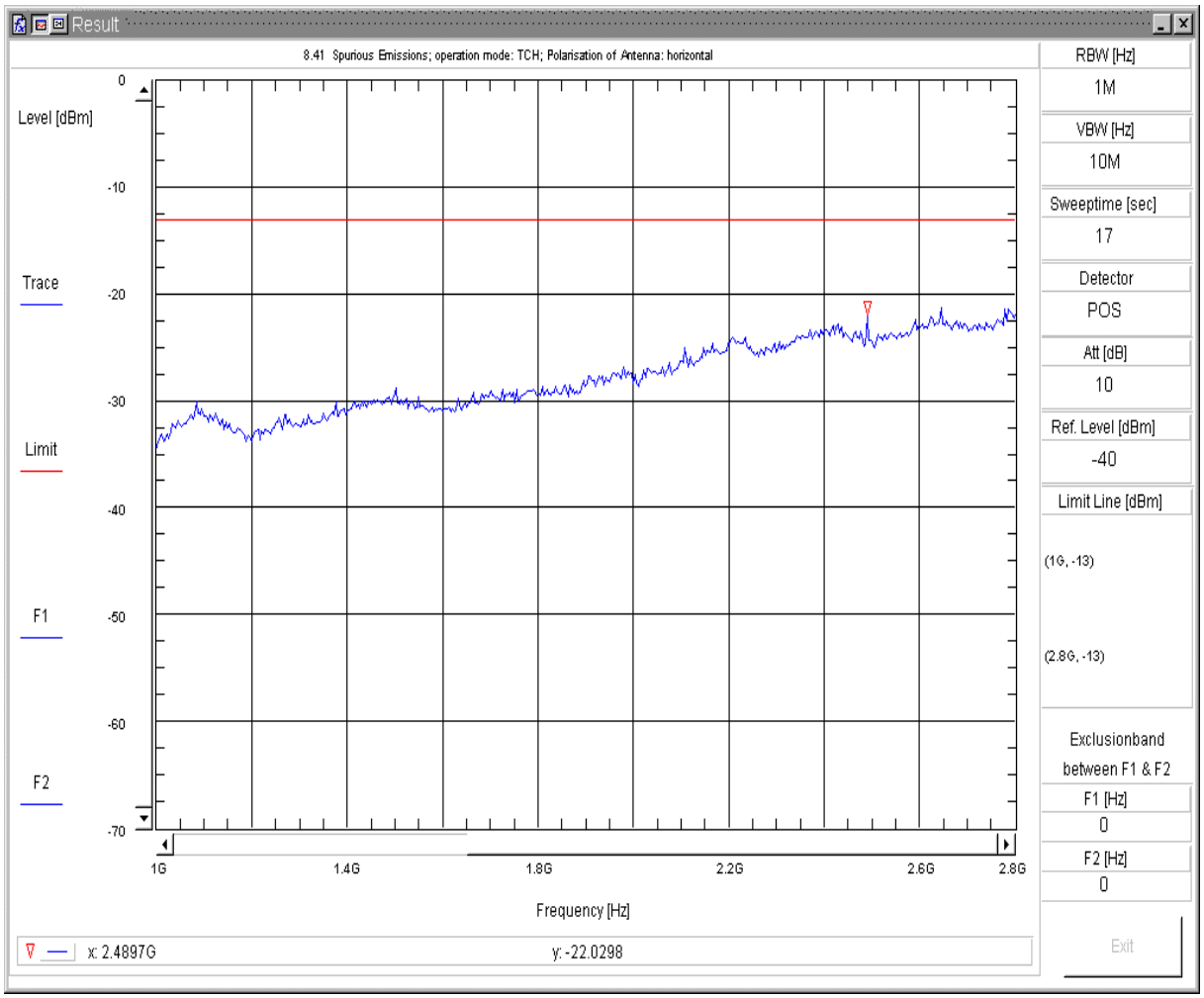
Fri 04/Feb/2011 15:40:23fp Spurious Emissions V7.2.5



8.40 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_V
Sweepnr: Sweep4
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 128
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

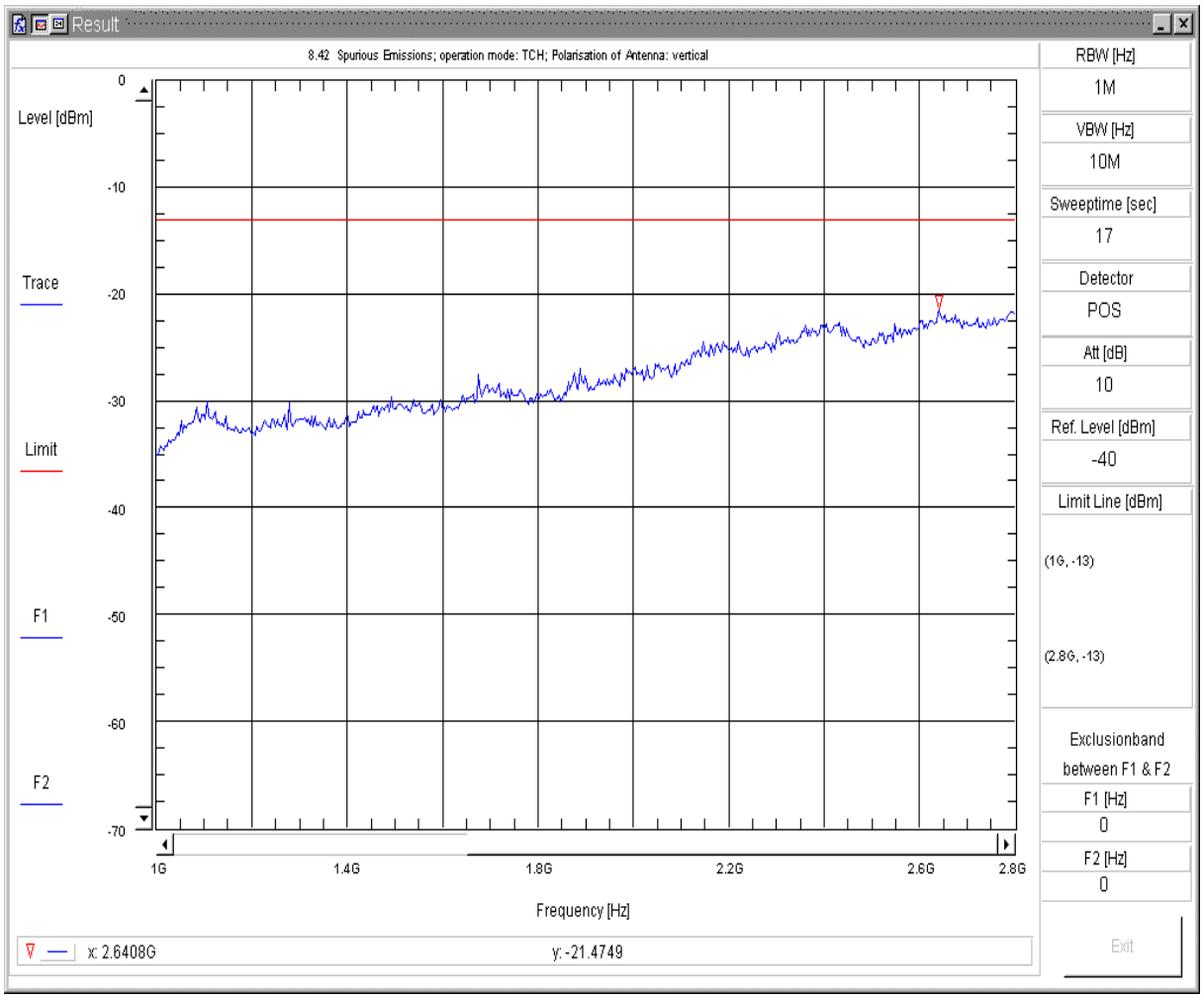
Fri 04/Feb/2011 15:48:00pp Spurious Emissions V7.2.5



8.41 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_H
Sweepnr: Sweep4
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 192
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

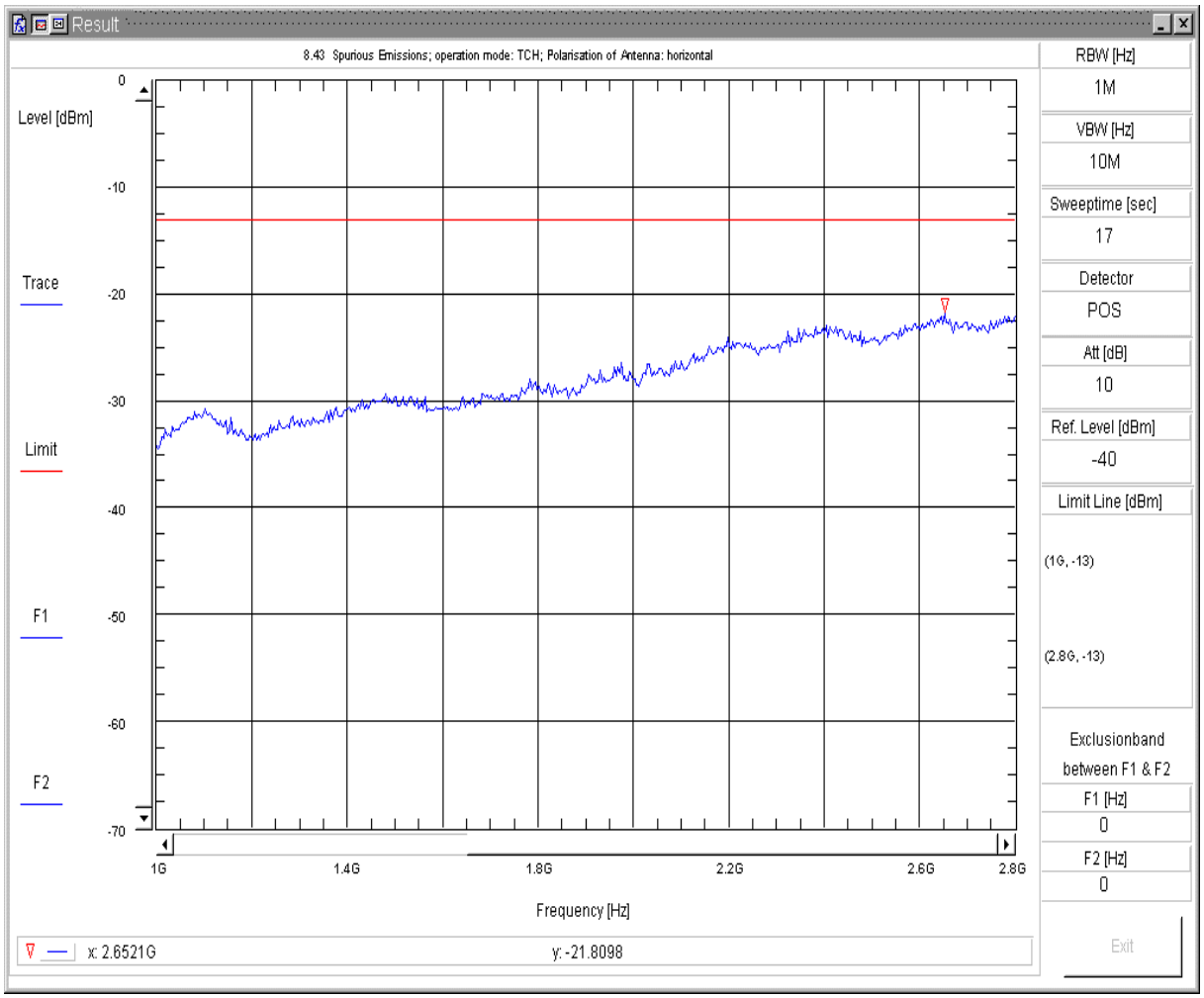
Fri 04/Feb/2011 16:42:52fp Spurious Emissions V7.2.5



8.42 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_V
Sweepnr: Sweep4
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 192
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

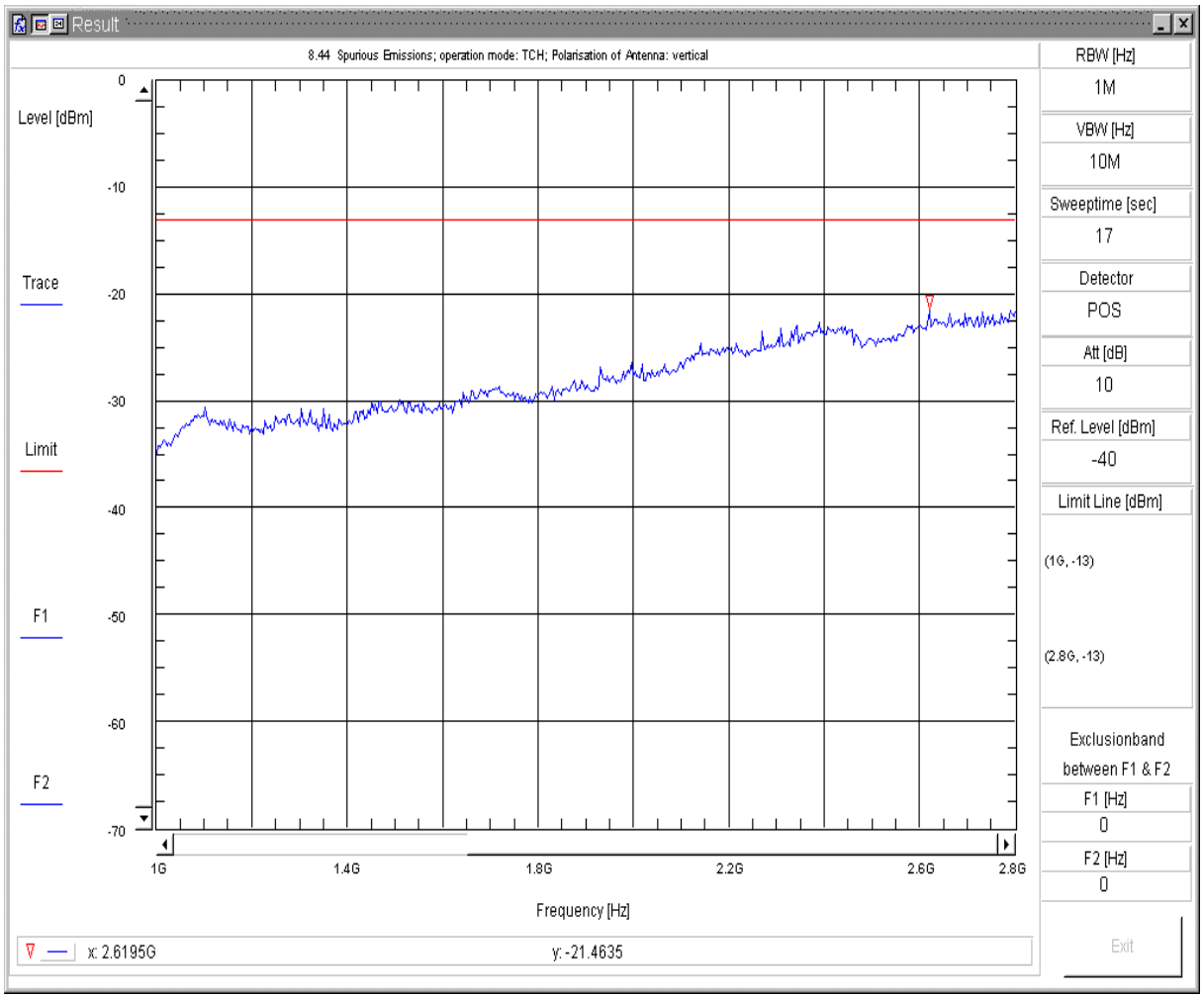
Fri 04/Feb/2011 16:35:46pp Spurious Emissions V7.2.5



8.43 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_H
Sweepnr: Sweep4
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 251
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

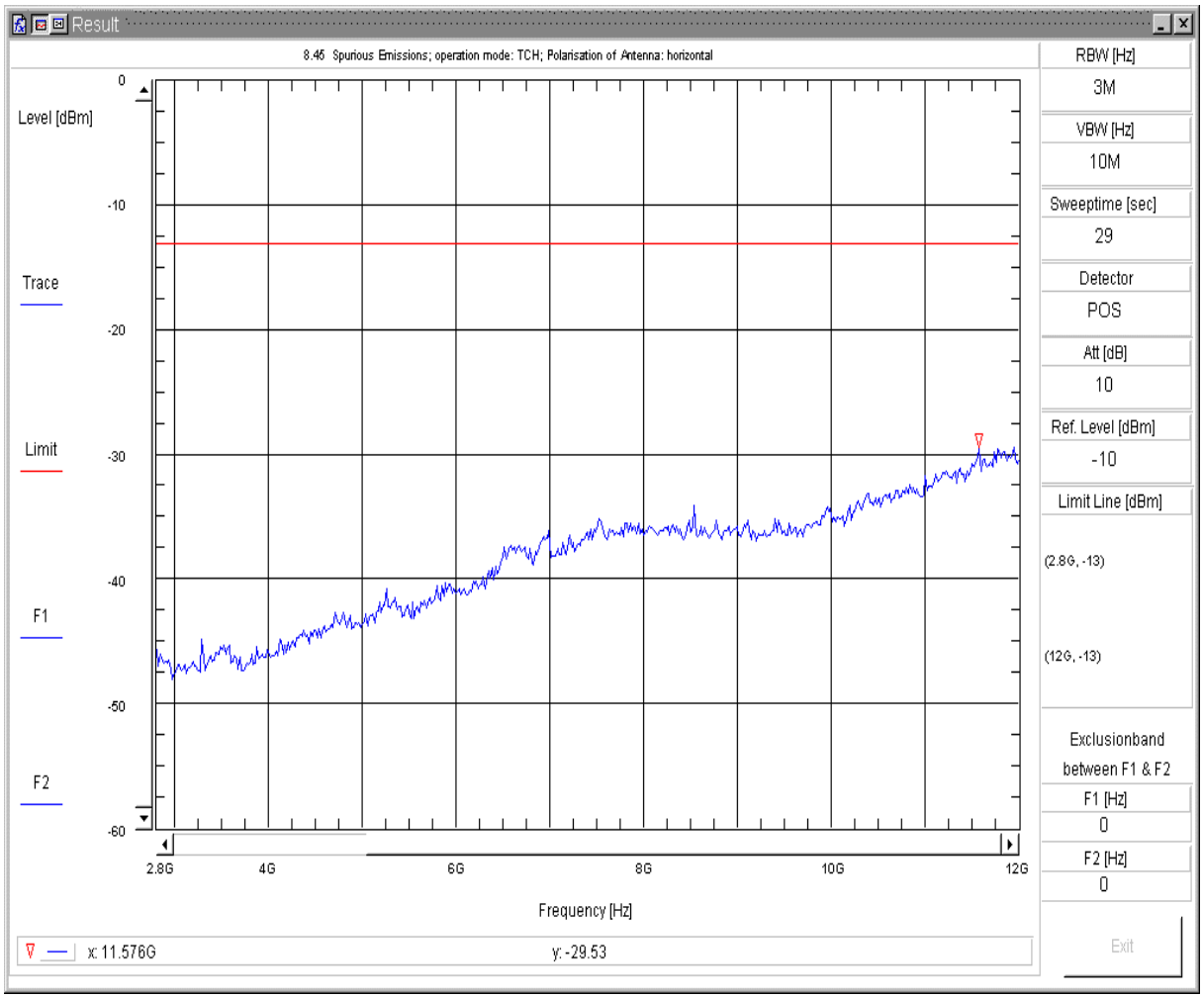
Fri 04/Feb/2011 17:25:13fp Spurious Emissions V7.2.5



8.44 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_V
Sweepnr: Sweep4
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 251
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

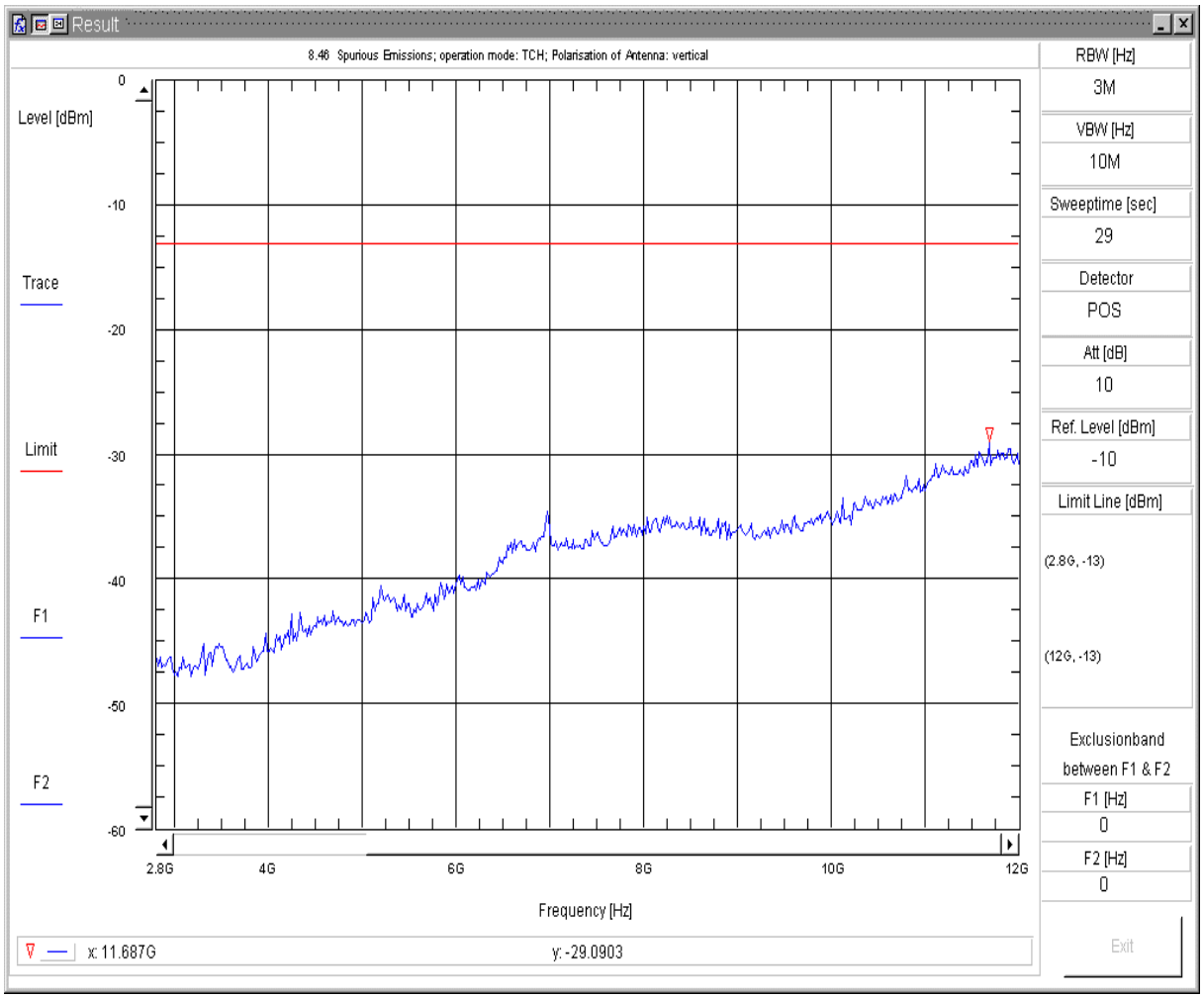
Fri 04/Feb/2011 17:18:24pp Spurious Emissions V7.2.5



8.45 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_H
Sweepnr: Sweep5
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 128
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

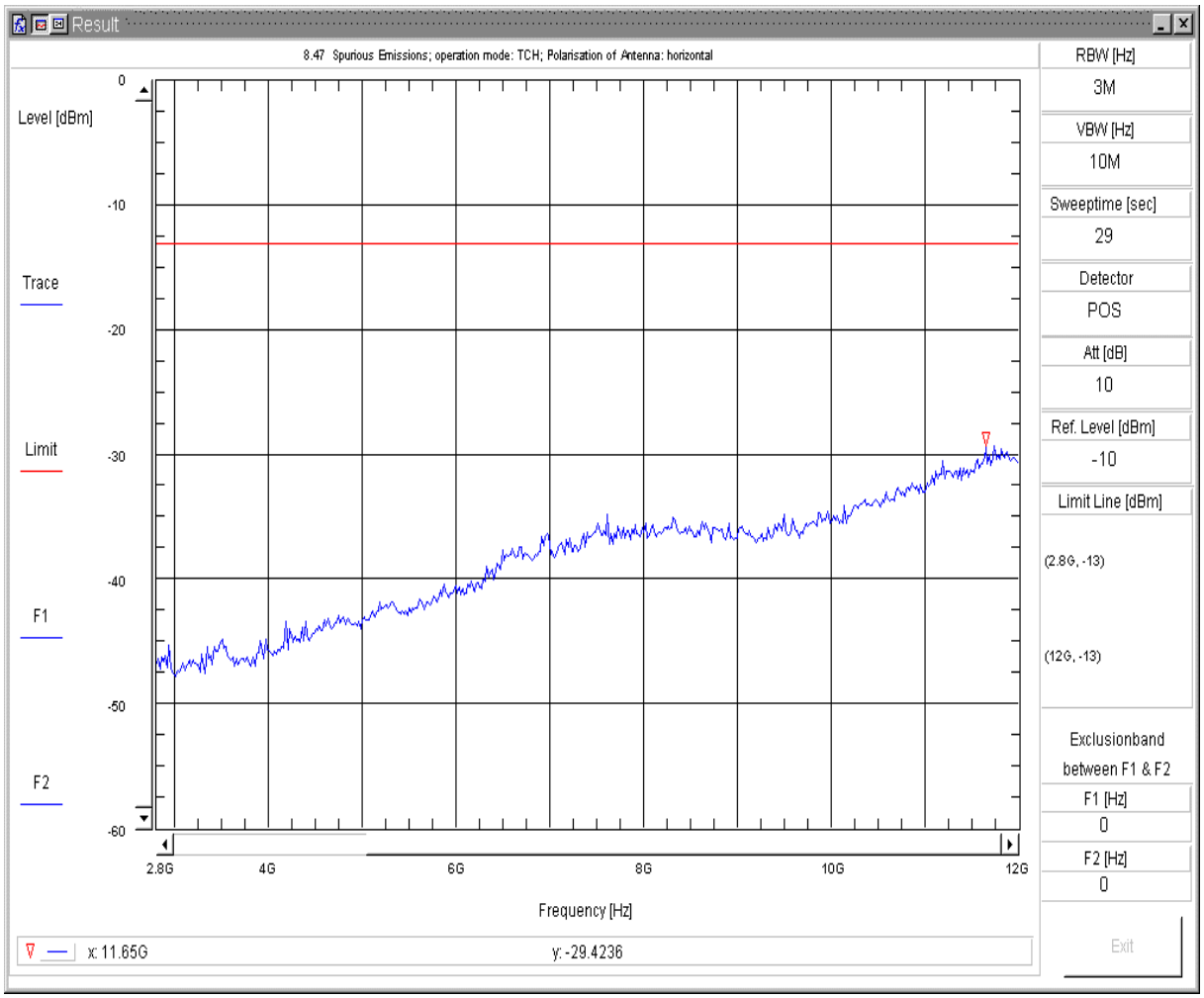
Fri 04/Feb/2011 16:05:15pf Spurious Emissions V7.2.5



8.46 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_V
Sweepnr: Sweep5
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 128
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

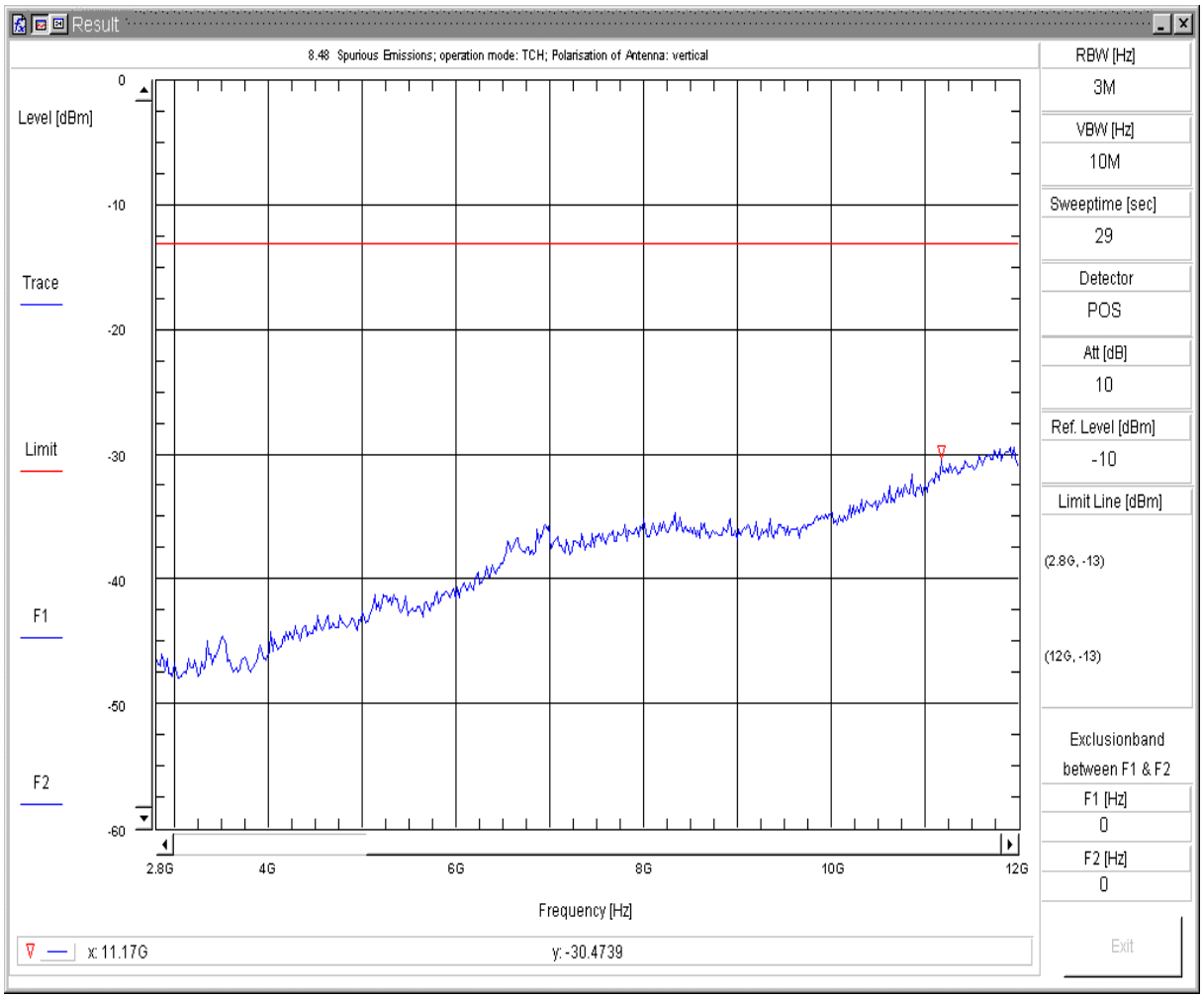
Fri 04/Feb/2011 15:55:25fp Spurious Emissions V7.2.5



8.47 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_H
Sweepnr: Sweep5
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 192
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

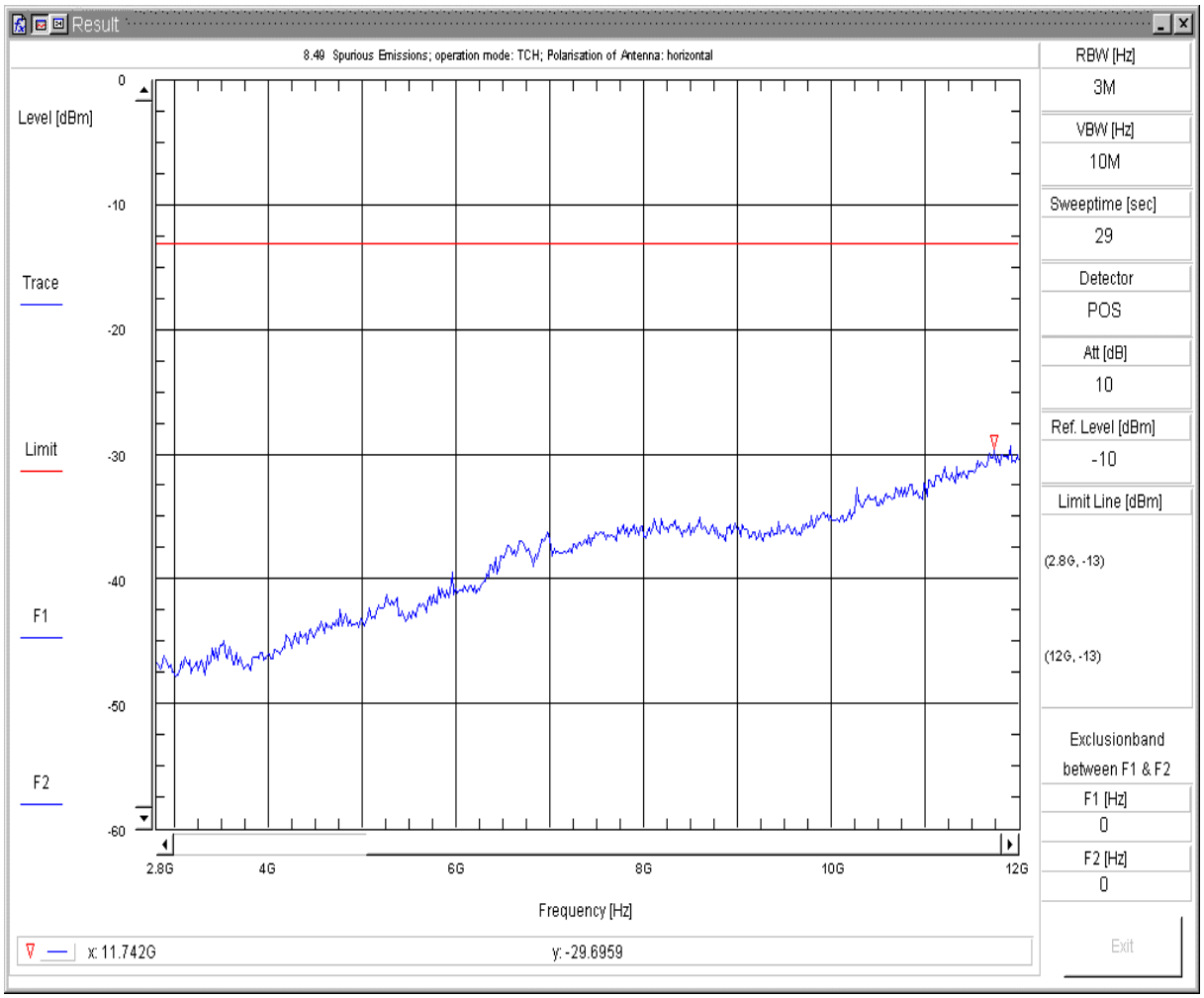
Fri 04/Feb/2011 16:15:56pp Spurious Emissions V7.2.5



8.48 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_V
Sweepnr: Sweep5
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 192
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

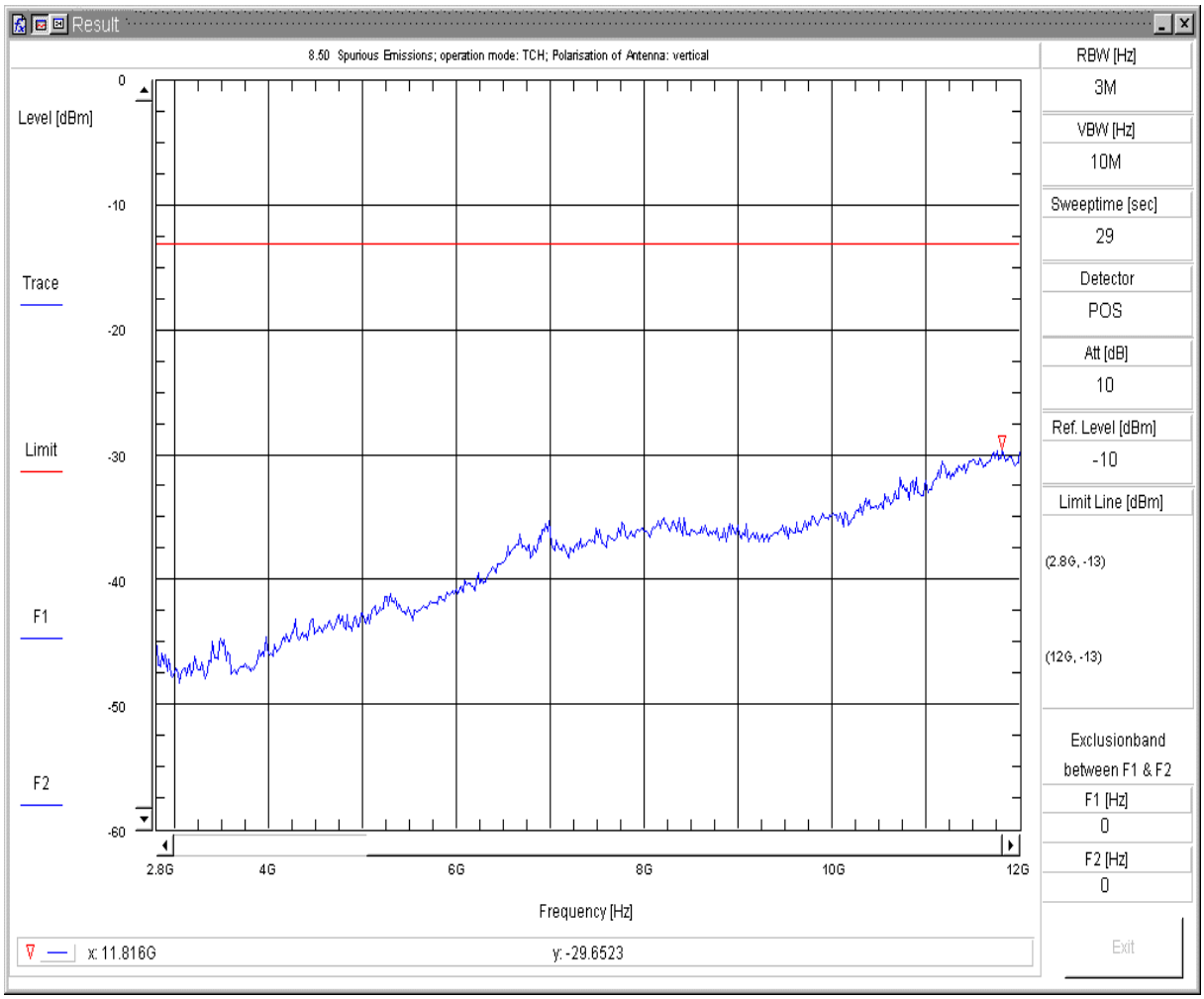
Fri 04/Feb/2011 16:25:32ff Spurious Emissions V7.2.5



8.49 Radiated Spurious Emission

Transducer:	c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_H
Sweepnr:	Sweep5
Pol. of Antenna:	horizontal
EUT Position:	EUT_vertical+horizontal
EUT OP Mode:	FCC_Part_22.917_(GSM_850) TCH
EUT Description:	BGS2-W GSM Module
EUT add. Info:	
EUT Hardware:	B2
EUT Software:	
EUT Config:	
EUT S/N:	00440108048446800
Battery:	Power Supply (external); Maximum Voltage; 4.5 VDC
Remark:	ARFCN 251
Operator:	Tas
Testing Site:	Fully Anechoic Room (FAR); CETECOM Essen

Fri 04/Feb/2011 17:32:48pf Spurious Emissions V7.2.5

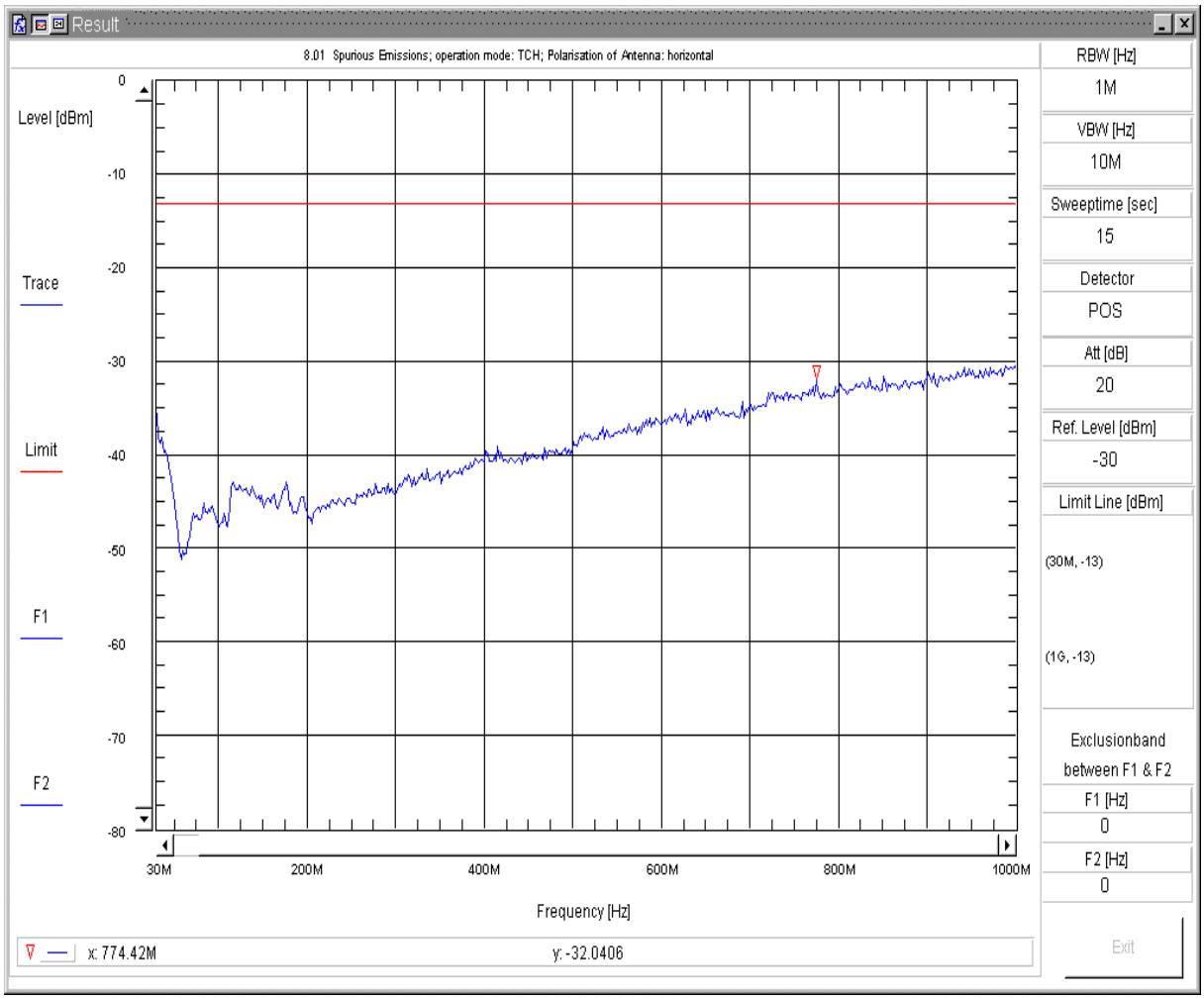


8.50 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_22.917_(GSM_850)\TD_TX_V
Sweepnr: Sweep5
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_22.917_(GSM_850) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 251
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

Fri 04/Feb/2011 17:42:37ff Spurious Emissions V7.2.5

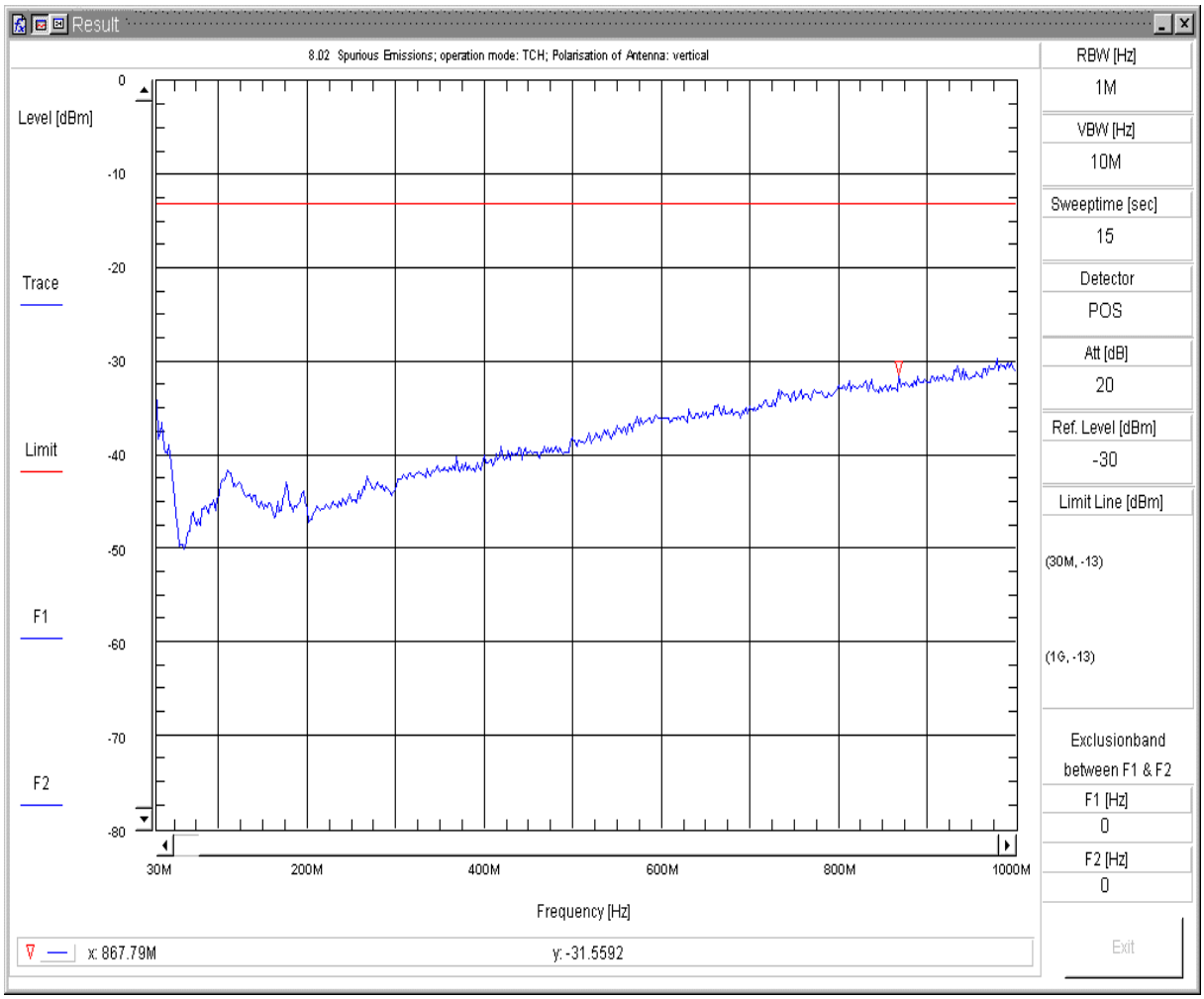
1.6. Spurious emissions radiated – GSM1900 Mode



8.01 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr: Sweep1
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 512
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

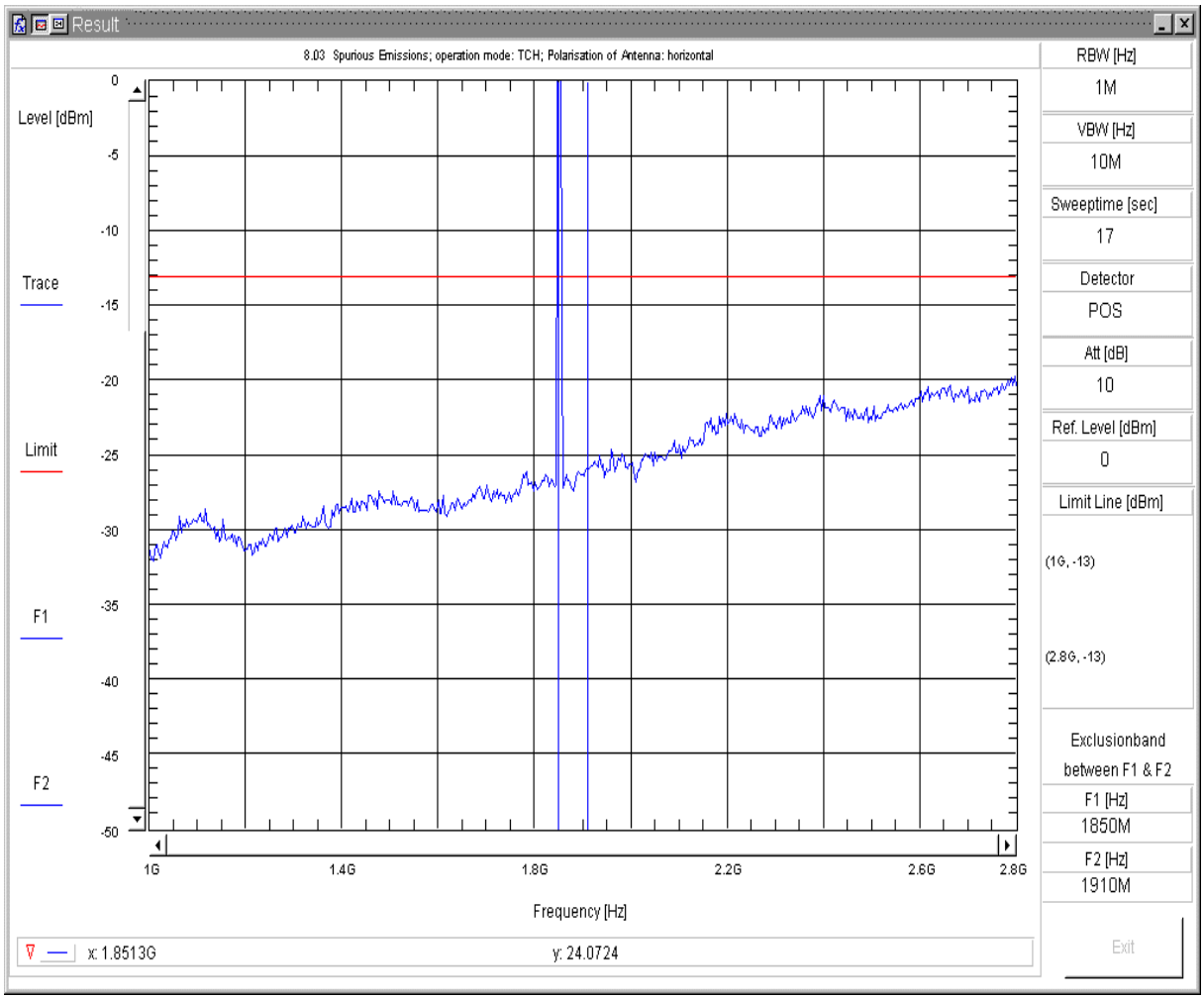
Fri 04/Feb/2011 09:24:14pff Spurious Emissions V7.2.5



8.02 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep1
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 512
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

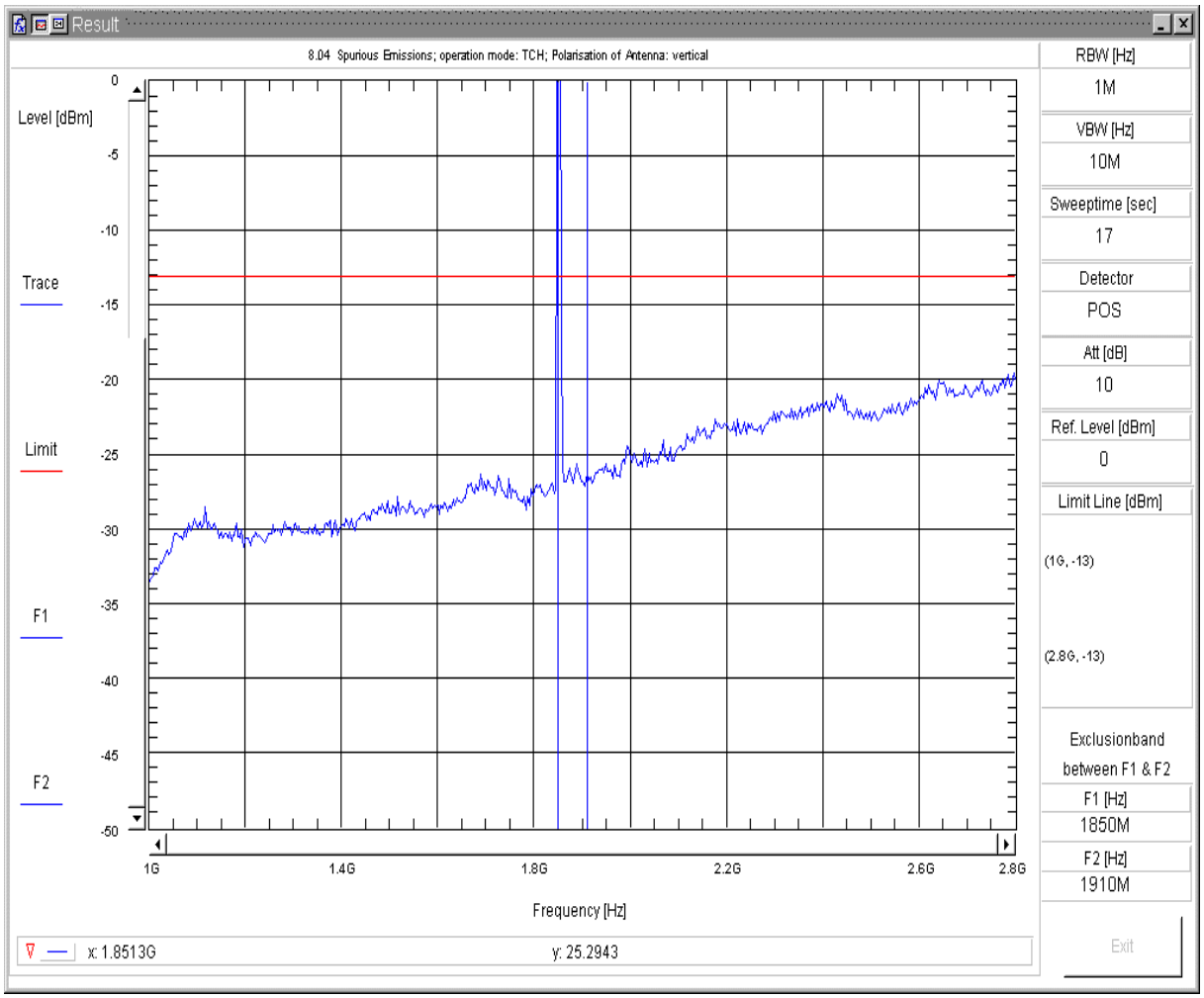
Fri 04/Feb/2011 09:28:39ppf Spurious Emissions V7.2.5



8.03 Radiated Spurious Emission

Transducer:	c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr:	Sweep2
Pol. of Antenna:	horizontal
EUT Position:	EUT_vertical+horizontal
EUT OP Mode:	FCC_Part_24.238_(GSM_1900) TCH
EUT Description:	BGS2-W GSM Module
EUT add. Info:	DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware:	B2
EUT Software:	
EUT Config:	
EUT S/N:	00440108048446800
Battery:	Power Supply (external); Maximum Voltage; 4.5 VDC
Remark:	channel 512
Operator:	Lor
Testing Site:	Fully Anechoic Room (FAR); CETECOM Essen

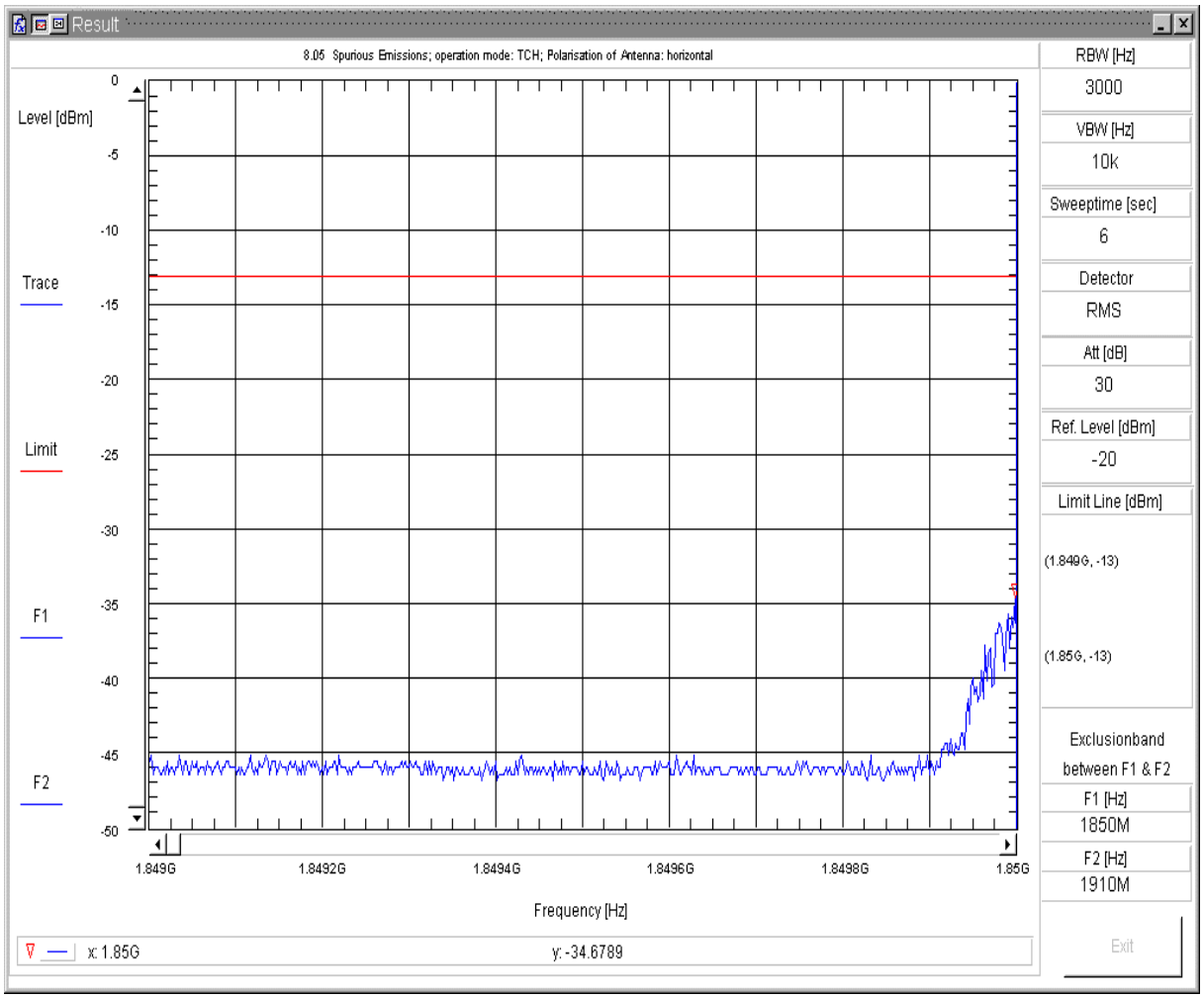
Fri 04/Feb/2011 09:32:46fp Spurious Emissions V7.2.5



8.04 Radiated Spurious Emission

Transducer:	c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr:	Sweep2
Pol. of Antenna:	vertikal
EUT Position:	EUT_vertical+horizontal
EUT OP Mode:	FCC_Part_24.238_(GSM_1900) TCH
EUT Description:	BGS2-W GSM Module
EUT add. Info:	DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware:	B2
EUT Software:	
EUT Config:	
EUT S/N:	00440108048446800
Battery:	Power Supply (external); Maximum Voltage; 4.5 VDC
Remark:	channel 512
Operator:	Lor
Testing Site:	Fully Anechoic Room (FAR); CETECOM Essen

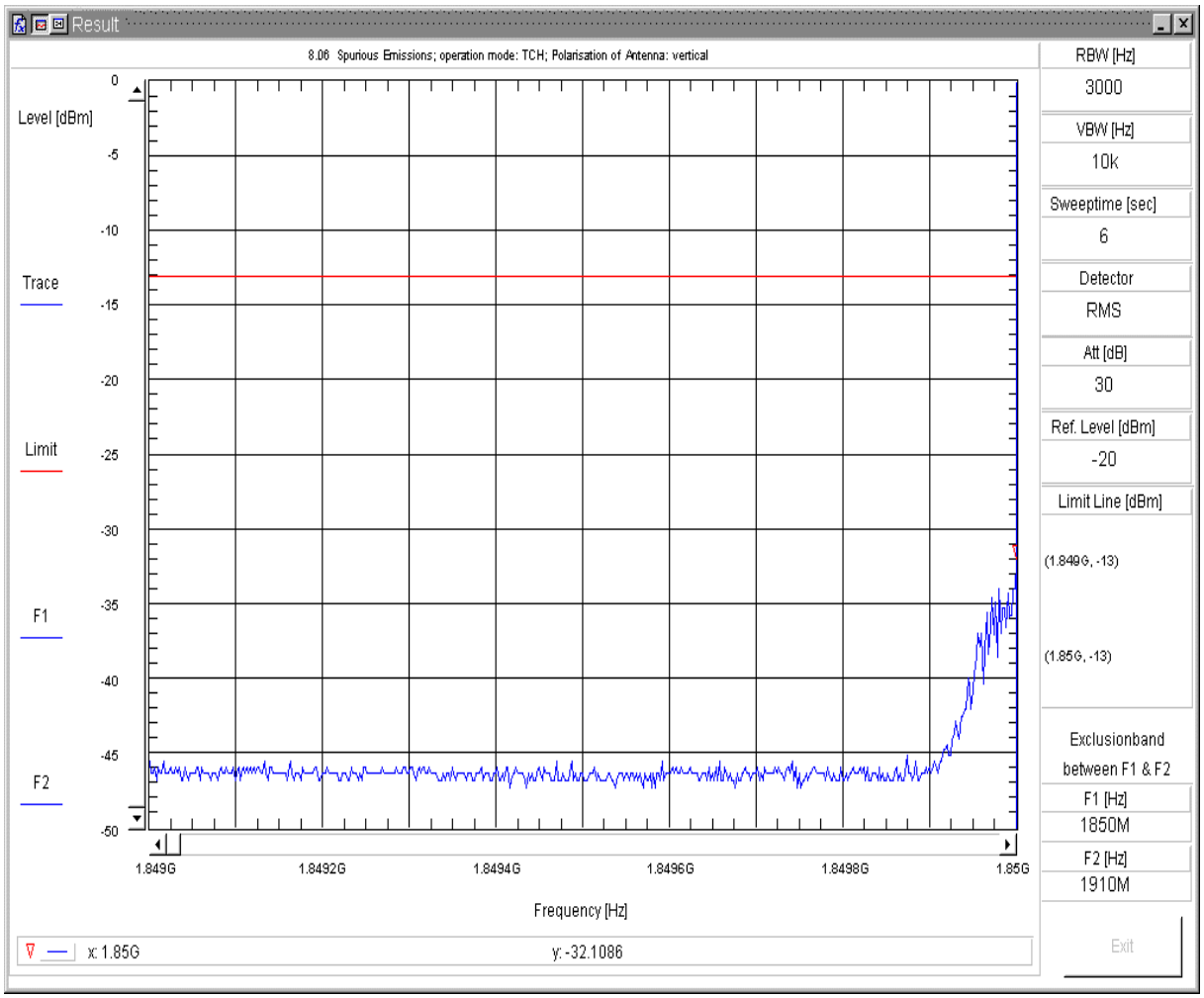
Fri 04/Feb/2011 09:40:43pf Spurious Emissions V7.2.5



8.05 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr: Sweep3
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 512
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

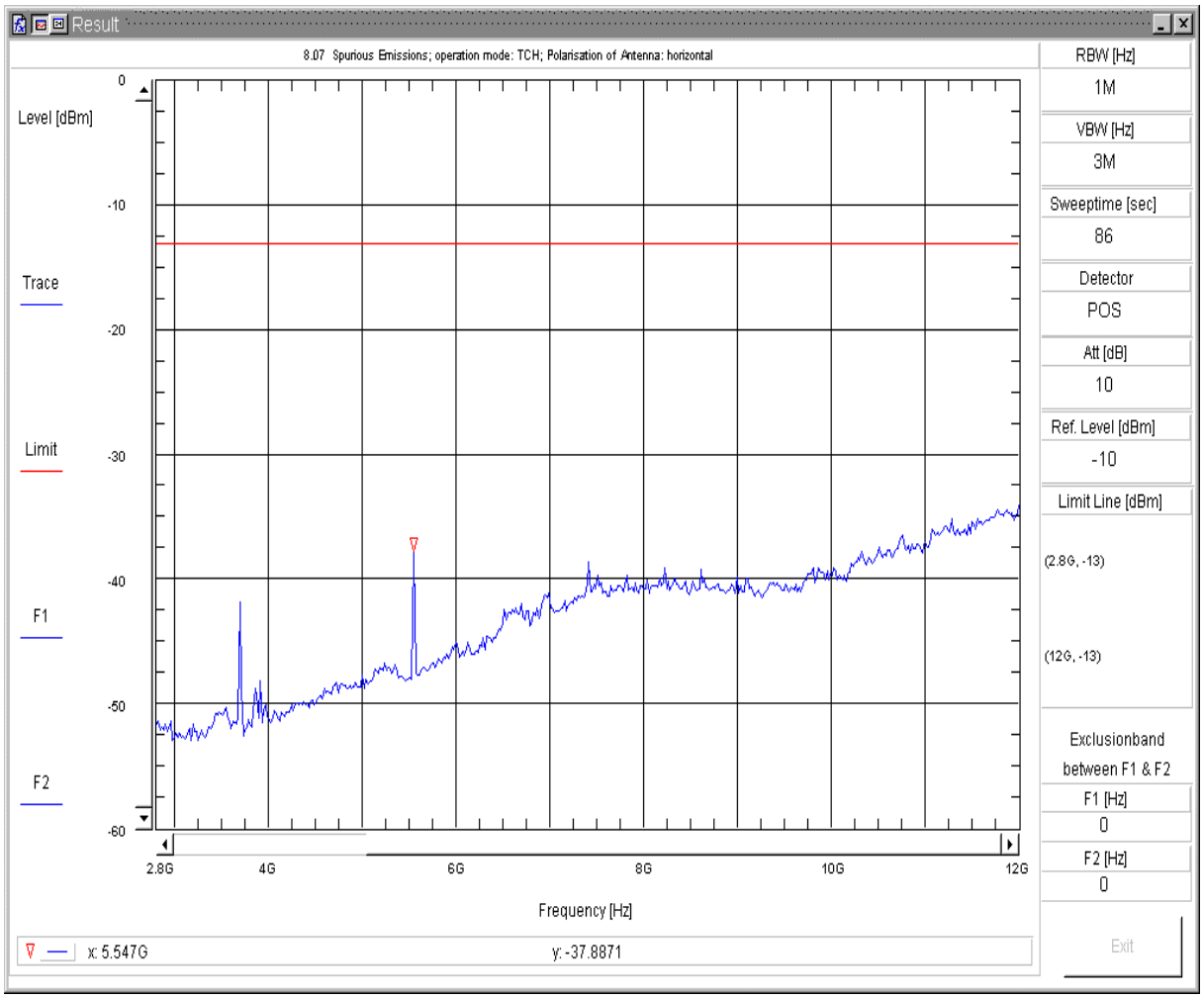
Fri 04/Feb/2011 09:47:50fp Spurious Emissions V7.2.5



8.06 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep3
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 512
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

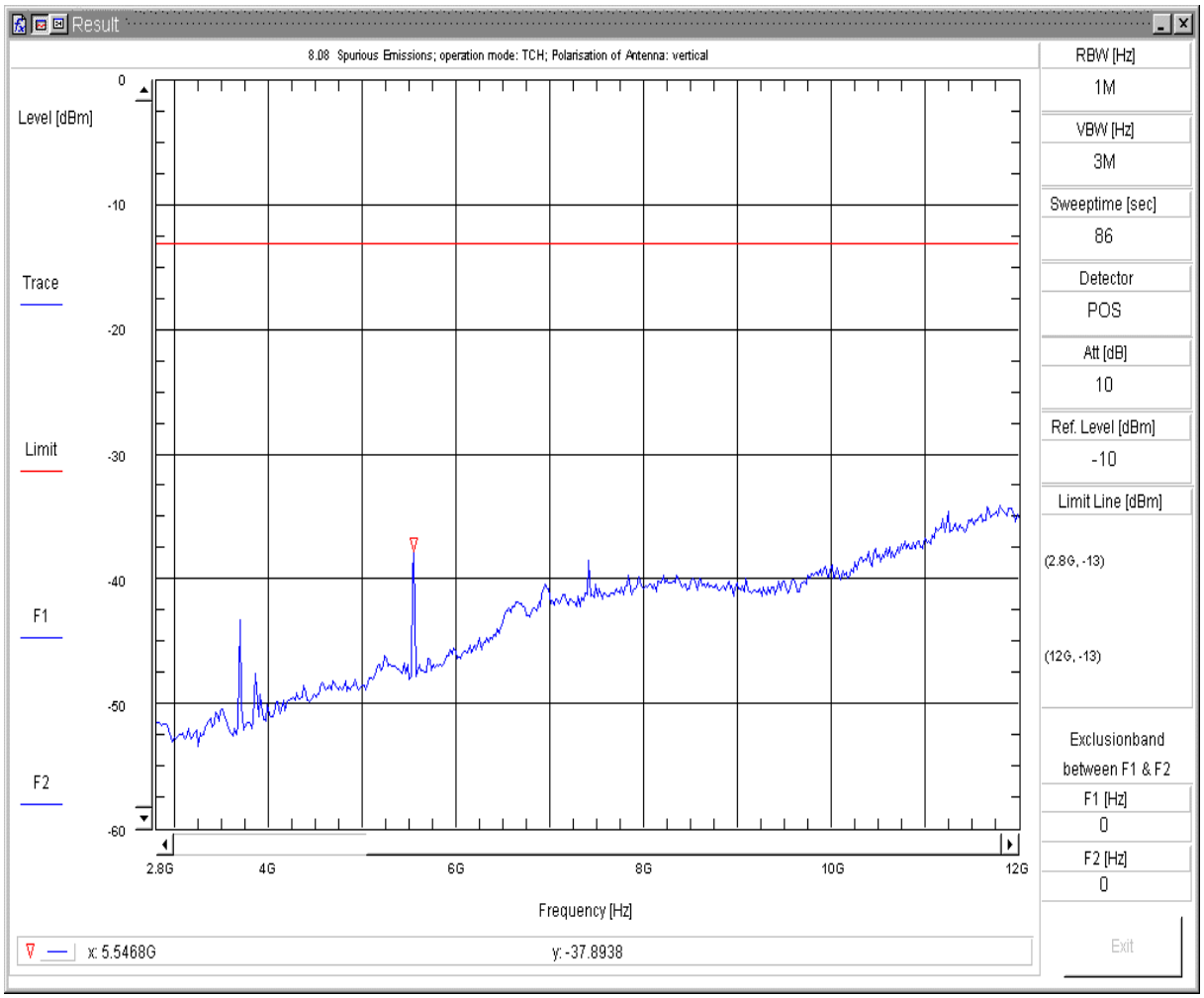
Fri 04/Feb/2011 09:51:58pf Spurious Emissions V7.2.5



8.07 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr: Sweep5
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 512
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

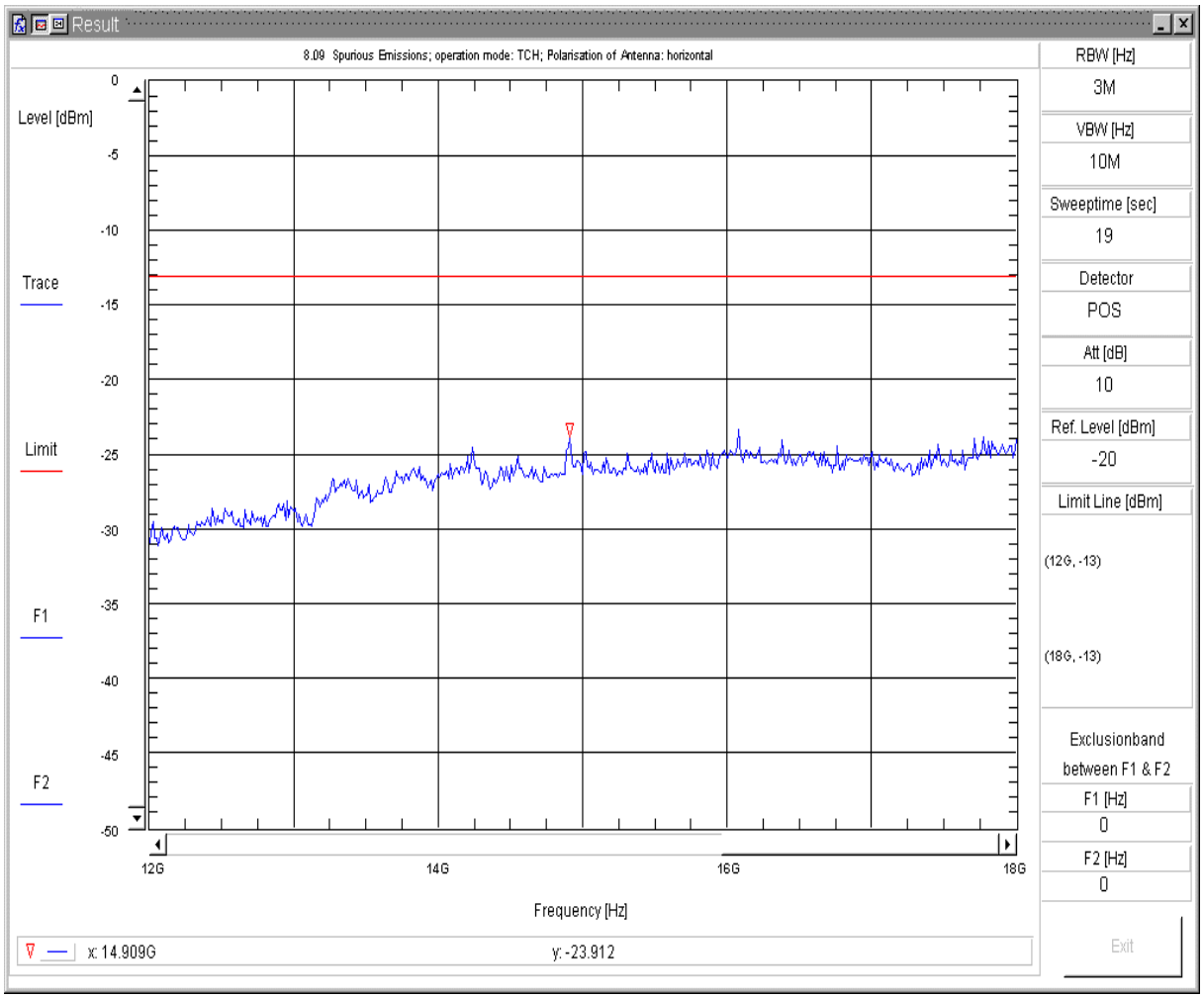
Fri 04/Feb/2011 09:56:24pp Spurious Emissions V7.2.5



8.08 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep5
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 512
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

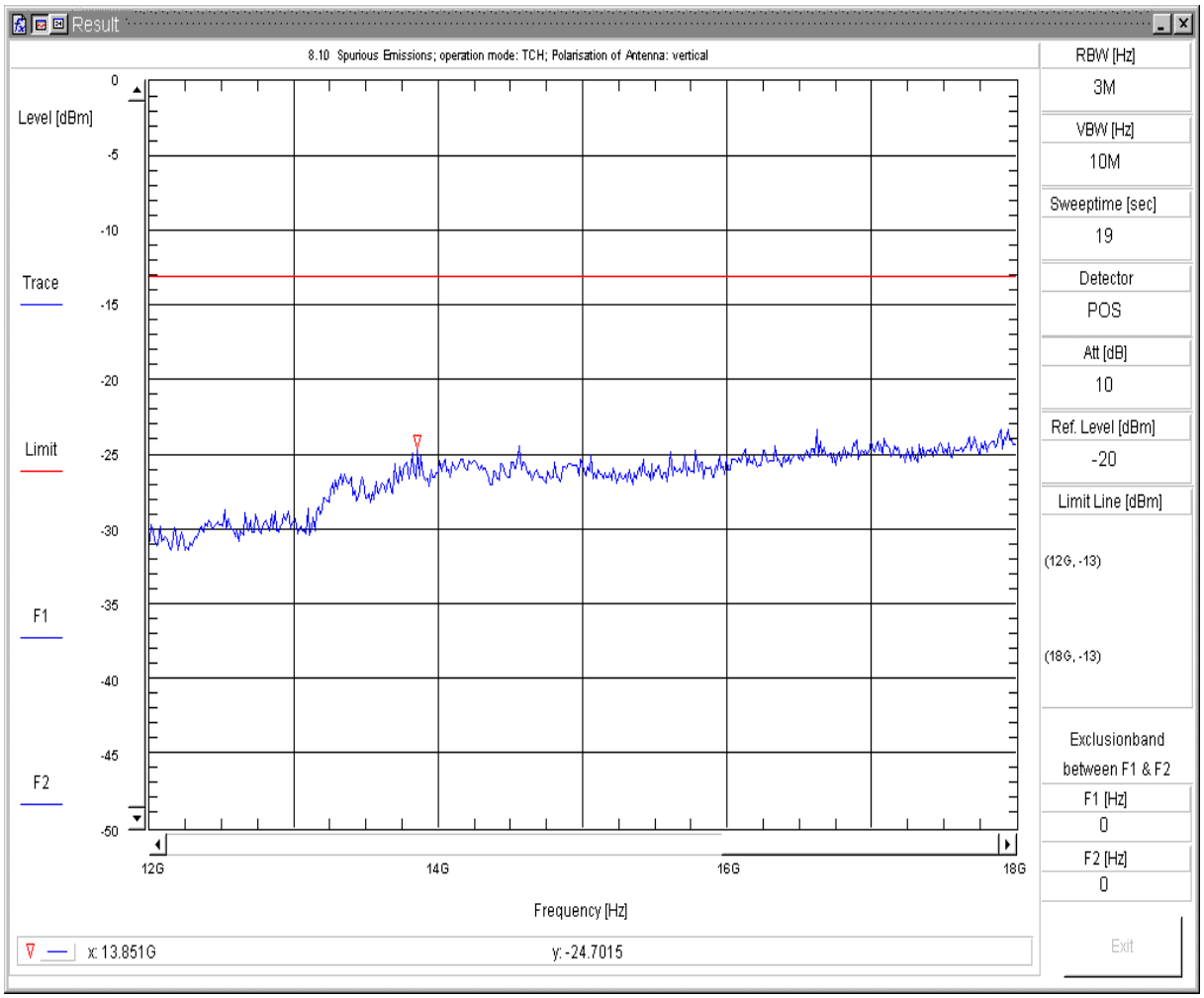
Fri 04/Feb/2011 10:19:15pp Spurious Emissions V7.2.5



8.09 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr: Sweep6
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 512
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

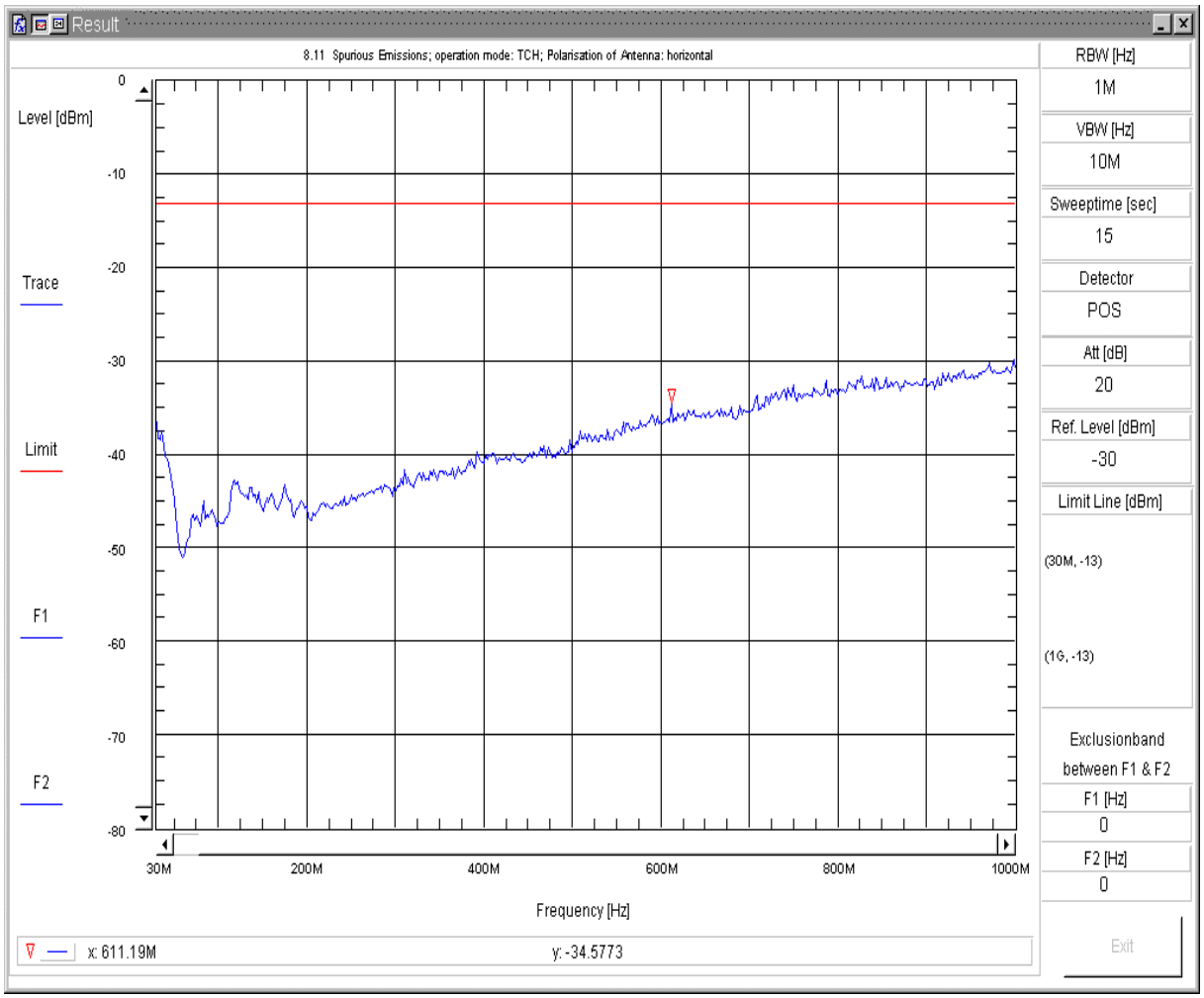
Fri 04/Feb/2011 10:42:15pp Spurious Emissions V7.2.5



8.10 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep6
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 512
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

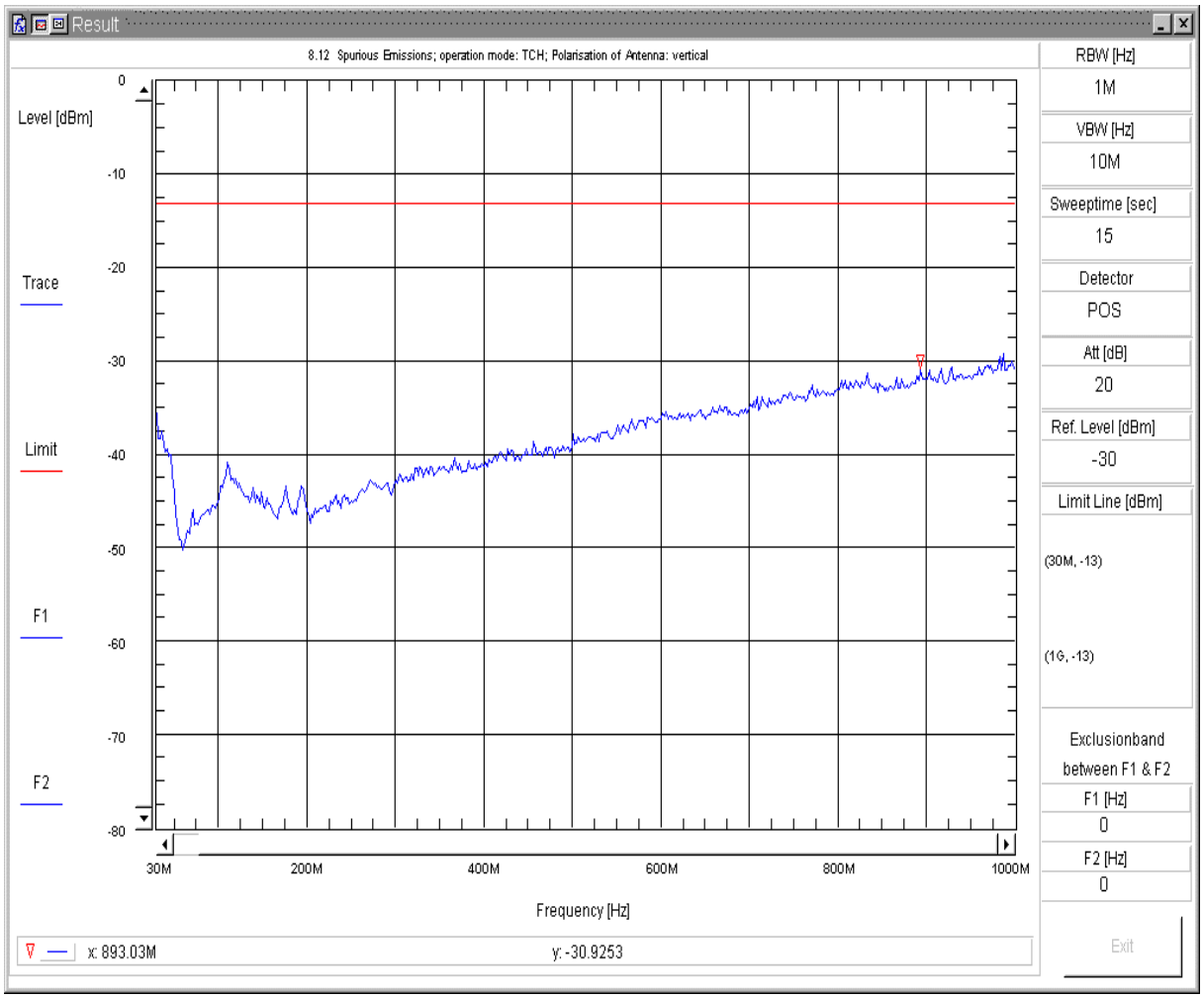
Fri 04/Feb/2011 10:49:55pp Spurious Emissions V7.2.5



8.11 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr: Sweep1
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 661
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

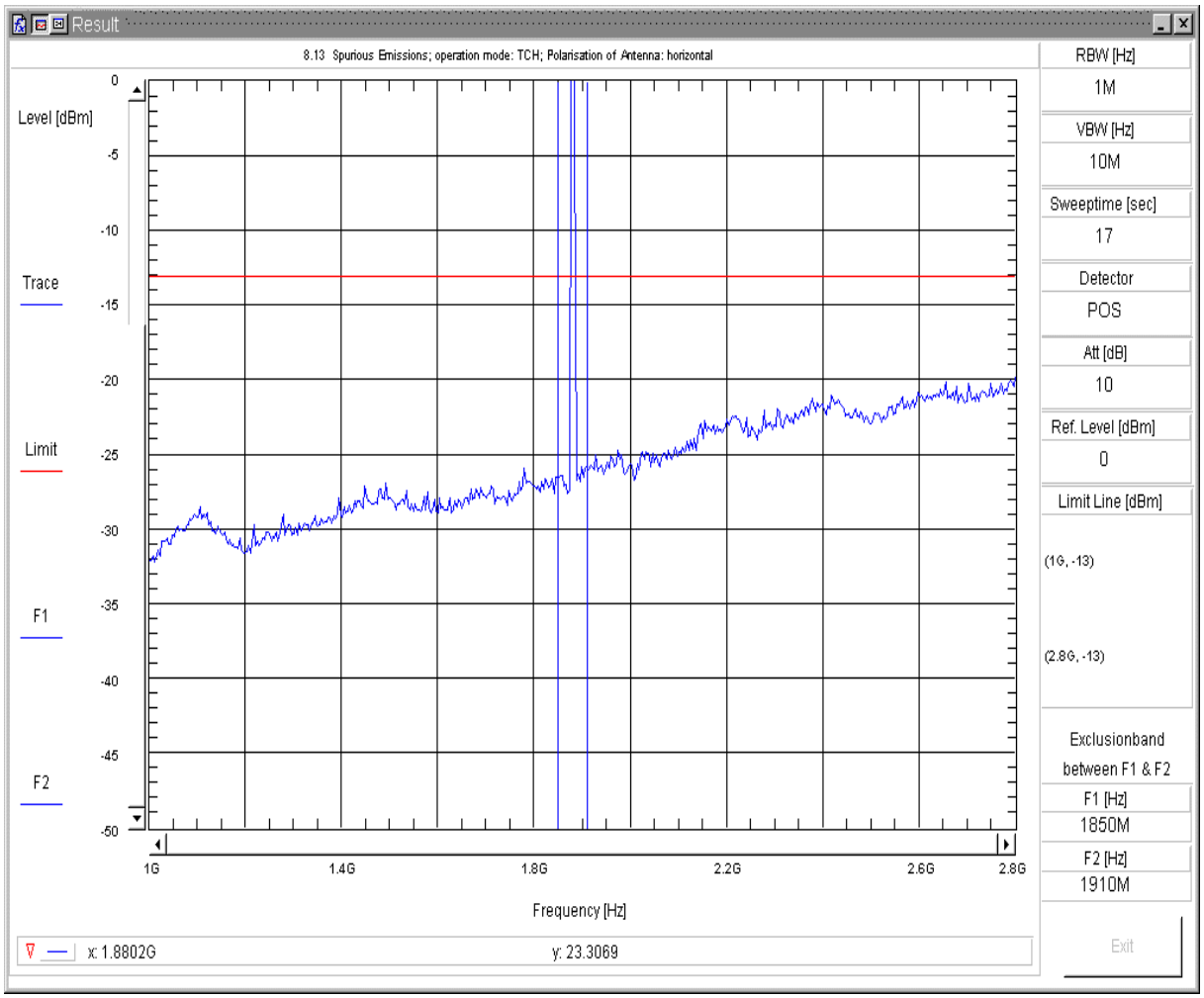
Fri 04/Feb/2011 10:57:32pfp Spurious Emissions V7.2.5



8.12 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep1
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 661
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

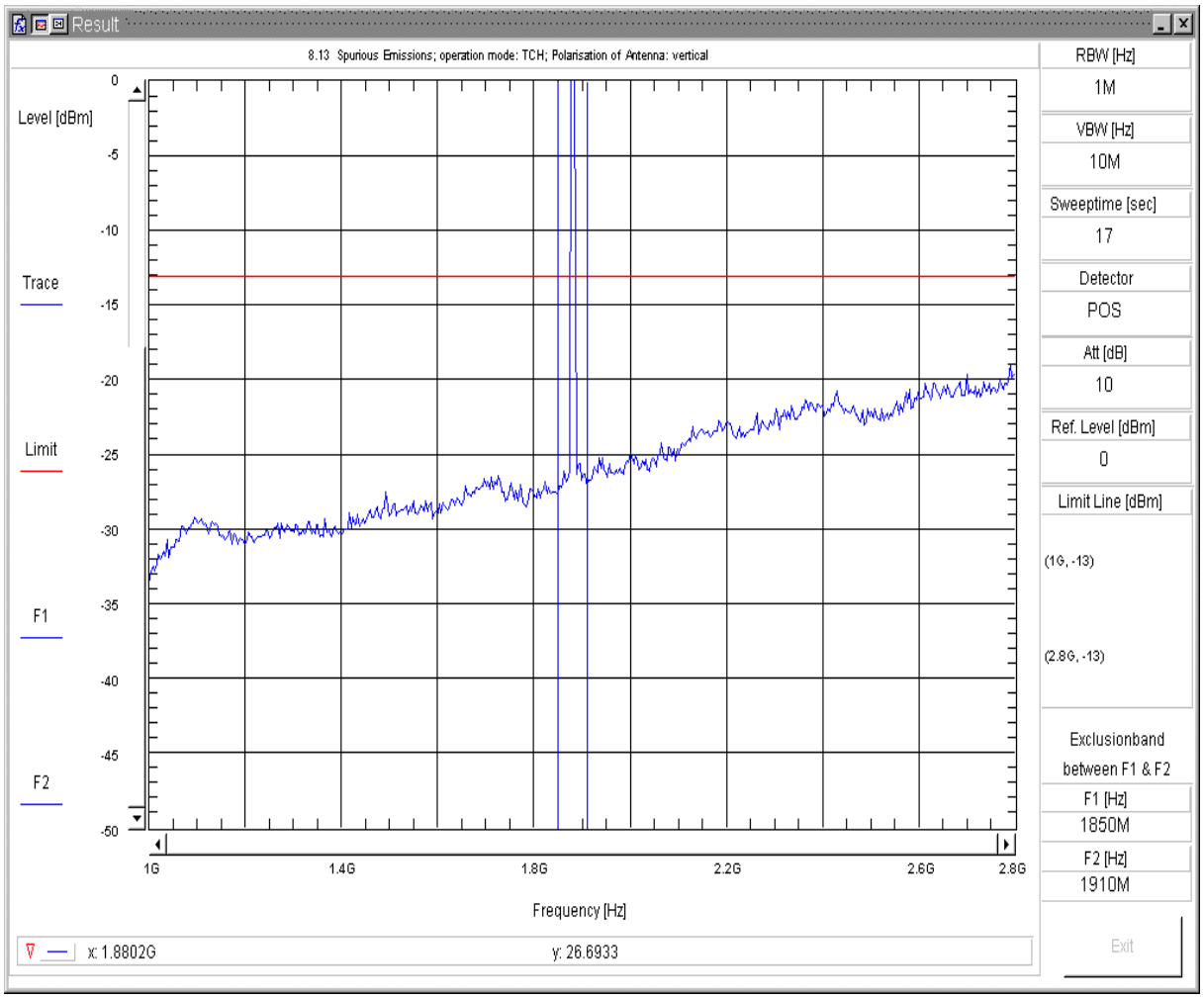
Fri 04/Feb/2011 11:02:39ppf Spurious Emissions V7.2.5



8.13 Radiated Spurious Emission

Transducer:	c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr:	Sweep2
Pol. of Antenna:	horizontal
EUT Position:	EUT_vertical+horizontal
EUT OP Mode:	FCC_Part_24.238_(GSM_1900) TCH
EUT Description:	BGS2-W GSM Module
EUT add. Info:	DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware:	B2
EUT Software:	
EUT Config:	
EUT S/N:	00440108048446800
Battery:	Power Supply (external); Maximum Voltage; 4.5 VDC
Remark:	channel 661
Operator:	Lor
Testing Site:	Fully Anechoic Room (FAR); CETECOM Essen

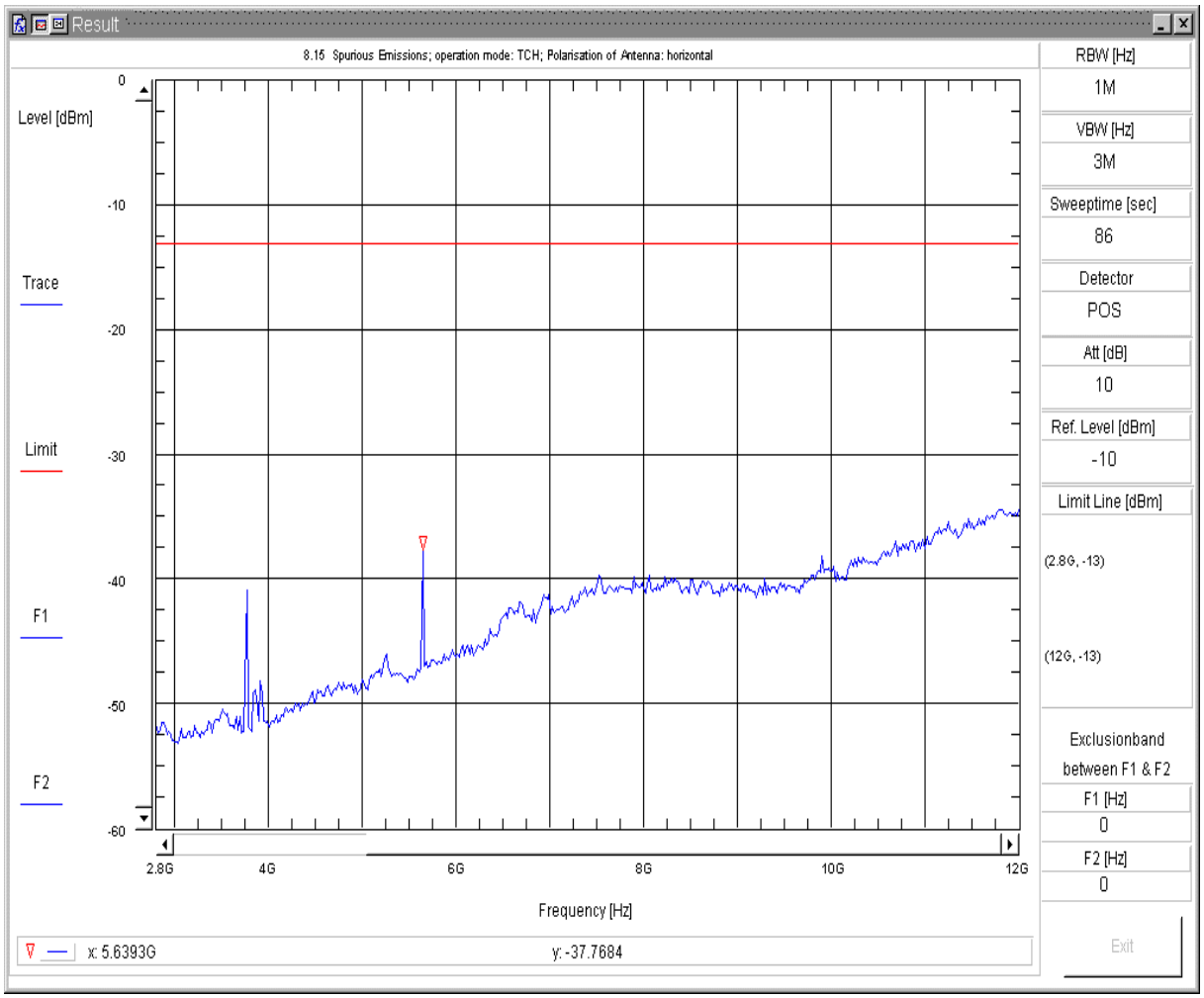
Fri 04/Feb/2011 11:16:01fp Spurious Emissions V7.2.5



8.14 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep2
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 661
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

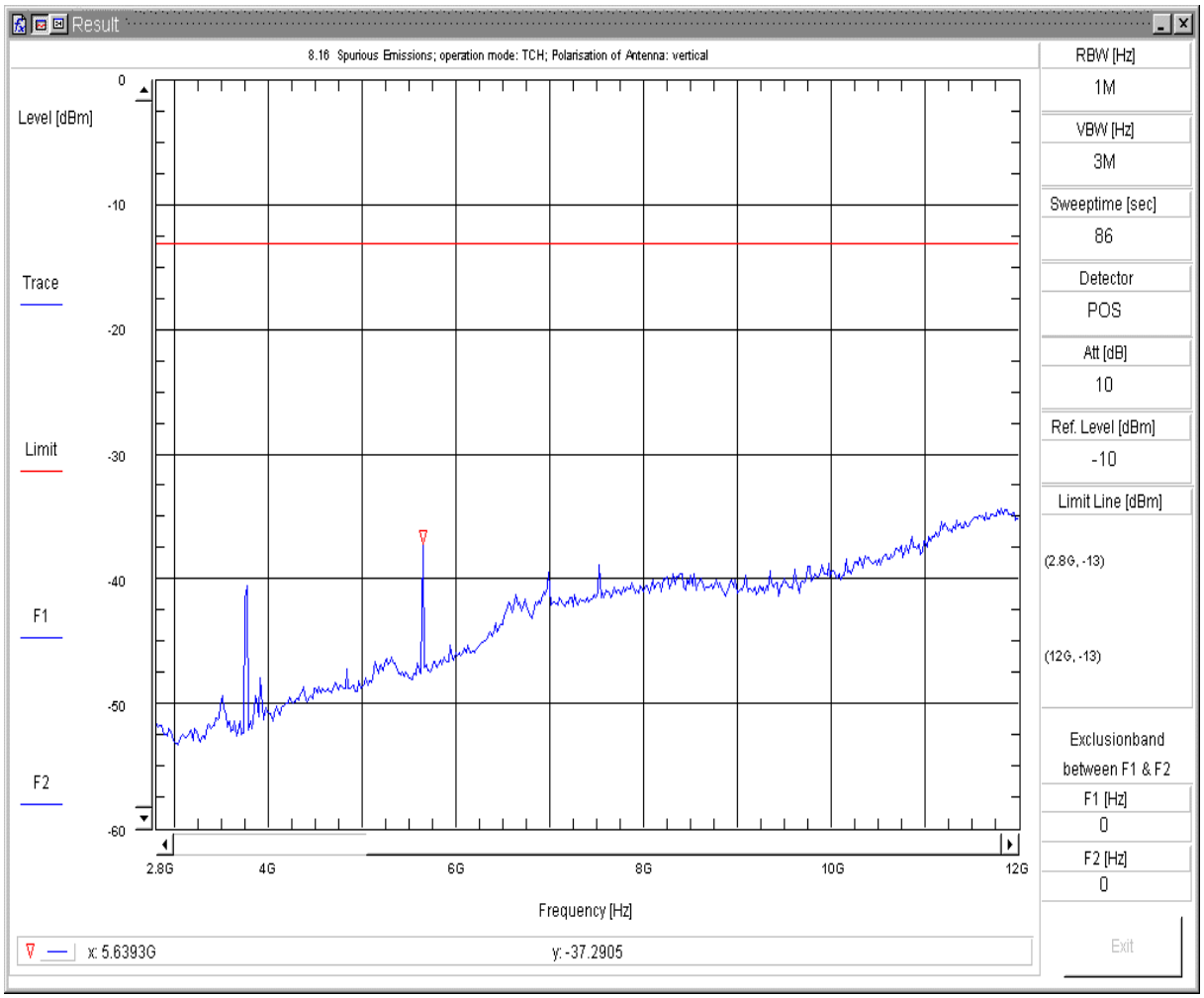
Fri 04/Feb/2011 11:07:40pf Spurious Emissions V7.2.5



8.15 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr: Sweep5
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 661
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

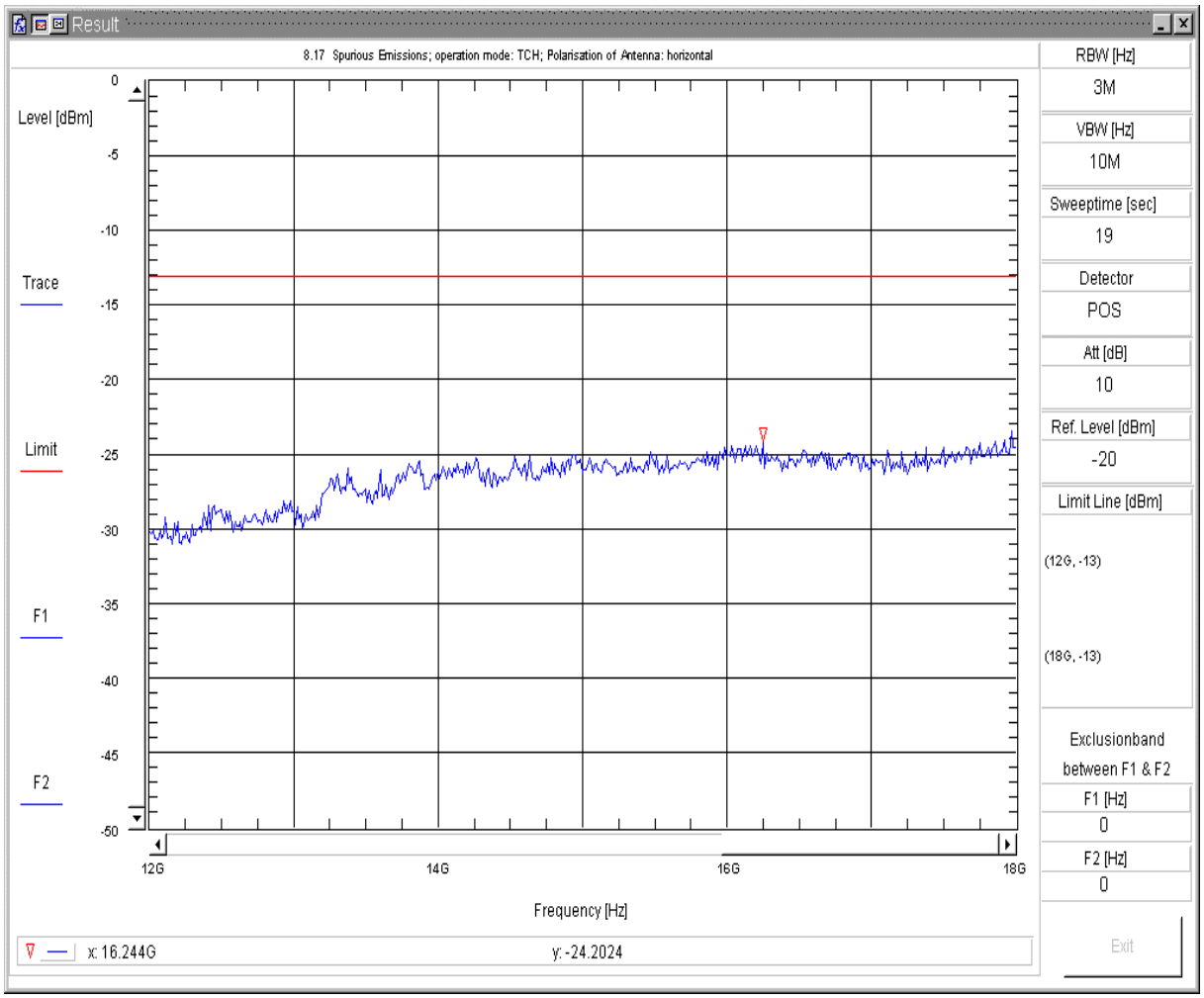
Fri 04/Feb/2011 11:23:20pp Spurious Emissions V7.2.5



8.16 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep5
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 661
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

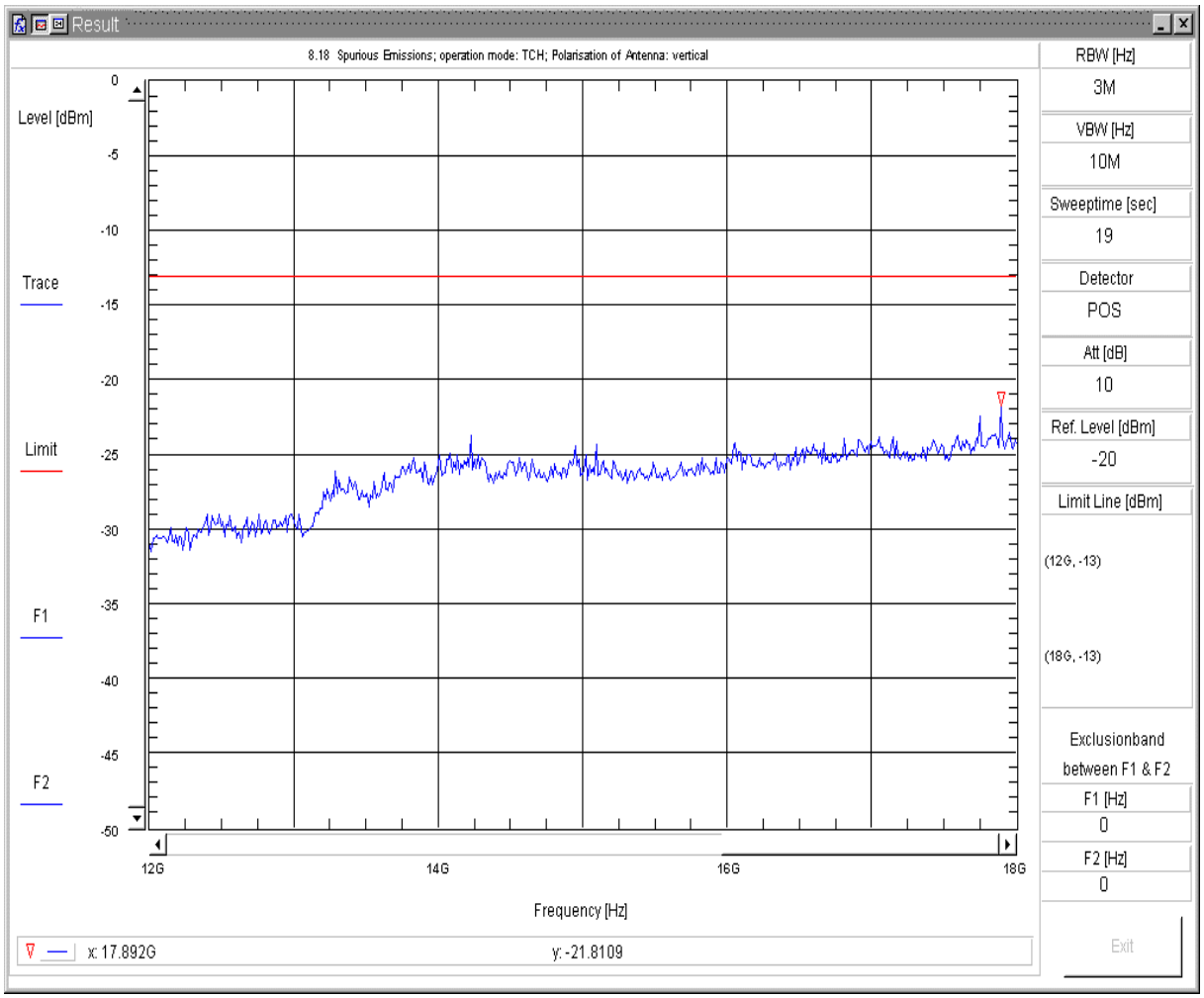
Fri 04/Feb/2011 11:46:14pp Spurious Emissions V7.2.5



8.17 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr: Sweep6
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 661
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

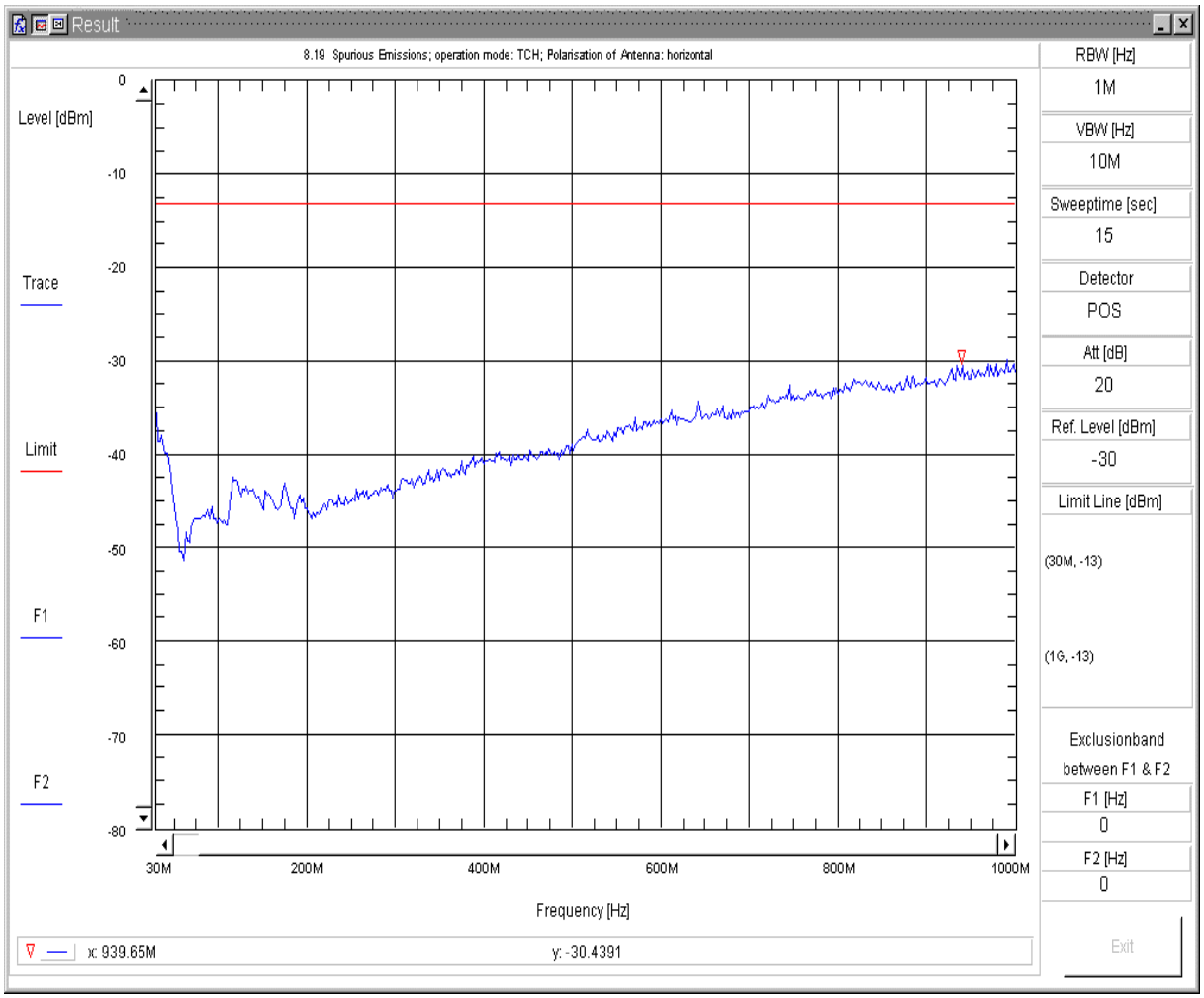
Fri 04/Feb/2011 12:09:04pp Spurious Emissions V7.2.5



8.18 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep6
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 661
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

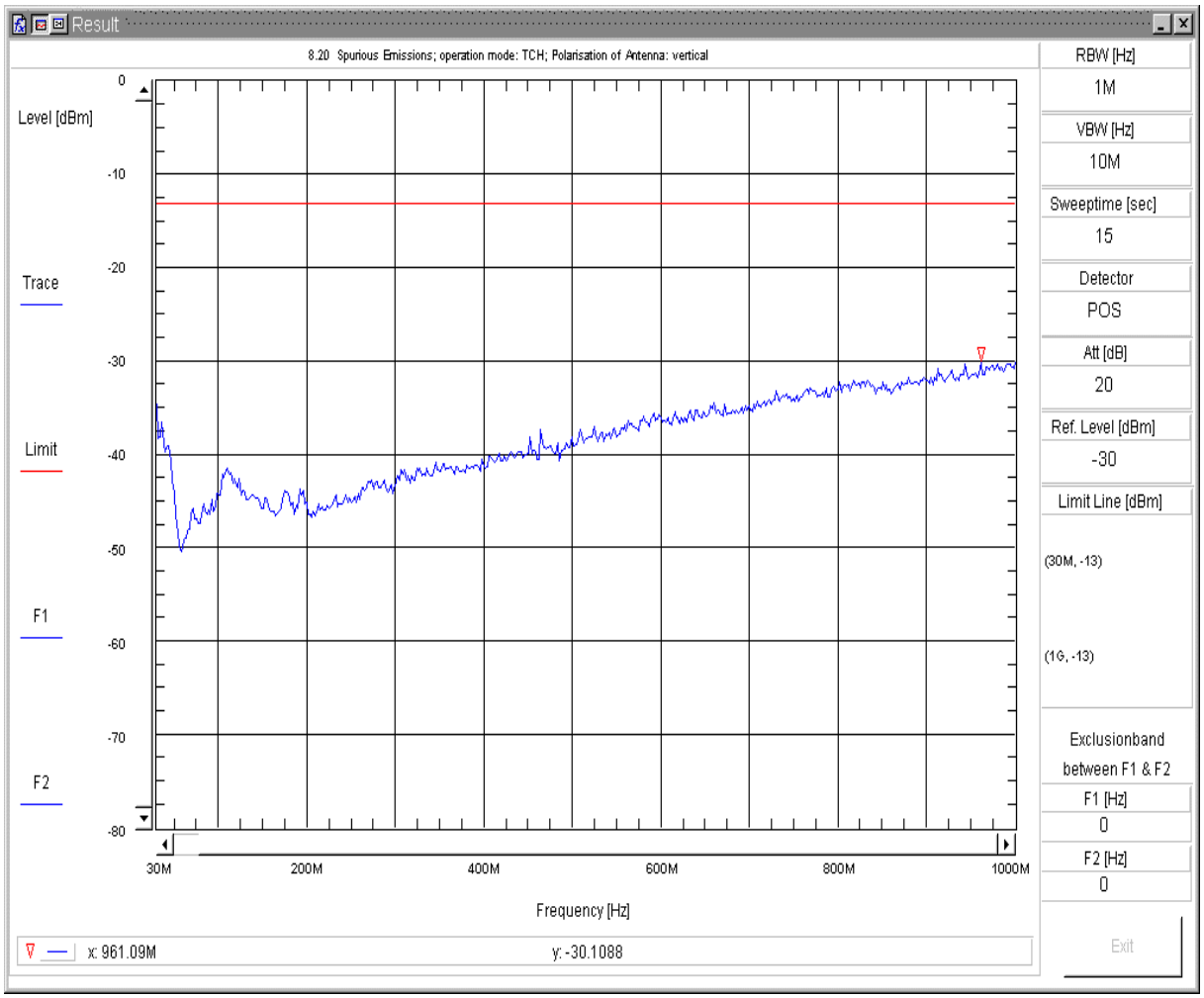
Fri 04/Feb/2011 12:16:21pp Spurious Emissions V7.2.5



8.19 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr: Sweep1
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 810
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

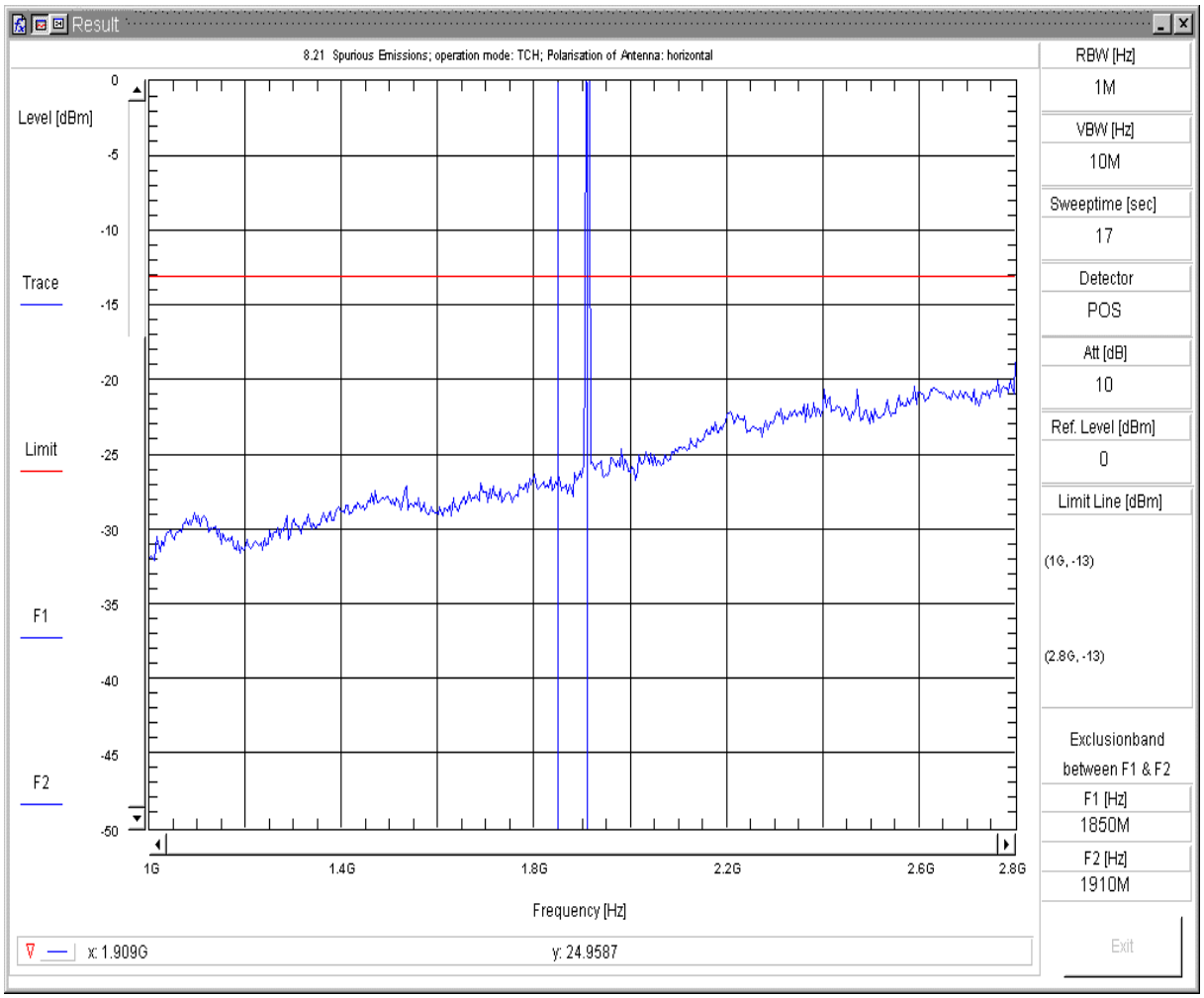
Fri 04/Feb/2011 12:23:55pfp Spurious Emissions V7.2.5



8.20 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep1
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 810
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

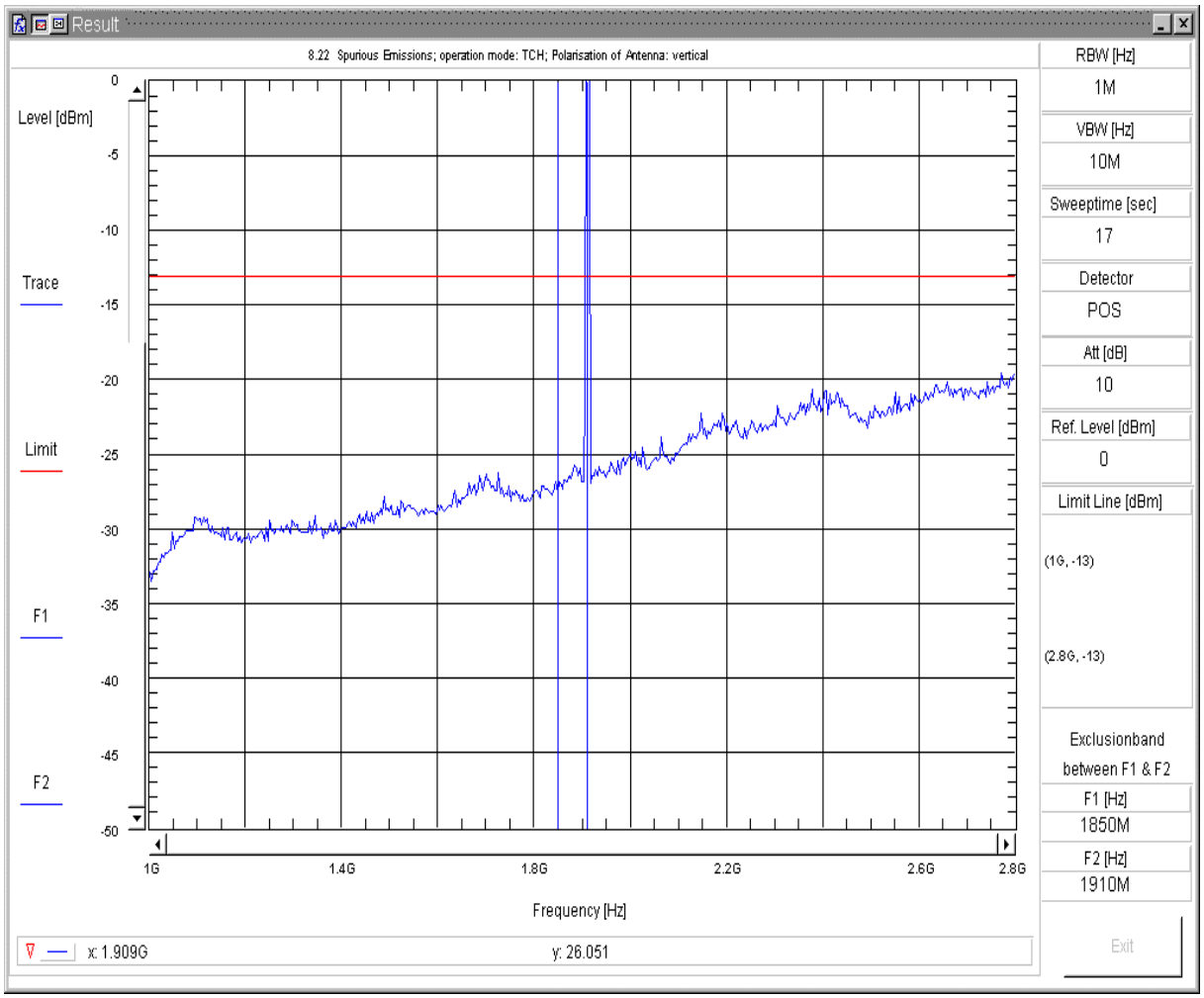
Fri 04/Feb/2011 12:30:31ppf Spurious Emissions V7.2.5



8.21 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr: Sweep2
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 810
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

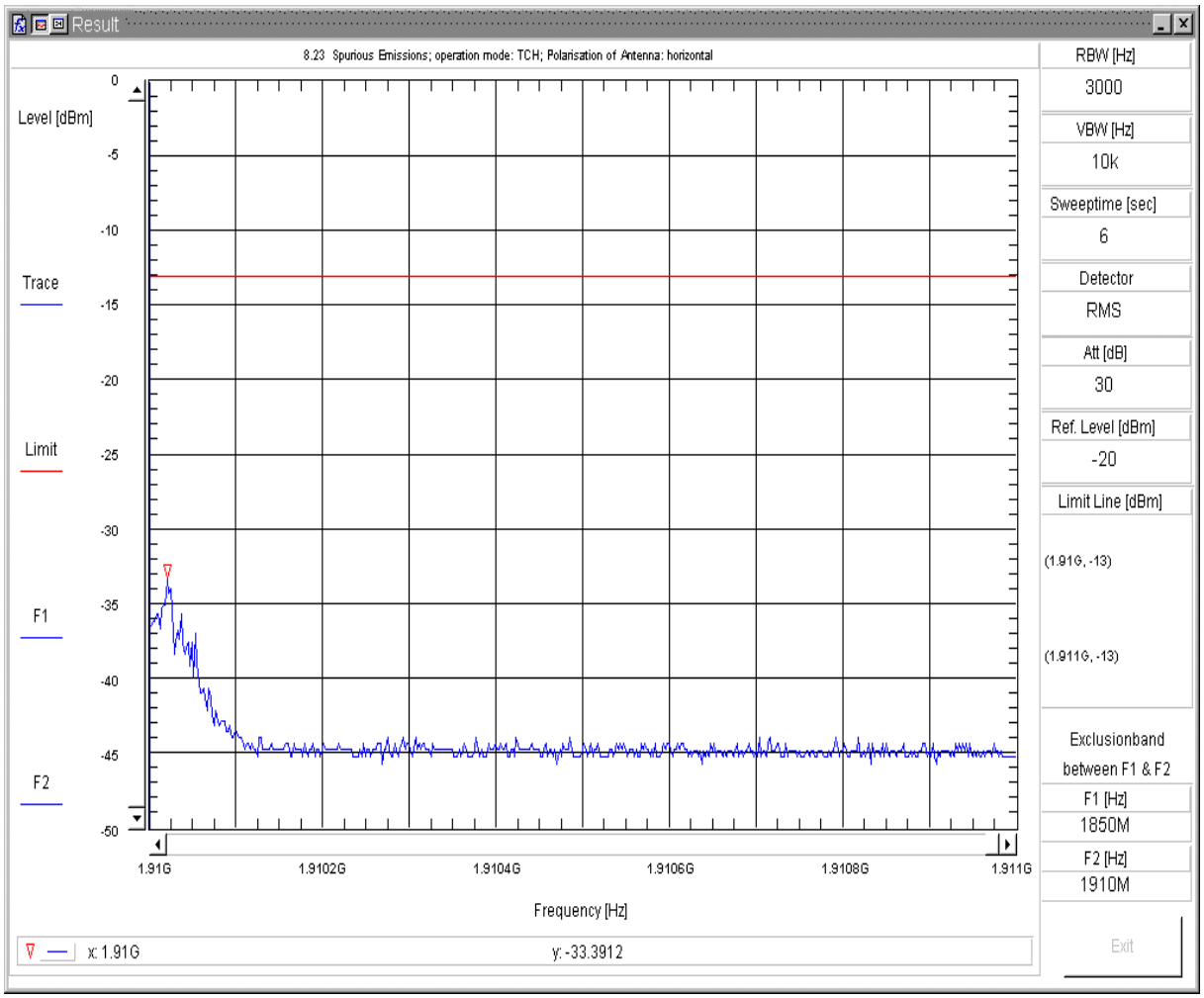
Fri 04/Feb/2011 12:34:45fp Spurious Emissions V7.2.5



8.22 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep2
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 810
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

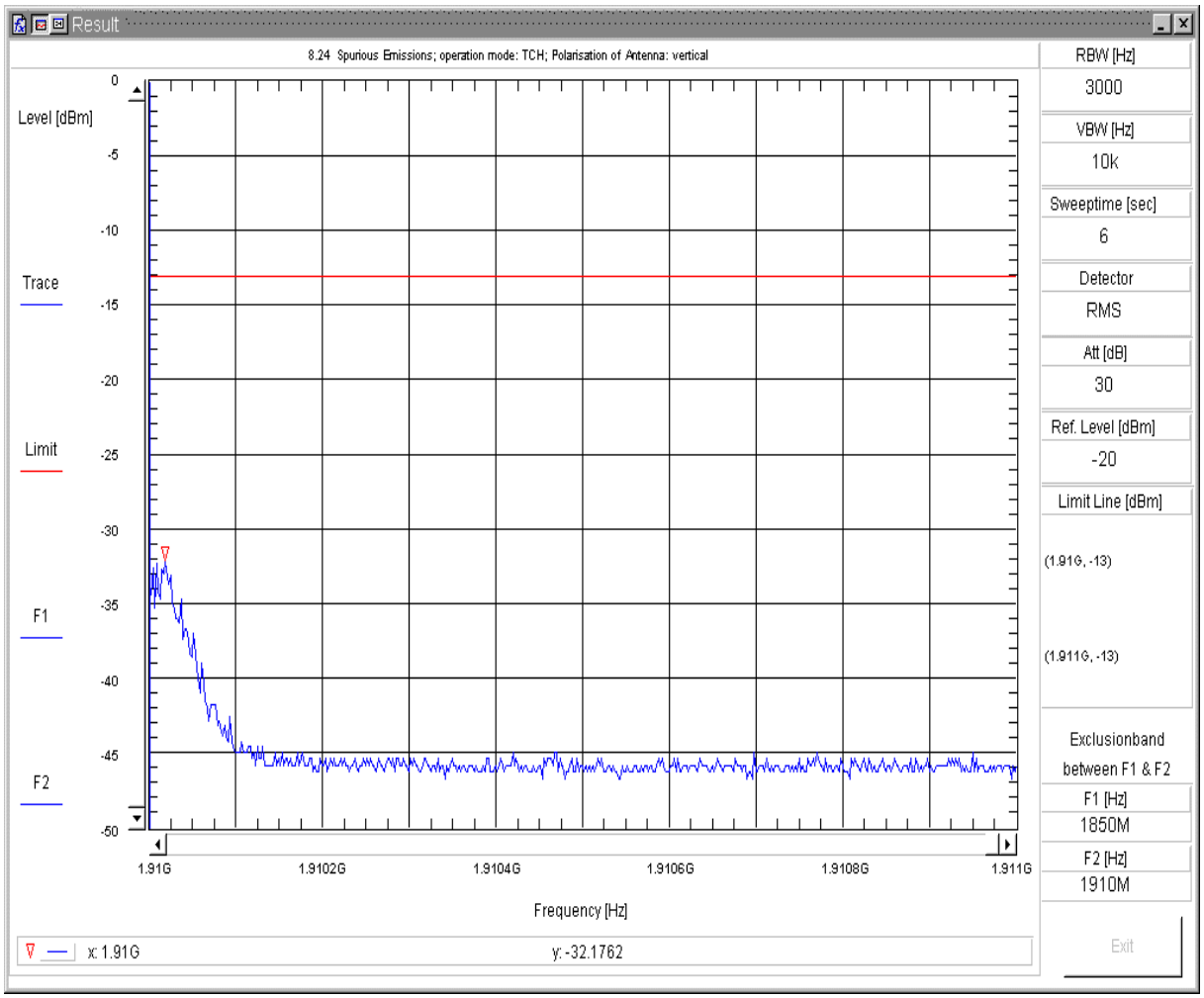
Fri 04/Feb/2011 12:41:40pf Spurious Emissions V7.2.5



8.23 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr: Sweep4
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 810
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

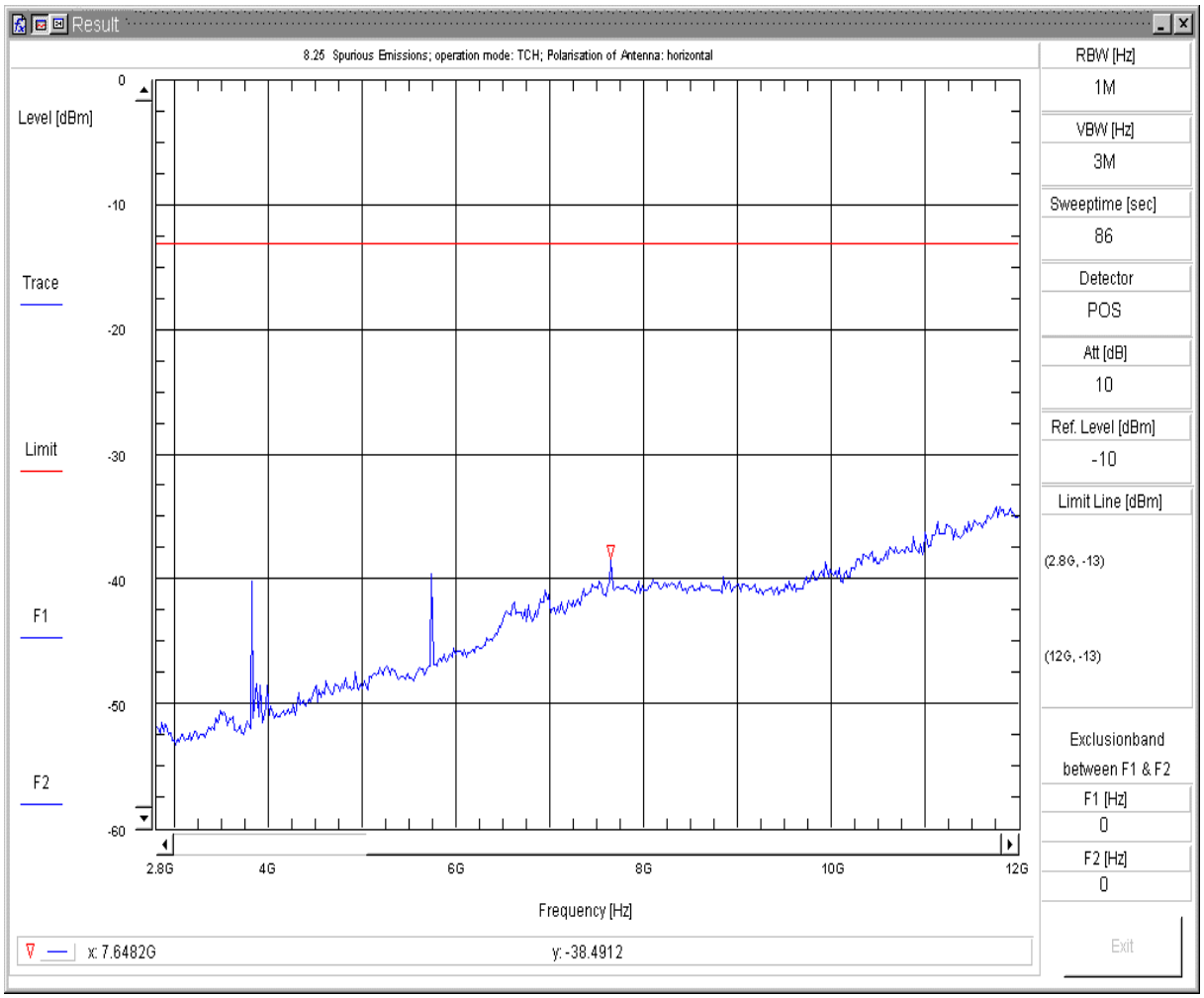
Fri 04/Feb/2011 12:48:36fp Spurious Emissions V7.2.5



8.24 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep4
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info: DSB45+Adapter Board + Handset Votronic+RS232+USB-cable
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: channel 810
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

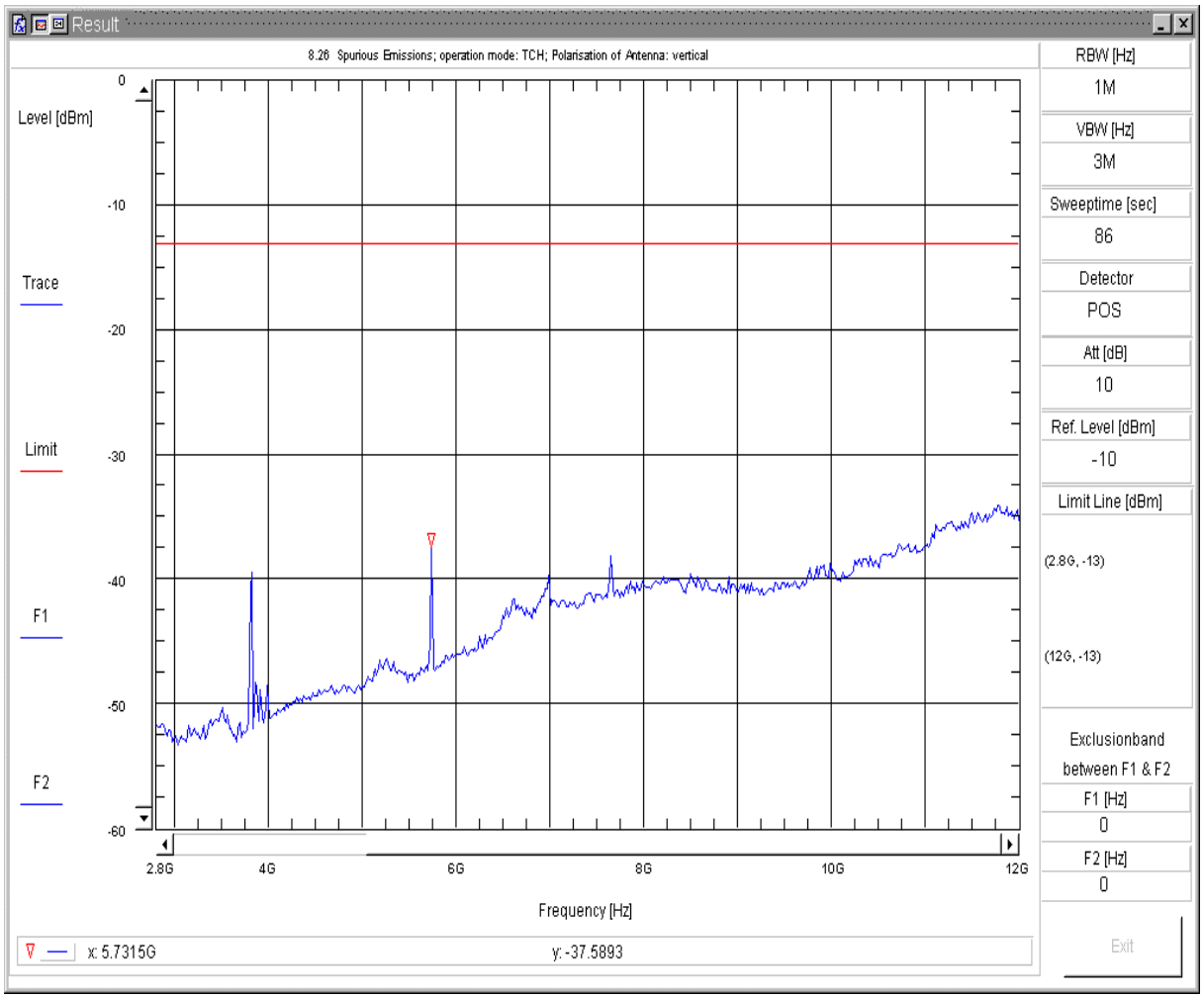
Fri 04/Feb/2011 12:52:52pf Spurious Emissions V7.2.5



8.25 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr: Sweep5
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: -ARFCN 810
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

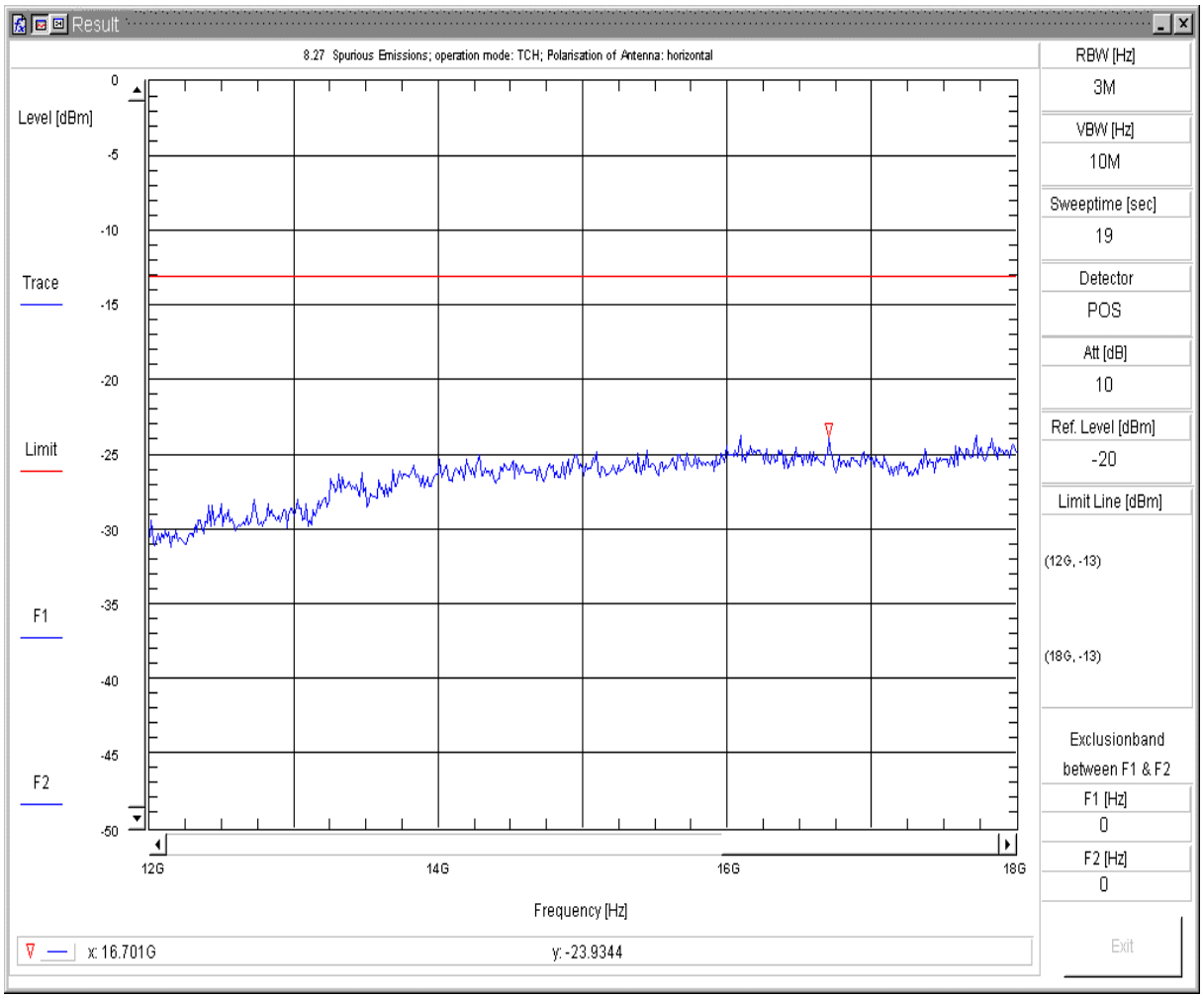
Fri 04/Feb/2011 12:57:09fp Spurious Emissions V7.2.5



8.26 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep5
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 810
Operator: Lor
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

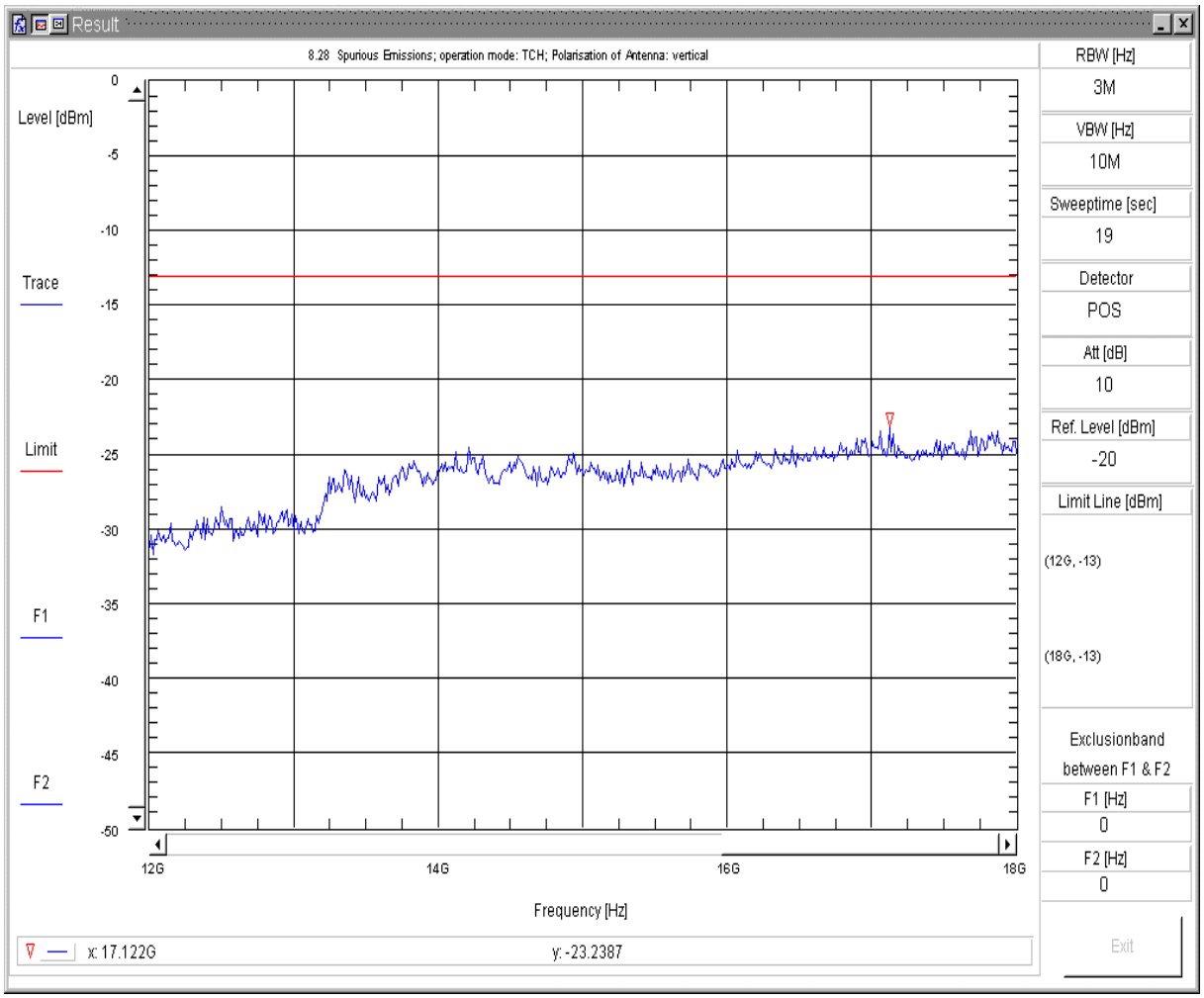
Fri 04/Feb/2011 13:20:40pp Spurious Emissions V7.2.5



8.27 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_H
Sweepnr: Sweep6
Pol. of Antenna: horizontal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 810
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

Fri 04/Feb/2011 13:54:52pp Spurious Emissions V7.2.5



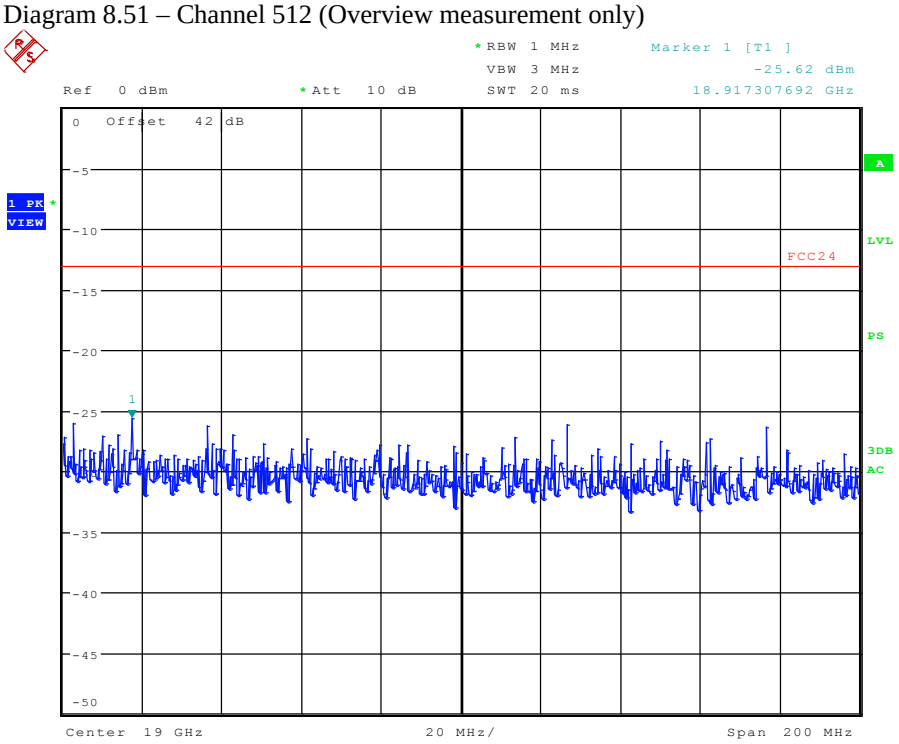
8.28 Radiated Spurious Emission

Transducer: c:\vee_user\spuri_V7\FCC_Part_24.238_(GSM_1900)\TD_TX_V
Sweepnr: Sweep6
Pol. of Antenna: vertikal
EUT Position: EUT_vertical+horizontal
EUT OP Mode: FCC_Part_24.238_(GSM_1900) TCH
EUT Description: BGS2-W GSM Module
EUT add. Info:
EUT Hardware: B2
EUT Software:
EUT Config:
EUT S/N: 00440108048446800
Battery: Power Supply (external); Maximum Voltage; 4.5 VDC
Remark: ARFCN 810
Operator: Tas
Testing Site: Fully Anechoic Room (FAR); CETECOM Essen

Fri 04/Feb/2011 13:47:27pp Spurious Emissions V7.2.5

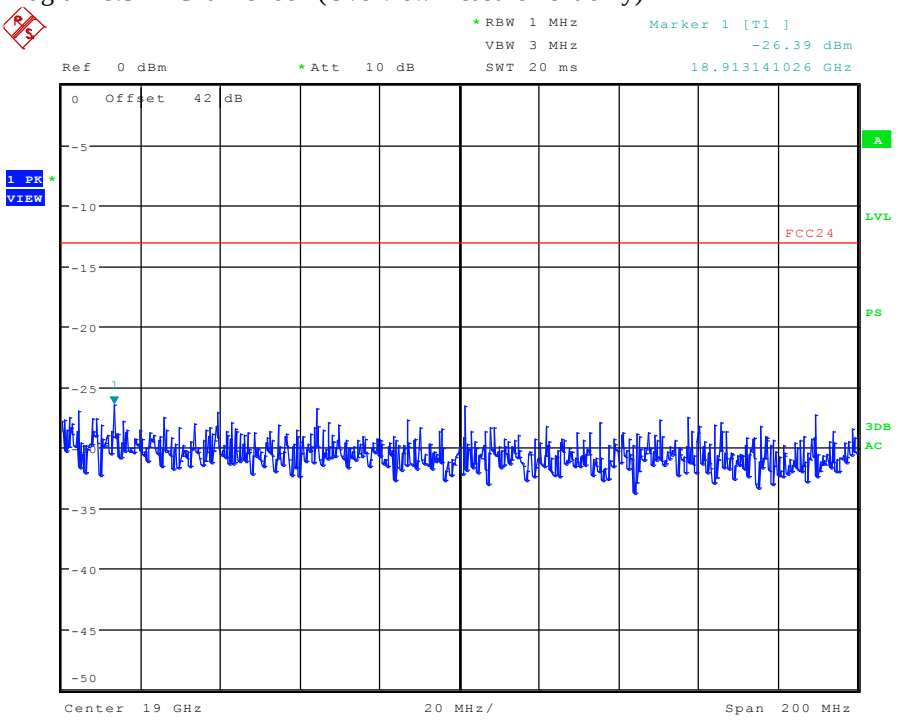
1.7. Radiated emissions in the frequency range above 18GHz – GSM1900 Mode

Diagram 8.51 – Channel 512 (Overview measurement only)



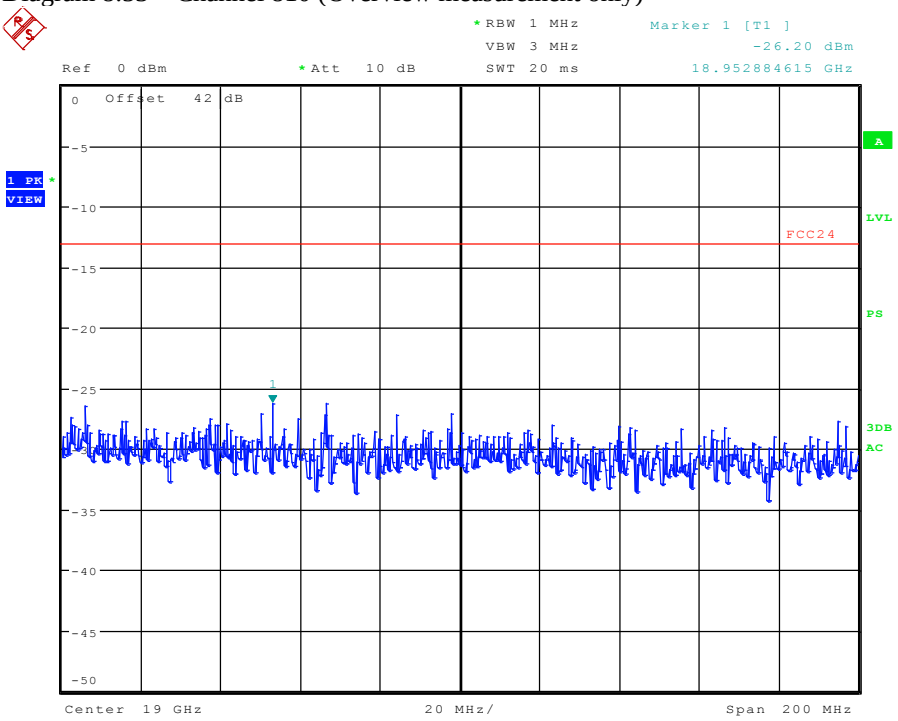
Date: 24.FEB.2011 12:53:02

Diagram 8.52 – Channel 661 (Overview measurement only)



Date: 24.FEB.2011 12:52:01

Diagram 8.53 – Channel 810 (Overview measurement only)



Date: 24.FEB.2011 12:53:50

1.8. Radiated magnetic field strength measurements (f<30MHz)

Diagram No. 03.01

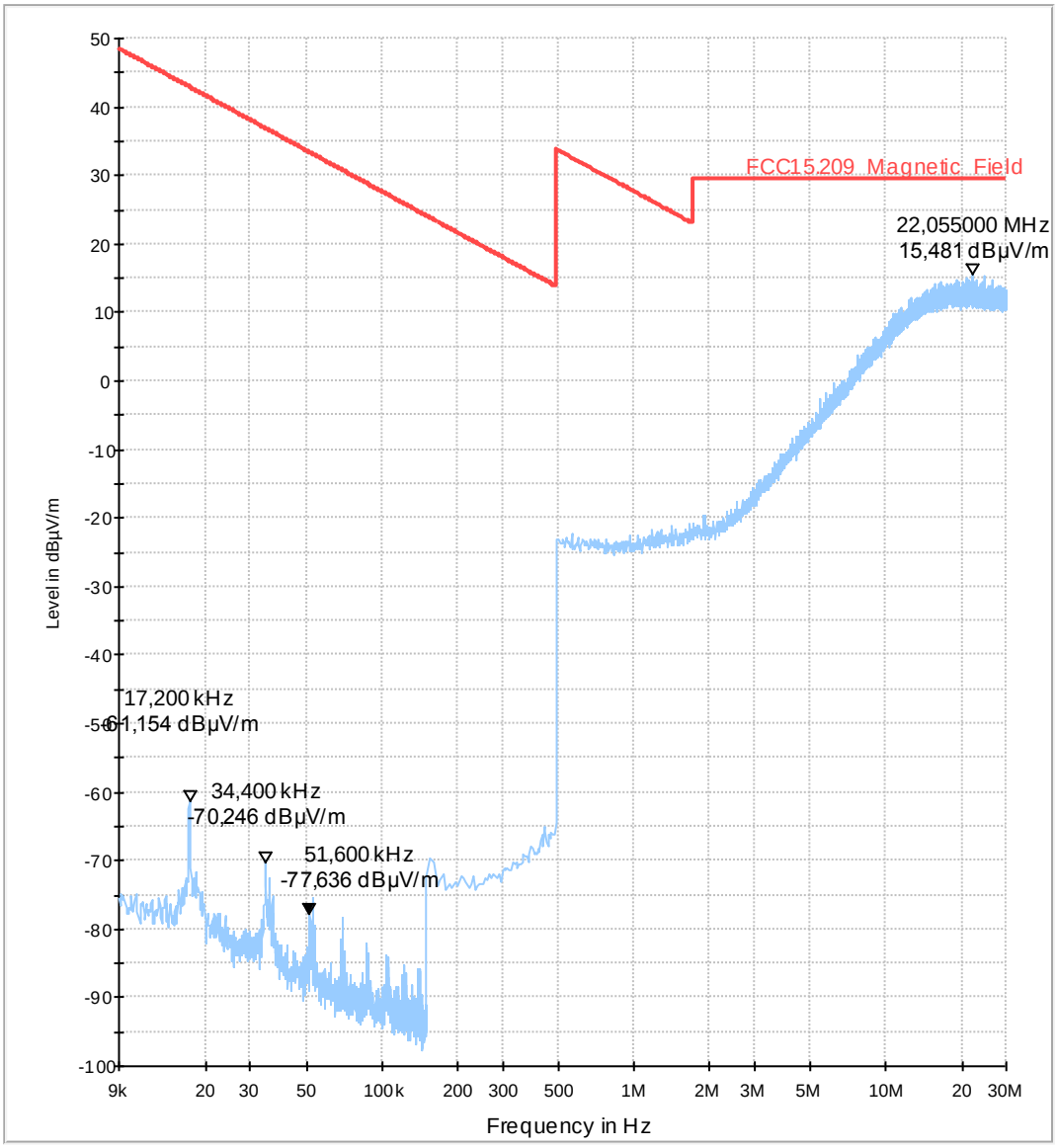
Common Information

Test description:	Magnetic Fieldstrength Measurement related to 3 m distance
Test site and distance:	Semi Anechoic Room (SAR) with 3 m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Turntable step:	90° during pre-scan
Used filter:	bypass
Test specification.:	FCC 15.205 § 15.209
Operator:	Lor
Comment 1:	Channel low=512

EUT Information

EUT type	BGS2-W+DSB45+Handset Votronic+Ext.Antenna Minimag+RS232+USB cable
Manufacturer	Cinterion
Operating mode	Audio mode TX 1900
S/N	004401-08-048449-2

FCC15.209_magn hor+vert



EMI Auto Test Template: FCC15.209_magn hor+vert

Hardware Setup: HW25_FCC15109_ESCS_MgFeld_ohne_SAR_MATRIX
Measurement Type: Open-Area-Test-Site
Frequency Range: 9 kHz - 30 MHz
Graphics Level Range: -100 dBµV/m - 50 dBµV/m

Preview Measurements:
Antenna height: 1000 - 1000 cm , Step Size = 0 cm , Positioning Speed = 1
Polarization: H + V
Turntable position: 35 - 305 deg , Step Size = 90 deg , Positioning Speed = 8
Scan Test Template: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 30 MHz	5 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Data Reduction:
Limit Line #1: FCC15.209_Magnetic_Field
Peak Search: 20 dB , Maximum Results: 10
Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
Acceptance Offset: -10 dB
Maximum Number of Results: 10
After Data Reduction: Interactive data reduction

Adjustment:
Antenna height: Adjustment with full Range , Measuring Speed = 1
Turntable position: Adjustment with full Range , Measuring Speed = 3
Template for Single Meas.: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 30 MHz	5 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Final Measurements:
Template for Single Meas.: 02_FCC_MG_FELD_QP_final_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	QPK	200 Hz	1 s	0 dB
150 kHz - 30 MHz	5 kHz	QPK	10 kHz	1 s	0 dB

Receiver: [ESS]

Report Settings:
Report Template: FCC15_209_magn_vert_hor
Create Electronic Report: PDF
Document Name: EMI Report

Actions:
Data Reduction: Before
Notify: Sound (WAV file) 'tada.wav'
Final Measurements: After
Notify: Sound (WAV file) 'tada.wav'

Diagram No. 03.02

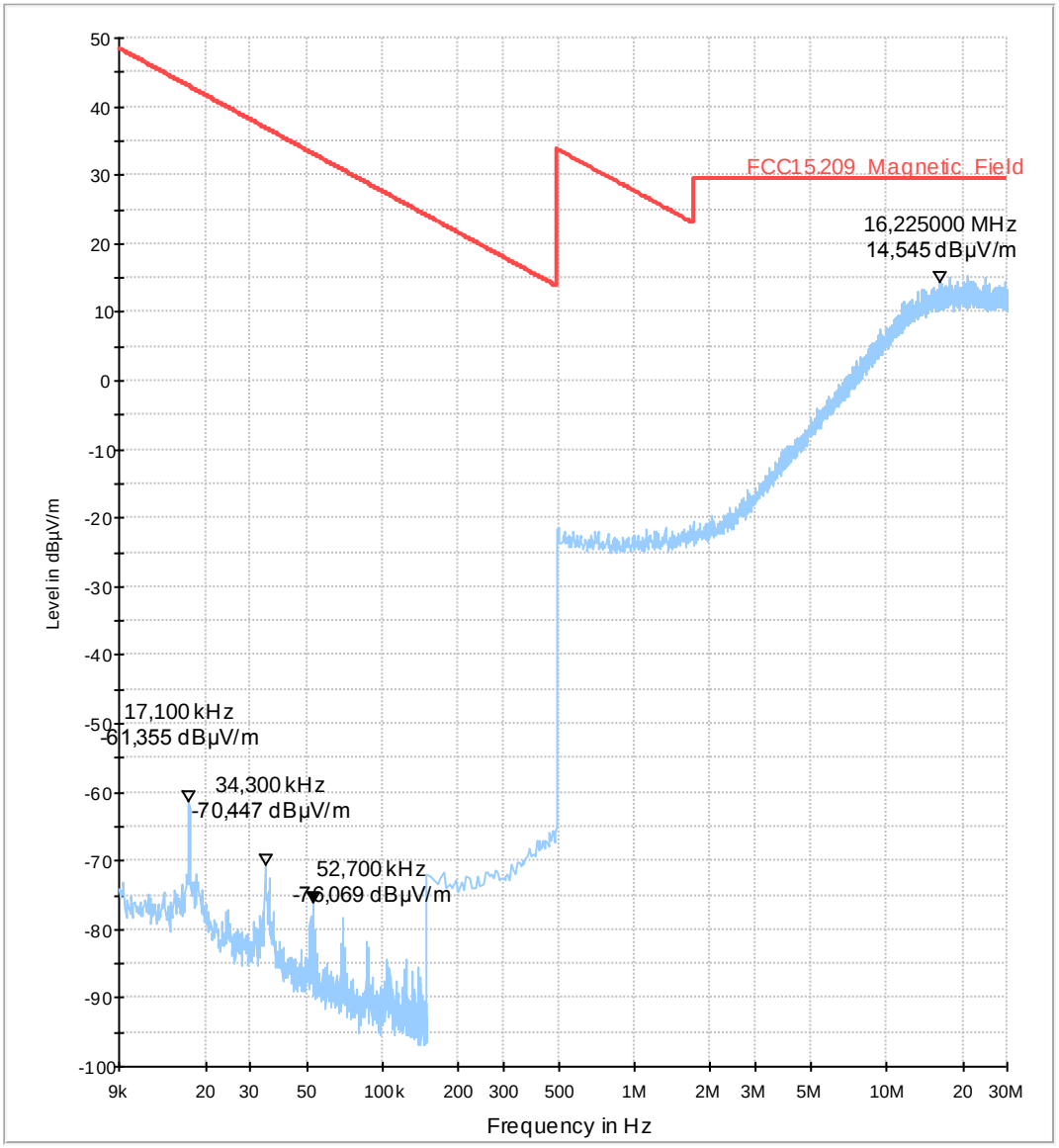
Common Information

Test description:	Magnetic Fieldstrength Measurement related to 3 m distance
Test site and distance:	Semi Anechoic Room (SAR) with 3 m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Turntable step:	90° during pre-scan
Used filter:	bypass
Test specification.:	FCC 15.205 § 15.209
Operator:	Lor
Comment 1:	Channel middle=661

EUT Information

EUT type	BGS2-W+DSB45+Handset Votronic+Ext.Antenna Minimag+RS232+USB cable
Manufacturer	Cinterion
Operating mode	Audio mode TX 1900
S/N	004401-08-048449-2

FCC15.209_magn hor+vert



EMI Auto Test Template: FCC15.209_magn hor+vert

Hardware Setup: HW25_FCC15109_ESCS_MgFeld_ohne_SAR_MATRIX
Measurement Type: Open-Area-Test-Site
Frequency Range: 9 kHz - 30 MHz
Graphics Level Range: -100 dBµV/m - 50 dBµV/m

Preview Measurements:
Antenna height: 1000 - 1000 cm , Step Size = 0 cm , Positioning Speed = 1
Polarization: H + V
Turntable position: 35 - 305 deg , Step Size = 90 deg , Positioning Speed = 8
Scan Test Template: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 30 MHz	5 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Data Reduction:
Limit Line #1: FCC15.209_Magnetic_Field
Peak Search: 20 dB , Maximum Results: 10
Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
Acceptance Offset: -10 dB
Maximum Number of Results: 10
After Data Reduction: Interactive data reduction

Adjustment:
Antenna height: Adjustment with full Range , Measuring Speed = 1
Turntable position: Adjustment with full Range , Measuring Speed = 3
Template for Single Meas.: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 30 MHz	5 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Final Measurements:
Template for Single Meas.: 02_FCC_MG_FELD_QP_final_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	QPK	200 Hz	1 s	0 dB
150 kHz - 30 MHz	5 kHz	QPK	10 kHz	1 s	0 dB

Receiver: [ESS]

Report Settings:
Report Template: FCC15_209_magn_vert_hor
Create Electronic Report: PDF
Document Name: EMI Report

Actions:
Data Reduction: Before
Notify: Sound (WAV file) 'tada.wav'
Final Measurements: After
Notify: Sound (WAV file) 'tada.wav'

Diagram No. 03.03

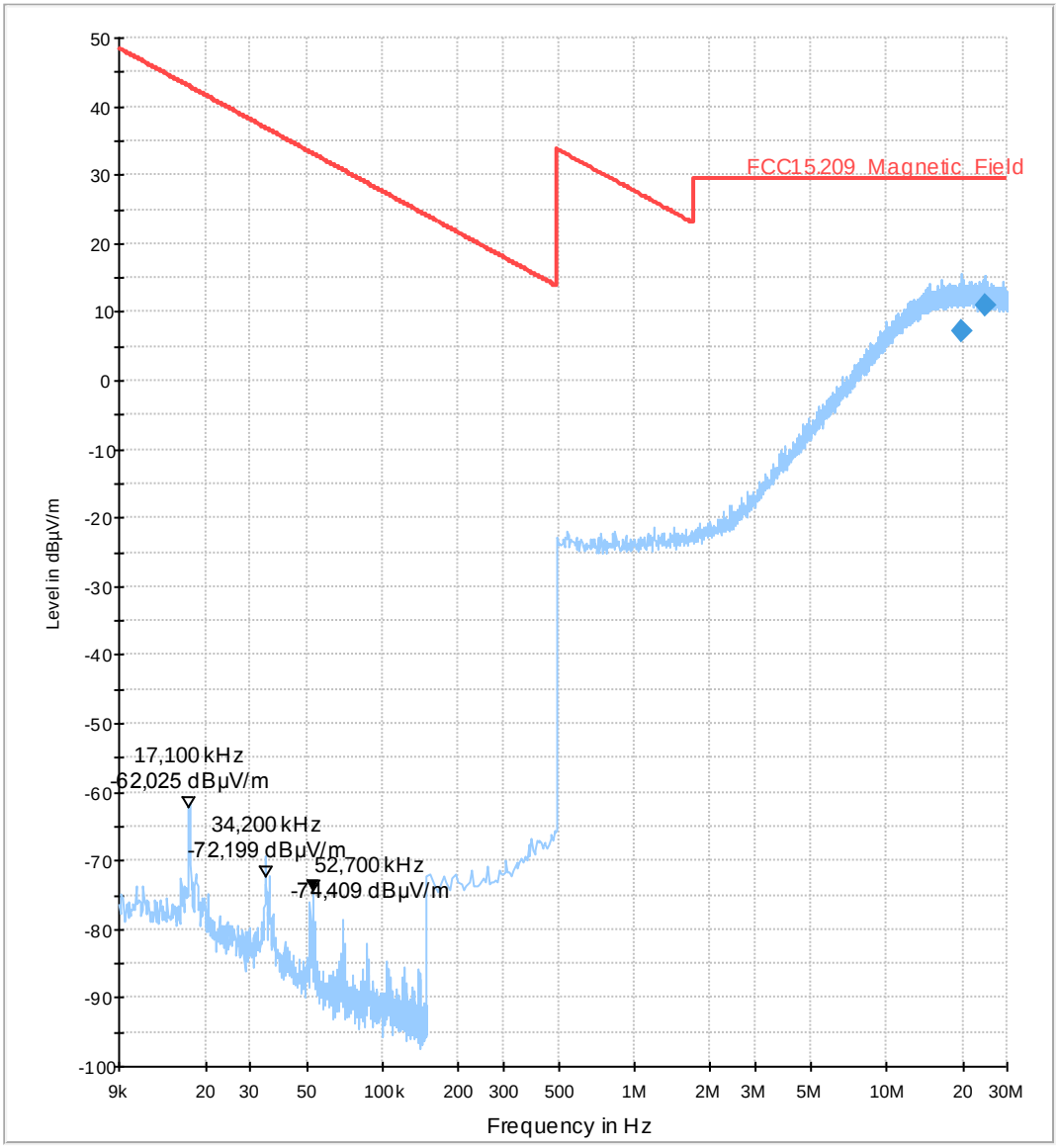
Common Information

Test description:	Magnetic Fieldstrength Measurement related to 3 m distance
Test site and distance:	Semi Anechoic Room (SAR) with 3 m measurement distance
Measured sides of EUT:	front, right, rear, left
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Turntable step:	90° during pre-scan
Used filter:	bypass
Test specification.:	FCC 15.205 § 15.209
Operator:	Lor
Comment 1:	Channel high=810

EUT Information

EUT type	BGS2-W+DSB45+Handset Votronic+Ext.Antenna Minimag+RS232+USB cable
Manufacturer	Cinterion
Operating mode	Audio mode TX 1900
S/N	004401-08-048449-2

FCC15.209_magn hor+vert



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
19.690000	**7.2**	**1000.0**	**10.000**	**V**	**151.0**	**2.8**	**22.34**	**29.54**	
24.575000	**11.1**	**1000.0**	**10.000**	**H**	**124.0**	**2.8**	**18.44**	**29.54**	

EMI Auto Test Template: FCC15.209_magn hor+vert

Hardware Setup: HW25_FCC15109_ESCS_MgFeld_ohne_SAR_MATRIX
Measurement Type: Open-Area-Test-Site
Frequency Range: 9 kHz - 30 MHz
Graphics Level Range: -100 dBµV/m - 50 dBµV/m

Preview Measurements:
- Antenna height: 1000 - 1000 cm , Step Size = 0 cm , Positioning Speed = 1
- Polarization: H + V
- Turntable position: 35 - 305 deg , Step Size = 90 deg , Positioning Speed = 8
- Scan Test Template: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 30 MHz	5 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Data Reduction:
- Limit Line #1: FCC15.209_Magnetic_Field
- Peak Search: 20 dB , Maximum Results: 10
- Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
- Acceptance Offset: -10 dB
- Maximum Number of Results: 10
- After Data Reduction: Interactive data reduction

Adjustment:
- Antenna height: Adjustment with full Range , Measuring Speed = 1
- Turntable position: Adjustment with full Range , Measuring Speed = 3
- Template for Single Meas.: 01_FCC_MG_FELD_PK_FAST_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	PK+	200 Hz	0,01 s	0 dB
150 kHz - 30 MHz	5 kHz	PK+	10 kHz	0,01 s	0 dB

Receiver: [ESS]

Final Measurements:
- Template for Single Meas.: 02_FCC_MG_FELD_QP_final_H&V_EUT

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
9 kHz - 150 kHz	100 Hz	QPK	200 Hz	1 s	0 dB
150 kHz - 30 MHz	5 kHz	QPK	10 kHz	1 s	0 dB

Receiver: [ESS]

Report Settings:
- Report Template: FCC15_209_magn_vert_hor
- Create Electronic Report: PDF
- Document Name: EMI Report

Actions:
- Data Reduction: Before
  - Notify: Sound (WAV file) 'tada.wav'
- Final Measurements: After
  - Notify: Sound (WAV file) 'tada.wav'

1.9 Conducted emissions on AC-Power lines

Diagram No. 1.2

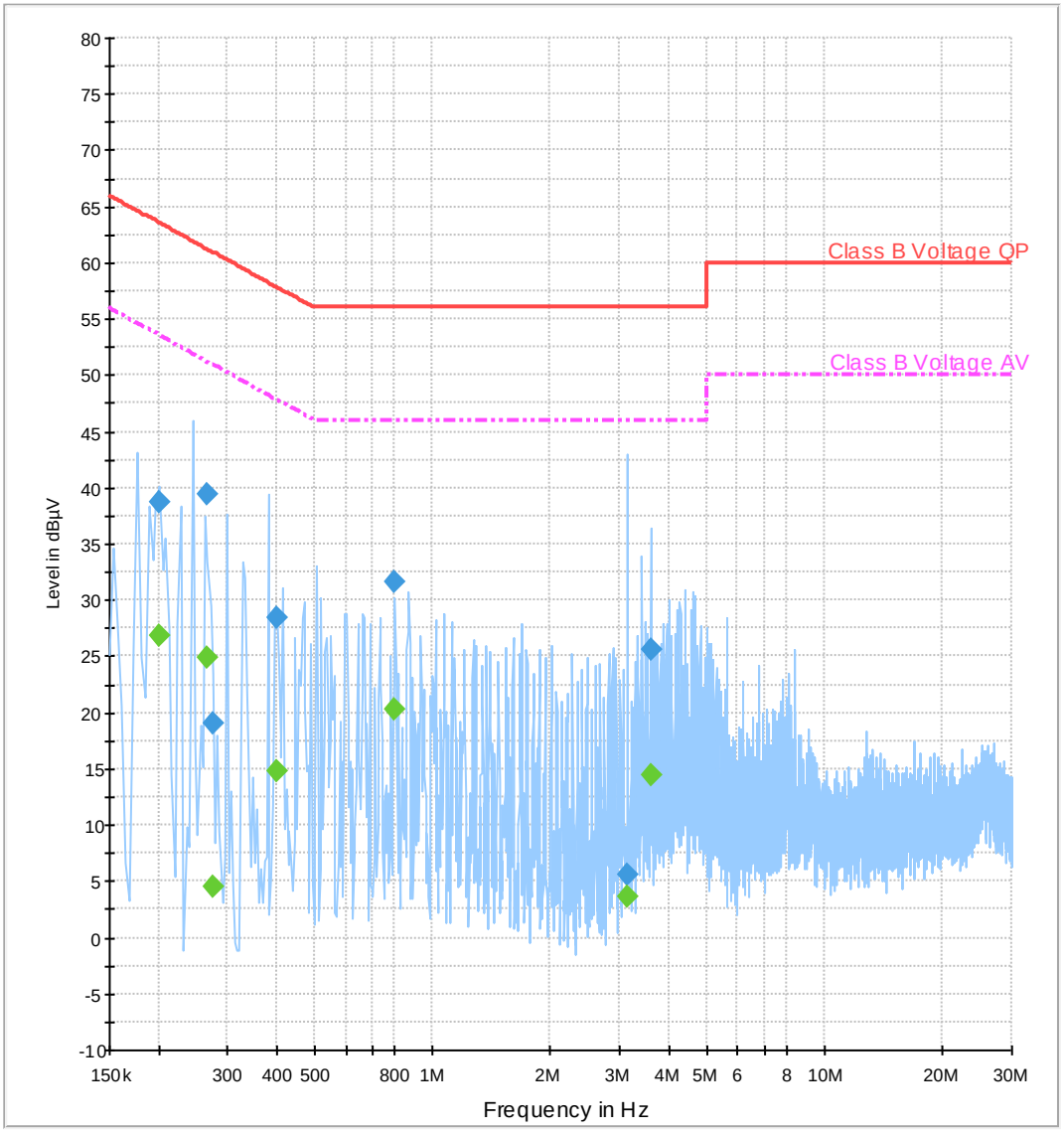
Common Information

Test Description:	Conducted Voltage Measurement Class B
Testspezification:	FCC 15.207
Technical Data:	Please see next page for detailed information
Diagram:	Shows the peak values as a sum of measured ports (N+L1) in maxhold mode
Operator name:	MEL
Report.- Nr.	2-20795542a/11
Operating mode:	GSM 1900 TX-mode (Ch. 661)
Measured on line:	Mains AC L1 and N
Power during test:	110 V AC 60 Hz
Comment 1:	

EUT Information

EUT Name:	BGS2-W+AC/DC Adapter+DSB45+Handset Votronic+RS232+USB+(Notebook)
Manufacturer:	Cinterion
Serial Number:	IMEI #8449

01_Class B_Voltage_PK_QPAV_N_L1



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.199844	38.6	15000.0	9.000	GND	L1	0.0	25.0	63.6
0.266250	39.4	15000.0	9.000	GND	L1	0.1	21.8	61.2
0.275938	19.0	15000.0	9.000	GND	L1	0.0	41.9	60.9
0.402969	28.4	15000.0	9.000	GND	L1	0.0	29.4	57.8
0.799844	31.6	15000.0	9.000	GND	N	0.0	24.4	56.0
3.123594	5.7	15000.0	9.000	GND	L1	0.1	50.4	56.0
3.608906	25.6	15000.0	9.000	GND	L1	0.0	30.4	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.199844	26.9	15000.0	9.000	GND	L1	0.0	26.7	53.6
0.266250	24.9	15000.0	9.000	GND	L1	0.1	26.3	51.2
0.275938	4.6	15000.0	9.000	GND	L1	0.0	46.3	50.9
0.402969	14.8	15000.0	9.000	GND	L1	0.0	33.0	47.8
0.799844	20.3	15000.0	9.000	GND	N	0.0	25.7	46.0
3.123594	3.7	15000.0	9.000	GND	L1	0.1	42.3	46.0
3.608906	14.5	15000.0	9.000	GND	L1	0.0	31.5	46.0

Technical Data of Measurements with R&S EMC32 V8.40.0

Hardware Setup: EMI conducted\ESH2-Z5 - [EMI conducted]

Subrange 1

Frequency Range:	150 kHz - 30 MHz
Receiver:	Receiver [ESCS 30] @ GPIB0 (ADR 19), SN Ref.-Nr. 377, FW 2.30 02.01 02.36
Signal Path:	ESH2-Z5 Kabeldämpfung Correction Table: Conducted Voltage ESH2-Z5 cable loss
LISN:	ESH2-Z5 Correction Table (Line 0): 4-Line-LISN ESH2-Z5 Line N Correction Table (Line 1): 4-Line-LISN ESH2-Z5 Line L1 Correction Table (Line 2): 4-Line-LISN ESH2-Z5 Line L2 Correction Table (Line 3): 4-Line-LISN ESH2-Z5 Line L3

EMI Auto Test Template: 01_Class B_Voltage_PK_QPAV_N_L1

Hardware Setup:	ESH2-Z5
Measurement Type:	4 Line LISN
Frequency Range:	150 kHz - 30 MHz
Graphics Level Range:	-10 dBµV - 80 dBµV

Preview Measurements:

Scan Test Template: 02_Class B pre_PK_fast

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	3.906 kHz	PK+	9 kHz	0,00005 s	0 dB

Receiver: [ESCS 30]

Data Reduction:

Limit Line #1:	Class B Voltage QP
Limit Line #2:	Class B Voltage AV
Peak Search:	6 dB , Maximum Results: 10
Subrange Maxima:	50 Subranges , Maxima per Subrange: 2
Acceptance Offset:	-13 dB
Maximum Number of Results:	30
After Data Reduction:	Interactive data reduction

Frequency Zoom:

Zoom Scan Template: 08_Class B maxZoom_PK100mS

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	5 kHz	PK+	9 kHz	0,1 s	0 dB

Receiver: [ESCS 30]

Final Measurements:

Template for Single Meas.: 07_Class B fin AV QP

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	QPK; CAV	9 kHz	15 s	0 dB

Receiver: [ESCS 30]

Diagram No. 1.4

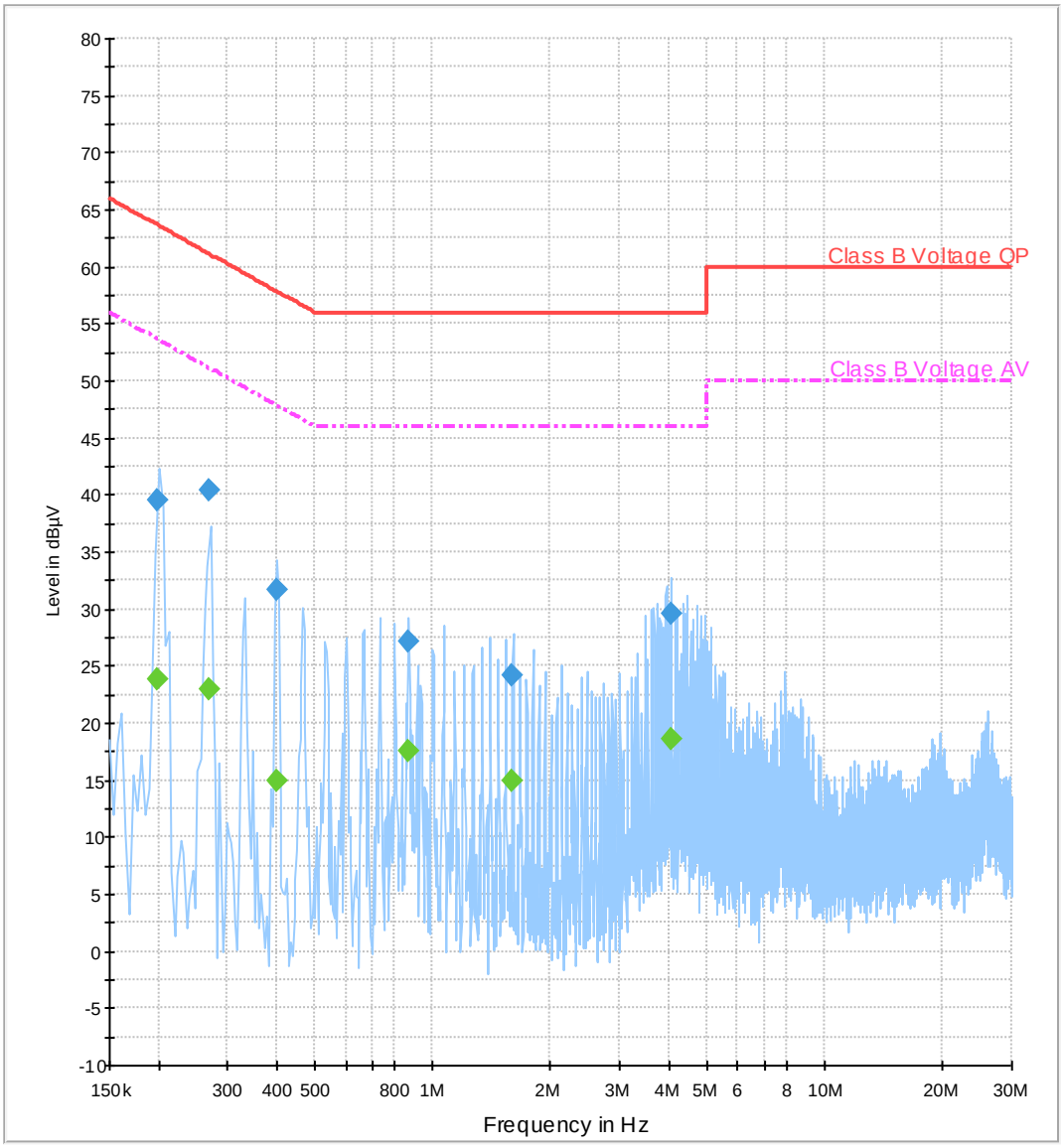
Common Information Test

Testspezification:	Conducted Voltage Measurement
	FCC 15.207
Technical Data:	Please see next page for detailed information
Diagram:	Shows the peak values as a sum of measured ports (N+L1) in maxhold mode
Operator name:	Lor
Operating mode:	GSM850, Channel 192
Measured on line:	Mains AC L1 and N
Power during test:	110 V AC 60 Hz
Comment 1:	--

EUT Information

EUT Name:	BGS2-W+AC/DC Adapter+DSB45+Handset Votronic+RS232+USB+(Notebook)
Manufacturer:	Cinterion
Serial Number:	IMEI #8449

01_Class B_Voltage_PK_QPAV_N_L1



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.198281	39.5	15000.0	9.000	GND	N	0.0	24.2	63.7
0.268594	40.4	15000.0	9.000	GND	L1	0.1	20.8	61.2
0.402500	31.7	15000.0	9.000	GND	L1	0.0	26.1	57.8
0.866250	27.2	15000.0	9.000	GND	N	0.1	28.8	56.0
1.600625	24.3	15000.0	9.000	GND	N	0.1	31.7	56.0
4.073281	29.5	15000.0	9.000	GND	N	0.1	26.5	56.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.198281	23.8	15000.0	9.000	GND	N	0.0	29.9	53.7
0.268594	23.0	15000.0	9.000	GND	L1	0.1	28.2	51.2
0.402500	14.9	15000.0	9.000	GND	L1	0.0	32.9	47.8
0.866250	17.6	15000.0	9.000	GND	N	0.1	28.4	46.0
1.600625	15.0	15000.0	9.000	GND	N	0.1	31.0	46.0
4.073281	18.6	15000.0	9.000	GND	N	0.1	27.4	46.0

Technical Data of Measurements with R&S EMC32 V8.40.0

Hardware Setup: EMI conducted\ESH2-Z5 - [EMI conducted]

Subrange 1

Frequency Range:	150 kHz - 30 MHz
Receiver:	Receiver [ESCS 30] @ GPIB0 (ADR 19), SN Ref.-Nr. 377, FW 2.30 02.01 02.36
Signal Path:	ESH2-Z5 Kabeldämpfung Correction Table: Conducted Voltage ESH2-Z5 cable loss
LISN:	ESH2-Z5 Correction Table (Line 0): 4-Line-LISN ESH2-Z5 Line N Correction Table (Line 1): 4-Line-LISN ESH2-Z5 Line L1 Correction Table (Line 2): 4-Line-LISN ESH2-Z5 Line L2 Correction Table (Line 3): 4-Line-LISN ESH2-Z5 Line L3

EMI Auto Test Template: 01_Class B_Voltage_PK_QPAV_N_L1

Hardware Setup:	ESH2-Z5
Measurement Type:	4 Line LISN
Frequency Range:	150 kHz - 30 MHz
Graphics Level Range:	-10 dBµV - 80 dBµV

Preview Measurements:

Scan Test Template: 02_Class B pre_PK_fast

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	3.906 kHz	PK+	9 kHz	0,00005 s	0 dB

Receiver: [ESCS 30]

Data Reduction:

Limit Line #1:	Class B Voltage QP
Limit Line #2:	Class B Voltage AV
Peak Search:	6 dB , Maximum Results: 10
Subrange Maxima:	50 Subranges , Maxima per Subrange: 2
Acceptance Offset:	-13 dB
Maximum Number of Results:	30
After Data Reduction:	Interactive data reduction

Frequency Zoom:

Zoom Scan Template: 08_Class B maxZoom_PK100mS

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	5 kHz	PK+	9 kHz	0,1 s	0 dB

Receiver: [ESCS 30]

Final Measurements:

Template for Single Meas.: 07_Class B fin AV QP

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
150 kHz - 30 MHz	4.5 kHz	QPK; CAV	9 kHz	15 s	0 dB

Receiver: [ESCS 30]