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Electrical

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EIRP and SPURIOUS EMISSIONS TEST REPORT

ACCORDING TO: FCC part 15 subpart C, §15.247 and subpart B, parts 22, 24

FOR:

Motorola Israel Ltd.

HC700G Handheld Computer

Model: F3133A

FCC ID:AZ489FT7018

Table of contents

1 Applicant information

Client name:	Motorola Israel Ltd.
Address:	3 Kremenetski street, P.O.B. 25016, 67899 Tel Aviv, Israel
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Contact name:	Mr. Alex Babaladze

2 Equipment under test attributes

Product name:	HC700G handheld computer
Model(s):	F3133A
Receipt date	6/7/2006

3 Manufacturer information

Manufacturer name:	Motorola Israel Ltd.
Address:	3 Kremenetski street, P.O.B. 25016, 67899 Tel Aviv, Israel
Telephone:	+972 3565 8888
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E-Mail:	alexb@motorola.com
Contact name:	Mr. Alex Babaladze

4 Test details

Project ID:	16755
Location:	Hermon Laboratories Ltd. P.O.Box 23, Binyamina 30500, Israel
Test started:	6/7/2006
Test completed:	6/14/2006
Test specification(s):	FCC part 15, subpart C, §15.247(c); part 22, §§22.913, 22.917; part 24, §§24.232, 24.238

5 Tests summary

Test	Status
Transmitter characteristics	
Part 22, section 22.913, part 24 section 24.232, RF output power	Pass
Part 15 section 15.247(c), part 22 section 22.917, part 24 section 24.238, Radiated spurious emissions	Pass

Results obtained indicate that the product under test complies in full with the requirements tested.
The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

	Name and Title	Date	Signature
Tested by:	Mr. A. Lane, test engineer	June 14, 2006	
Reviewed by:	Mrs. M. Cherniavsky, certification engineer	June 18, 2006	
Approved by:	Mr. M. Nikishin, EMC and Radio group leader	June 18, 2006	

6 EUT description

6.1 General information

The HC700G is a rugged handheld computer designed for field applications where fast data acquisition and exchange is required.
The HC700G serves as a Personal Digital Assistant (PDA) that enables portable access to Microsoft® Windows Mobile applications. It contains a built-in imager (camera) for reading 1D and 2D barcode labels. The imager can also capture hand writing images such as signatures and correlate the signature to an adjacent barcode. Wireless communication enables access to the outside world through Global System for Mobile communication (GSM), General Packet Radio Service (GPRS) and 802.11b Wireless Local Area Network (WLAN). Short distance Bluetooth® radio is used to communicate with peripheral wireless equipment such as: printers and body-worn devices.
Only two radios can operate (transmit) simultaneously:
- The GPRS (GSM850/PCS1900) and WLAN will not work simultaneously when used in the present configuration;
- The GPRS (GSM850/PCS1900) and Bluetooth transmitters may work simultaneously when used in the present configuration;
- The WLAN and Bluetooth transmitters may work simultaneously.

6.2 Operating frequencies

Source	Frequency, MHz			
	WLAN	Bluetooth	GSM850	PCS1900
Digital portion	13	15.36	22	24.576
Processor	416	NA	NA	NA
SDRAM	104	NA	NA	NA
AC97	12.288	NA	NA	NA
Receiver	2412 - 2462	2402 - 2480	869 - 894	1930 – 1990
Transmitter	2412 - 2462	2402 - 2480	824.2 – 848.8	1850.2 – 1909.8
LO (GPRS) low band	695.36 – 715.04	NA	NA	NA
LO (GPRS) high band	772.08 -795.92	NA	NA	NA

6.3 Changes made in the EUT

No changes were implemented.

6.4 Transmitter characteristics

6.4.1 Bluetooth module characteristics (module BCM2035)

Type of equipment	
	Stand-alone (Equipment with or without its own control provisions)
X	Combined equipment (Equipment where the radio part is fully integrated within another type of equipment)
	Plug-in card (Equipment intended for a variety of host systems)

Intended use		**Condition of use**
	fixed	Always at a distance more than 2 m from all people
	mobile	Always at a distance more than 20 cm from all people
X	portable	May operate at a distance closer than 20 cm to human body

Assigned frequency range	2400 – 2483.5 MHz
Operating frequency range	2402 - 2480 MHz
RF channel spacing	1000 kHz

Maximum rated output power	At transmitter 50 Ω RF output connector	2 mW
	Effective radiated power (for equipment with no RF connector)	2 mW

Is transmitter output power variable?	X	No		
		Yes		continuous variable
				stepped variable with stepsize dB
			minimum RF power	0.251 mW
			maximum RF power	2 mW

Antenna connection			
unique coupling	standard connector	X integral	with temporary RF connector
			X without temporary RF connector

Antenna/s technical characteristics			
Type	Manufacturer	Model number	Gain
Inverted F 2.4-2.48 GHz λ/4	Motorola	8489845V01	0 dBi

Transmitter 99% power bandwidth	1000 kHz					
Transmitter aggregate data rate/s	1.0 Mbps					
Transmitter aggregate symbol (baud) rate/s	0.125 Msymbols per second (MBaud)					
Type of modulation	GFSK					
Type of multiplexing	TDD					
Modulating test signal (baseband)	PRBS					
Maximum transmitter duty cycle in normal use	35.8 %	**Tx ON time**	0.458 msec	**Period**	1.278 msec	
Transmitter duty cycle supplied for test	100 %	**Tx ON time**		**Period**		

Transmitter power source					
X	Battery	**Nominal rated voltage**	7.2 VDC	Battery type	Lithium
		Nominal rated voltage			

Common power source for transmitter and receiver	X yes	no

Spread spectrum parameters for transmitters tested per FCC 15.247 only		
FHSS	total number of hops	79
	dwell time	0.458 msec
	bandwidth per hop	1.0 MHz
	max. separation of hops	1.0 MHz

6.4.2 Wireless LAN module characteristics (module Samsung 2350C)

Type of equipment							
	Stand-alone (Equipment with or without its own control provisions)						
X	Combined equipment (Equipment where the radio part is fully integrated within another type of equipment)						
	Plug-in card (Equipment intended for a variety of host systems)						

Intended use		**Condition of use**
	fixed	Always at a distance more than 2 m from all people
	mobile	Always at a distance more than 20 cm from all people
X	portable	May operate at a distance closer than 20 cm to human body

Assigned frequency range	2400 – 2483.5 MHz			
Operating frequency range	2412 - 2462 MHz			
RF channel spacing	5 MHz			
Maximum rated average output power	At transmitter 50 Ω RF output connector			40 mW
	Effective radiated power (for equipment with no RF connector)			52.5 mW
Is transmitter output power variable?	X	No		
		Yes		continuous variable
				stepped variable with stepsize dB
			minimum RF power	25 mW
			maximum RF power	40 mW

Antenna connection					
unique coupling	standard connector	X	integral		with temporary RF connector
				X	without temporary RF connector

Antenna/s technical characteristics			
Type	Manufacturer	Model number	Gain
Inverted F 2.4-2.48 GHz λ/4	Motorola	8489845V01	+1.2 dBi

Transmitter 99% power bandwidth	22 MHz					
Transmitter aggregate data rate/s	1.0, 2.0, 5.5 and 11 Mbps					
Transmitter aggregate symbol (baud) rate/s	0.125, 0.25, 06785 and 1.375 Msymbols per second (MBaud)					
Type of modulation	DSSS:1M – DBPSK, 2M – DQPSK and CCK: 5.5M – DQPSK, 11M - QPSK					
Type of multiplexing	TDD					
Modulating test signal (baseband)	PRBS					
Maximum transmitter duty cycle in normal use	1M – 99.9% 2M – 99.8% 5.5M – 99.6 % 11M – 99.3%	**Tx ON time**	18.8 msec 9.5 msec 3.6 msec 1.9 msec	**Period**	18.8126 msec 9.5126 msec 3.6126 msec 1.9126 msec
Transmitter duty cycle supplied for test	100 %	**Tx ON time**	msec	**Period**	msec

Transmitter power source							
X	Battery	**Nominal rated voltage**	7.2 VDC	Battery type	Lithium		

Common power source for transmitter and receiver	X	yes	no

Spread spectrum parameters for transmitters tested per FCC 15.247 only		
DSSS	Chip sequence length	8 bits
	Spectrum width	22 MHz

6.4.3 G20 module F4007, GSM 850/PCS 1900 transmitter

Type of equipment	
	Stand-alone (Equipment with or without its own control provisions)
X	Combined equipment (Equipment where the radio part is fully integrated within another type of equipment)
	Plug-in card (Equipment intended for a variety of host systems)

Intended use		**Condition of use**
	fixed	Always at a distance more than 2 m from all people
	mobile	Always at a distance more than 20 cm from all people
X	portable	May operate at a distance closer than 20 cm to human body

Assigned frequency range	824 – 849 MHz/1850 – 1910 MHz
Operating frequency range	824.2 – 848.8 MHz/1850.2 – 1909.8 MHz
RF channel spacing	200 kHz

Maximum rated output power	At transmitter 50 Ω RF output connector	850 – 1.778 W (32.5 dBm) 1900 – 0.891 W (29.5 dBm)
	Equivalent isotropically radiated power	850 –660.7W (28.2 dBm) 1900 – 1.349 W (31.3 dBm)

Is transmitter output power variable?		No		
	X	Yes		continuous variable
			X	stepped variable with stepsize: 2 dB
			minimum RF power	850 – 3.2 mW 1900 – 1 mW
			maximum RF power	850 – 1.778 W (32.5 dBm) 1900 – 0.891 W (29.5 dBm)

Antenna connection					
unique coupling	standard connector	X	integral		with temporary RF connector
				X	without temporary RF connector

Antenna/s technical characteristics			
Type	Manufacturer	Model number	Gain
PIFA Dual Band 850/1900	Motorola	8589520V03	850/900: -2.0 dBi 1800/1900: +2.0 dBi

Transmitter 99% power bandwidth	245 kHz					
Transmitter aggregate data rate/s	21 kbps					
Transmitter aggregate symbol (baud) rate/s	21 ksymbols per second (kBaud)					
Type of modulation	GMSK					
Type of multiplexing	TDMA					
Modulating test signal (baseband)	GSM					
Maximum transmitter duty cycle in normal use	12.5 %	**Tx ON time**	0.576 msec	**Period**	4.7 msec	
Transmitter duty cycle supplied for test	12.5 %	**Tx ON time**	0.576 msec	**Period**	4.7 msec	

Transmitter power source						
X	Battery	**Nominal rated voltage**	7.2 VDC	Battery type	Lithium	
		Nominal rated voltage				

Common power source for transmitter and receiver	X	yes	no

Test specification:	Section 22.913, Section 24.232; Peak output power		
Test procedure:	FCC part 22, Section 22.913; part 24, Section 24.232		
Test mode:	Compliance	Verdict:	PASS
Date:	6/08/2006		
Temperature: 21ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 7.2 VDC battery
Remarks:			

7 Transmitter tests according to 47CFR part 22 and part 24 requirements

7.1 Peak output power (radiated)

7.1.1 General

This test was performed to measure the maximum peak output power radiated by transmitter. Specification test limits are given in Table 7.1.1.

Table 7.1.1 Peak output power limits

Assigned frequency range, MHz	Peak output power		Equivalent field strength limit @ 3m, dB(μV/m)*
	W	dBm	
824 – 849	7.0	38.45	133.68
1850 – 1910	2.0	33.00	128.23

*- Equivalent field strength limit was calculated from the peak output power as follows: E=sqrt(30×P×G)/r, where P is peak output power in Watts, r is antenna to EUT distance in meters and G is transmitter antenna gain in dBi.

7.1.2 Test procedure for field strength measurements

7.1.2.1 The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.

7.1.2.2 The EUT was adjusted to produce maximum available to end user RF output power.

7.1.2.3 The resolution bandwidth of spectrum analyzer was set wider than 6 dB bandwidth of the EUT and the field strength of the EUT carrier frequency was measured with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0 and the measuring antenna height was swept in both vertical and horizontal polarizations.

7.1.2.4 The measurements were performed in 3 orthogonal positions of the EUT.

7.1.2.5 The maximum field strength of the EUT carrier frequency was measured as provided in Table 7.1.2 and associated plots.

7.1.3 Test procedure for substitution power measurements

7.1.3.1 The test equipment was set up as shown in Figure 7.1.2 and energized.

7.1.3.2 The RF signal generator was set to the EUT carrier frequency and the RF output level was preliminary adjusted to produce the same field strength as it was measured from the EUT.

7.1.3.3 The test antenna height was swept to find maximum emission from substitution antenna and RF signal generator output was fine adjusted to produce the same field strength as it was measured from the EUT.

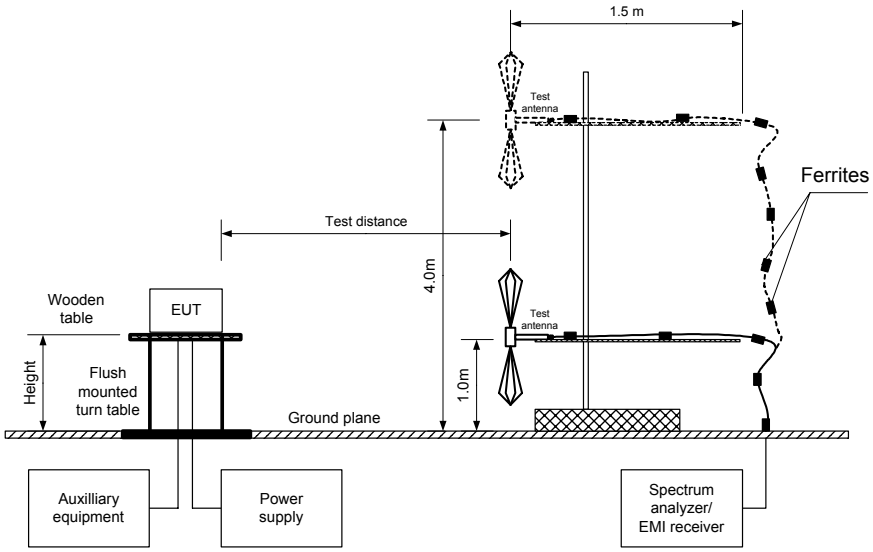
7.1.3.4 The maximum peak output power was calculated as a sum of signal generator output power in dBm and substitution antenna gain in dBi reduced by cable loss in dB.

7.1.3.5 The above procedure was performed in both horizontal and vertical polarizations of the substitution antenna.

7.1.3.6 The worst test results (the lowest margins) were recorded in Table 7.1.3 and shown in the associated plots.

Test specification:	Section 22.913, Section 24.232; Peak output power		
Test procedure:	FCC part 22, Section 22.913; part 24, Section 24.232		
Test mode:	Compliance	Verdict:	PASS
Date:	6/08/2006		
Temperature: 21ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 7.2 VDC battery
Remarks:			

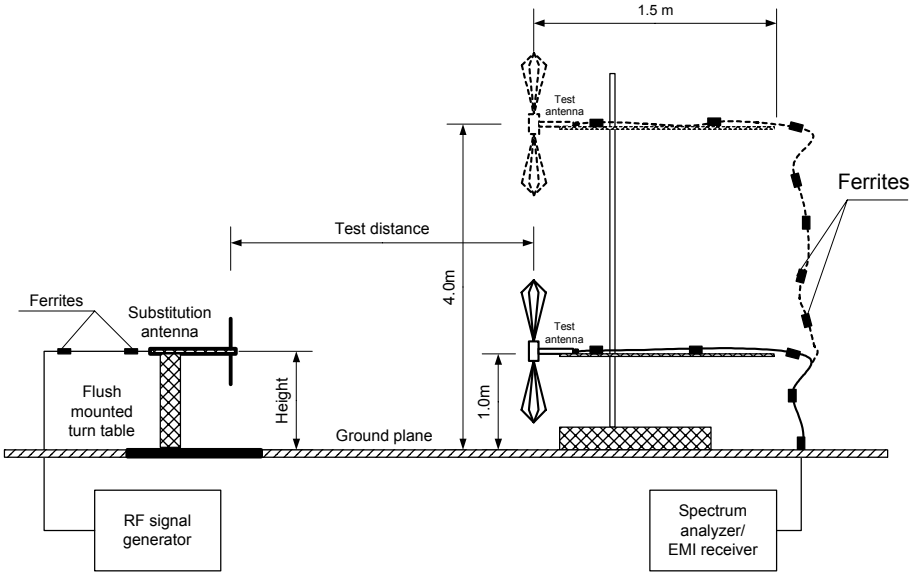
Figure 7.1.1 Setup for carrier field strength measurements



Photograph 7.1.1 Setup for carrier field strength measurements

Test specification:	Section 22.913, Section 24.232; Peak output power		
Test procedure:	FCC part 22, Section 22.913; part 24, Section 24.232		
Test mode:	Compliance	Verdict:	PASS
Date:	6/08/2006		
Temperature: 21ºC	Air Pressure: 1012 hPa	Relative Humidity: 46 %	Power Supply: 7.2 VDC battery
Remarks:			

Figure 7.1.2 Setup for substitution peak output power measurements



Photograph 7.1.2 Setup for substitution peak output power measurements

Test specification:	**Section 22.913, Section 24.232; Peak output power**		
Test procedure:	FCC part 22, Section 22.913; part 24, Section 24.232		
Test mode:	Compliance	Verdict:	PASS
Date:	6/08/2006		
Temperature: 21ºC	**Air Pressure:** 1012 hPa	**Relative Humidity:** 46 %	**Power Supply:** 7.2 VDC battery
Remarks:			

Table 7.1.2 Field strength measurement of peak output power

TEST DISTANCE: 3 m
TEST SITE: OATS
EUT HEIGHT: 0.8 m
EUT POSITION: 3 orthogonal axes
DETECTOR USED: Peak
TEST ANTENNA TYPE: Biconilog (30 MHz – 1000 MHz)
Double ridged guide (above 1000 MHz)
MODULATION: GMSK
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
DETECTOR USED: Peak

OPERATING FREQUENCY RANGE: 824 - 849 MHz

Frequency, MHz	Field strength, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*	Antenna polarization	Antenna height, m	Turn-table position**, degrees	EUT position
824.2	129.18	133.68	-4.5	Horizontal	1	108	X-axis
836.6	129.06	133.68	-4.62	Horizontal	1	257	X-axis
848.8	127.35	133.68	-6.33	Horizontal	1	292	X-axis

OPERATING FREQUENCY RANGE: 1850 - 1910 MHz

Frequency, MHz	Field strength, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*	Antenna polarization	Antenna height, m	Turn-table position**, degrees	EUT position
1850.20	134.31	128.23	6.08	Horizontal	1.0	180	Z-axis
1880.00	132.79	128.23	4.56	Horizontal	1.0	180	Z-axis
1909.80	132.26	128.23	4.03	Horizontal	1.0	180	Z-axis

*****- Margin = Field strength – calculated field strength limit.
******- EUT front panel refer to 0 degrees position of turntable.

Test specification:	**Section 22.913, Section 24.232; Peak output power**		
Test procedure:	FCC part 22, Section 22.913; part 24, Section 24.232		
Test mode:	Compliance	Verdict:	PASS
Date:	6/08/2006		
Temperature: 21ºC	**Air Pressure:** 1012 hPa	**Relative Humidity:** 46 %	**Power Supply:** 7.2 VDC battery
Remarks:			

Table 7.1.3 Substitution measurement of peak output power

TEST DISTANCE: 3 m
SUBSTITUTION ANTENNA HEIGHT: 0.8 m
DETECTOR USED: Peak
SUBSTITUTION ANTENNA TYPE: Tunable dipole (30 MHz – 1000 MHz)
Double ridged guide (above 1000 MHz)

OPERATING FREQUENCY RANGE: 824 - 849 MHz

Frequency, MHz	Field strength, dB(µV/m)	Antenna polarization	RF generator output, dBm	Antenna gain, dBd	Cable loss, dB	Peak output power, ERP dBm	Limit, dBm	Margin, dB*	Verdict
824.2	129.18	H	30.2	-0.79	3.6	25.81	38.45	-12.64	Pass
836.6	129.06	H	30.4	-0.74	3.65	26.01	38.45	-12.44	Pass
848.8	127.35	H	29.5	-0.69	3.7	25.11	38.45	-13.34	Pass

*****- Margin = Peak output power – specification limit.

OPERATING FREQUENCY RANGE: 1850 - 1910 MHz

Frequency, MHz	Field strength, dB(µV/m)	Antenna polarization	RF generator output, dBm	Antenna gain, dBi	Cable loss, dB	Peak output power,EiRP dBm	Limit, dBm	Margin, dB*	Verdict
1850.20	134.31	H	23.20	9.34	1.23	31.31	33	-1.69	Pass
1880.00	132.79	H	21.18	9.38	1.23	29.33	33	-3.67	Pass
1909.80	132.26	H	22.18	9.32	1.24	30.26	33	-2.74	Pass

Reference numbers of test equipment used

HL 0034	HL 0415	HL 0661	HL 0812	HL 1430	HL 1565	HL 1942	HL 1947
HL 1984	HL 2400	HL 2432					

Full description is given in Appendix A.

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

8 Transmitter tests according to 47CFR part 15 subpart C, part 22 and part 24 requirements

8.1 Field strength of spurious emissions

8.1.1 General

This test was performed to measure field strength of spurious emissions from the EUT. Specification test limits are given in Table 8.1.1, Table 8.1.2.

Table 8.1.1 Radiated spurious emissions limits according to FCC part 15 section 15.247(c)

Frequency, MHz	Field strength at 3 m within restricted bands, dB(µV/m)***			Attenuation of field strength of spurious versus carrier outside restricted bands, dBc***
	Peak	Quasi Peak	Average	
0.009 – 0.090	148.5 – 128.5	NA	128.5 – 108.5**	20.0
0.090 – 0.110	NA	108.5 – 106.8**	NA	
0.110 – 0.490	126.8 – 113.8	NA	106.8 – 93.8**	
0.490 – 1.705	NA	73.8 – 63.0**	NA	
1.705 – 30.0*		69.5**		
30 – 88		40.0		
88 – 216		43.5		
216 – 960		46.0		
960 - 1000		54.0		
1000 – 10thharmonic	74.0	NA	54.0	

*- The limit for 3 m test distance was calculated using the inverse square distance extrapolation factor as follows:

$$Lim_{S2} = Lim_{S1} + 40 \log (S_1/S_2),$$

where S_1 and S_2 – standard defined and test distance respectively in meters.

**- The limit decreases linearly with the logarithm of frequency.

*** - The field strength limits applied from the lowest radio frequency generated in the device, without going below 9 kHz up to the tenth harmonic of the highest fundamental frequency.

Table 8.1.2 Radiated spurious emission test limits according to FCC parts 22 and 24

Frequency, MHz	Attenuation below carrier, dBc	ERP of spurious, dBm	Equivalent field strength limit @ 3m, dB(µV/m)***
0.009 – 10th harmonic*	43+10logP**	-13	84.4

* - Excluding the in band emission within ± 250 % of the authorized bandwidth from the carrier

** - P is transmitter output power in Watts

*** - Equivalent field strength limit was calculated from maximum allowed ERP of spurious as follows: E=sqrt(30×P×1.64)/r, where P is ERP in Watts, 1.64 is numeric gain of ideal dipole and r is antenna to EUT distance in meters.

Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

8.1.2 Test procedure for spurious emission field strength measurements in 9 kHz to 30 MHz band

8.1.2.1 The EUT was set up as shown in Figure 8.1.1, energized and the performance check was conducted.

8.1.2.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0 and the measuring antenna was rotated around its vertical axis.

8.1.2.3 The measurements were performed in 3 orthogonal positions of the EUT. The worst test results (the lowest margins) were recorded and shown in the associated plots.

8.1.3 Test procedure for spurious emission field strength measurements above 30 MHz

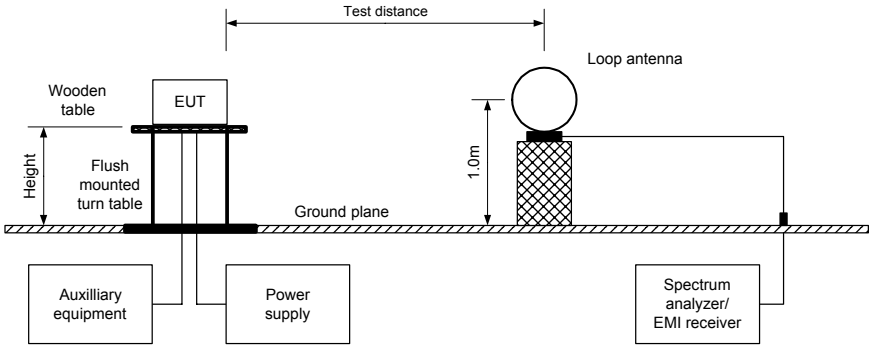
8.1.3.1 The EUT was set up as shown in Figure 8.1.2, energized and the performance check was conducted.

8.1.3.2 The specified frequency range was investigated with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360^0, the measuring antenna height was changed from 1 to 4 m, its polarization was switched from vertical to horizontal.

8.1.3.3 The measurements were performed in 3 orthogonal positions of the EUT. The worst test results (the lowest margins) were recorded and shown in the associated plots.

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

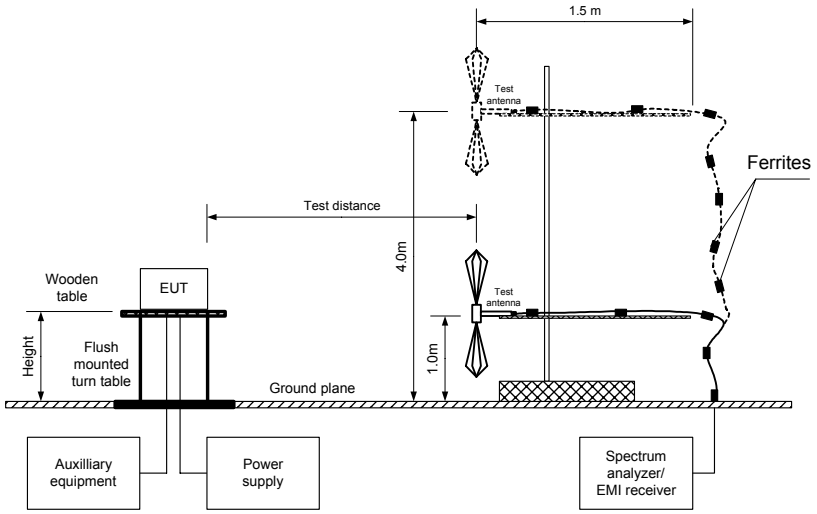
Figure 8.1.1 Setup for spurious emission field strength measurements below 30 MHz



Photograph 8.1.1 Setup for spurious emission field strength measurements below 30 MHz

Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Figure 8.1.2 Setup for spurious emission field strength measurements above 30 MHz



Photograph 8.1.2 Setup for spurious emission field strength measurements from 30 to 1000 MHz

Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Photograph 8.1.3 Setup for spurious emission field strength measurements above 1000 MHz at anechoic chamber

Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Photograph 8.1.4 Setup for spurious emission field strength measurements above 1000 MHz at the OATS

Photograph 8.1.5 Setup for spurious emission field strength measurements above 18 GHz at the OATS

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Table 8.1.3 Field strength of emissions outside restricted bands

ASSIGNED FREQUENCY:	2400 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 - 25000 MHz
TEST DISTANCE:	3 m
MODULATION:	FSK
MODULATING SIGNAL:	PRBS
BIT RATE:	1.0 Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
DETECTOR USED:	Peak
RESOLUTION BANDWIDTH:	100 kHz
VIDEO BANDWIDTH:	300 kHz
TEST ANTENNA TYPE:	Active loop (9 kHz – 30 MHz) Biconilog (30 MHz – 1000 MHz) Double ridged guide (above 1000 MHz)
FREQUENCY HOPPING:	Disabled

Frequency, MHz	Field strength of spurious, dB(µV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	Field strength of carrier, dB(µV/m)	Attenuation below carrier, dBc	Limit, dBc	Margin, dB	Verdict
Low carrier frequency									
No spurious emissions were found									Pass
Mid carrier frequency									
No spurious emissions were found									Pass
High carrier frequency									
No spurious emissions were found									Pass

*****- EUT front panel refers to 0 degrees position of turntable.
******- Margin = Attenuation below carrier – specification limit.

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Table 8.1.4 Field strength of spurious emissions above 1 GHz within restricted bands

ASSIGNED FREQUENCY:	2400 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE:	1 - 25000 MHz
TEST DISTANCE:	3 m
MODULATION:	FSK
MODULATING SIGNAL:	PRBS
BIT RATE:	1.0 Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
DETECTOR USED:	Peak
RESOLUTION BANDWIDTH:	1000 kHz
TEST ANTENNA TYPE:	Double ridged guide
FREQUENCY HOPPING:	Disabled

Frequency, MHz	Antenna		Azimuth, degrees*	Peak field strength(VBW=3 MHz)			Average field strength(VBW=10 kHz****)				Verdict
	Polarization	Height, m		Measured, dB(µV/m)	Limit, dB(µV/m)	Margin, dB**	Measured, dB(µV/m)	Calculated, dB(µV/m)	Limit, dB(µV/m)	Margin, dB***	
Low carrier frequency											
4804	V	1.2	250	50.33	74.00	-23.67	46.17	46.17	54.00	-7.83	Pass
Mid carrier frequency											
4880	V	1.2	210	50.33	74.00	-23.67	48.67	48.67	54.00	-5.33	Pass
High carrier frequency											
4960	V	1.2	230	48.67	74.00	-25.33	42.50	42.50	54.00	-11.5	Pass

*****- EUT front panel refers to 0 degrees position of turntable.
******- Margin = Measured field strength - specification limit.
***- Margin = Calculated field strength - specification limit,
where Calculated field strength = Measured field strength + average factor.
****- VBW ≥ 1 / Ton = 1 / 273.4µses = 3657 Hz → 10 kHz

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Table 8.1.5 Field strength of spurious emissions below 1 GHz within restricted bands

ASSIGNED FREQUENCY:	2400 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE:	0.009 – 1000 MHz
TEST DISTANCE:	3 m
MODULATION:	FSK
MODULATING SIGNAL:	PRBS
BIT RATE:	1.0 Mbps
DUTY CYCLE:	100 %
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
RESOLUTION BANDWIDTH:	0.2 kHz (9 kHz – 150 kHz) 9.0 kHz (150 kHz – 30 MHz) 120 kHz (30 MHz – 1000 MHz)
VIDEO BANDWIDTH:	> Resolution bandwidth
FREQUENCY HOPPING:	Disabled

Frequency, MHz	Peak emission, dB(µV/m)	Quasi-peak			Antenna polarization	Antenna height, m	Turn-table position**, degrees	Verdict
		Measured emission, dB(µV/m)	Limit, dB(µV/m)	Margin, dB*				
Low carrier frequency								
No spurious emissions were found								Pass
Mid carrier frequency								
No spurious emissions were found								Pass
High carrier frequency								
No spurious emissions were found								Pass

*****- Margin = Measured emission - specification limit.
******- EUT front panel refer to 0 degrees position of turntable.

Table 8.1.6 Restricted bands

MHz	MHz	MHz	MHz	MHz	GHz
0.09 - 0.11	8.37625 - 8.38675	73 - 74.6	399.9 - 410	2690 - 2900	10.6 - 12.7
0.495 - 0.505	8.41425 - 8.41475	74.8 - 75.2	608 - 614	3260 - 3267	13.25 - 13.4
2.1735 - 2.1905	12.29 - 12.293	108 - 121.94	960 - 1240	3332 - 3339	14.47 - 14.5
4.125 - 4.128	12.51975 - 12.52025	123 - 138	1300 - 1427	3345.8 - 3358	15.35 - 16.2
4.17725 - 4.17775	12.57675 - 12.57725	149.9 - 150.05	1435 - 1626.5	3600 - 4400	17.7 - 21.4
4.20725 - 4.20775	13.36 - 13.41	156.52475 - 156.52525	1645.5 - 1646.5	4500 - 5150	22.01 - 23.12
6.215 - 6.218	16.42 - 16.423	156.7 - 156.9	1660 - 1710	5350 – 5460	23.6 - 24
6.26775 - 6.26825	16.69475 - 16.69525	162.0125 - 167.17	1718.8 - 1722.2	7250 - 7750	31.2 - 31.8
6.31175 - 6.31225	16.80425 - 16.80475	167.72 - 173.2	2200 - 2300	8025 – 8500	36.43 - 36.5
8.291 - 8.294	25.5 - 25.67	240 - 285	2310 - 2390	9000 - 9200	Above 38.6
8.362 - 8.366	37.5 - 38.25	322 - 335.4	2483.5 - 2500	9300 - 9500	

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Table 8.1.7 Spurious emission field strength test results according to FCC parts 22, 24

TEST DISTANCE:	3 m
TEST SITE:	OATS
EUT HEIGHT:	0.8 m
INVESTIGATED FREQUENCY RANGE:	0.009 – 20000 MHz
DETECTOR USED:	Peak
VIDEO BANDWIDTH:	> Resolution bandwidth
TEST ANTENNA TYPE:	Active loop (9 kHz – 30 MHz) Biconilog (30 MHz – 1000 MHz) Double ridged guide (above 1000 MHz)
MODULATION:	GMSK
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum

Frequency, MHz	Field strength, dB(μV/m)	Limit, dB(μV/m)	Margin, dB*	RBW, kHz	Antenna polarization	Antenna height, m	Turn-table position**, degrees
Low carrier frequency MHz							
5550.275	74.83	84.4	-9.57	1000	Vertical	1.1	90
7400.430	60.83	84.4	-23.57	1000	Vertical	1.0	90
Mid carrier frequency MHz							
5639.717	75.83	84.4	-8.57	1000	Vertical	1.0	90
7519.580	58.83	84.4	-25.57	1000	Vertical	1.0	90
High carrier frequency MHz							
5729.130	76.33	84.4	-8.07	1000	Vertical	1.1	90
7638.920	56.00	84.4	-28.40	1000	Vertical	1.0	90

*****- Margin = Field strength of spurious – calculated field strength limit.
******- EUT front panel refers to 0 degrees position of turntable.

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Table 8.1.8 Substitution ERP of spurious test results according to FCC parts 22, 24

TEST SITE: OATS
TEST DISTANCE: 3 m
SUBSTITUTION ANTENNA HEIGHT: 0.8 m
DETECTOR USED: Peak
VIDEO BANDWIDTH: > Resolution bandwidth
SUBSTITUTION ANTENNA TYPE: Tunable dipole (30 MHz – 1000 MHz)
Double ridged guide (above 1000 MHz)

Frequency, MHz	Field strength, dB(μV/m)	RBW, kHz	Antenna polarization	RF generator output, dBm	Ant gain, dBd	Cable loss, dB	ERP, dBm	Limit, dBm	Margin, dB*	Verdict
Low carrier frequency MH										
5550.275	74.83	1000	Vertical	-27.17	8.47	1.49	-20.19	-13.00	-7.19	Pass
7400.430	More than 20 dB below the limit									Pass
Mid carrier frequency MHz										
5639.717	75.83	1000	Vertical	-26.17	8.61	1.49	-19.05	-13.00	-6.05	Pass
7519.580	More than 20 dB below the limit									Pass
High carrier frequency MHz										
5729.130	76.33	1000	Vertical	-25.67	8.74	1.49	-18.42	-13.00	-5.42	Pass
7638.920	More than 20 dB below the limit									Pass

*- Margin = Spurious emission – specification limit.

Reference numbers of test equipment used

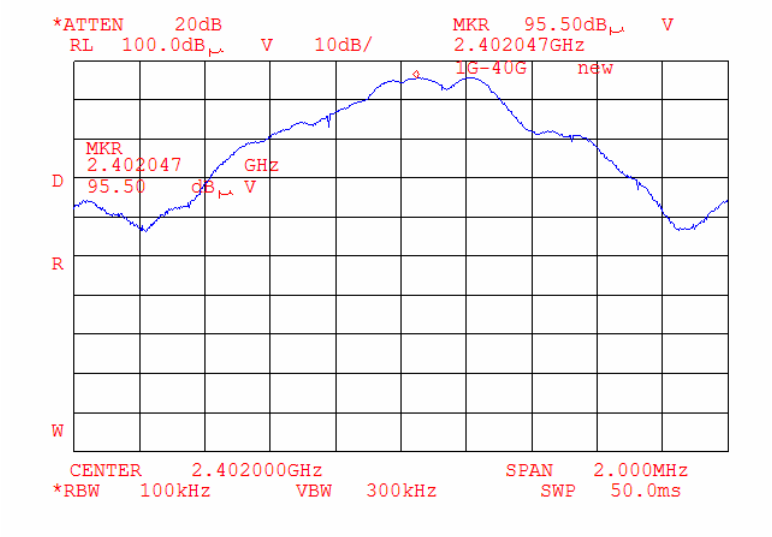
HL 0410	HL 0521	HL 0589	HL 0604	HL 0661	HL 0768	HL 1200	HL 1424
HL 1942	HL 1947	HL 1984	HL 2009	HL 2259	HL 2260	HL 2399	HL 2400
HL 2432							

Full description is given in Appendix A.

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.1 Radiated emission measurements at the low carrier frequency

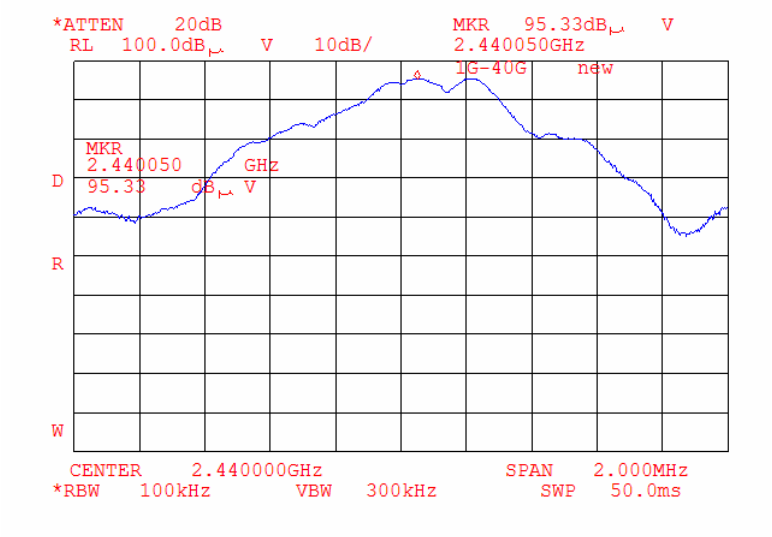
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.2 Radiated emission measurements at the mid carrier frequency

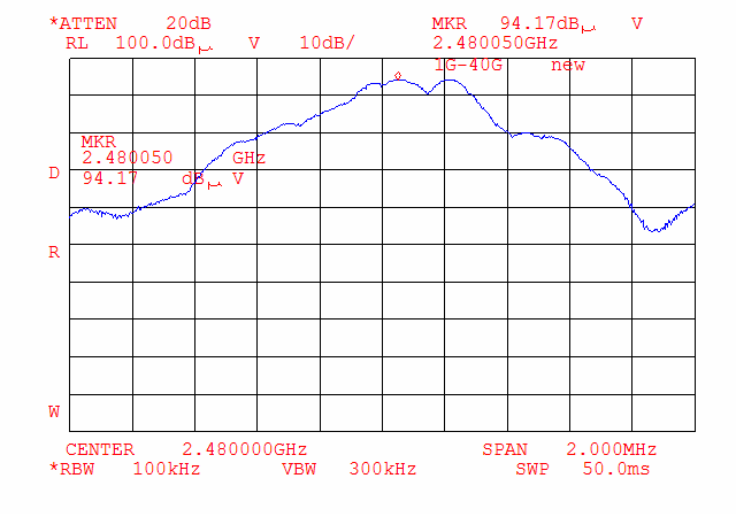
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

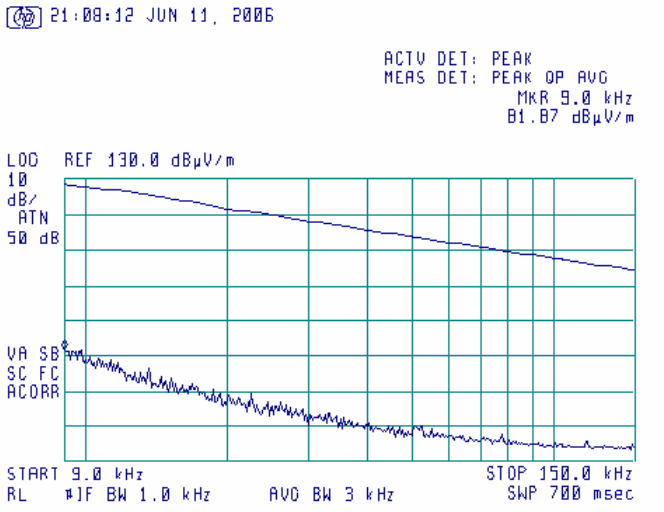
Plot 8.1.3 Radiated emission measurements at the high carrier frequency

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Plot 8.1.4 Radiated emission measurements from 9 to 150 kHz at the low carrier frequency (BT+G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

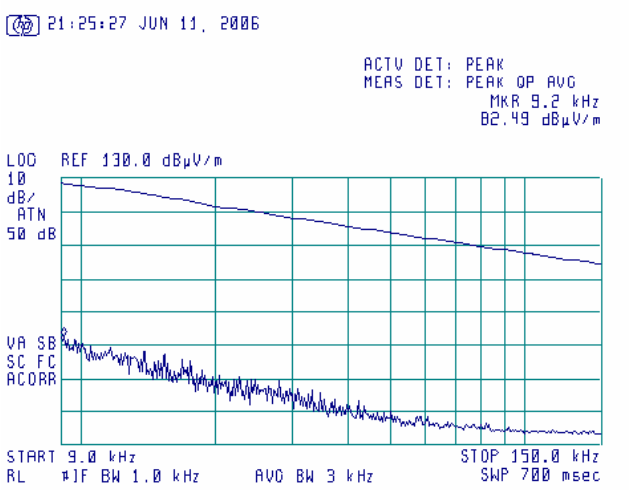


Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

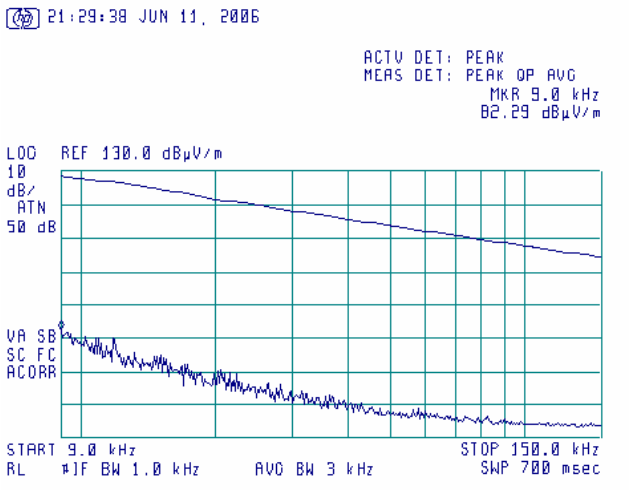
Plot 8.1.5 Radiated emission measurements from 9 to 150 kHz at the mid carrier frequency (BT+G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Plot 8.1.6 Radiated emission measurements from 9 to 150 kHz at the high carrier frequency (BT+G20-850)

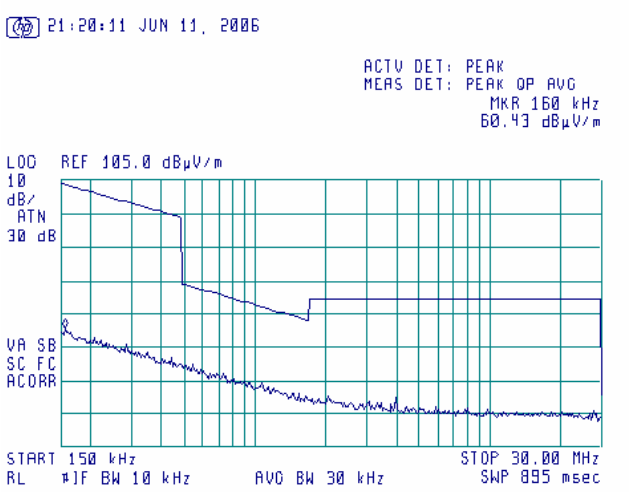
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

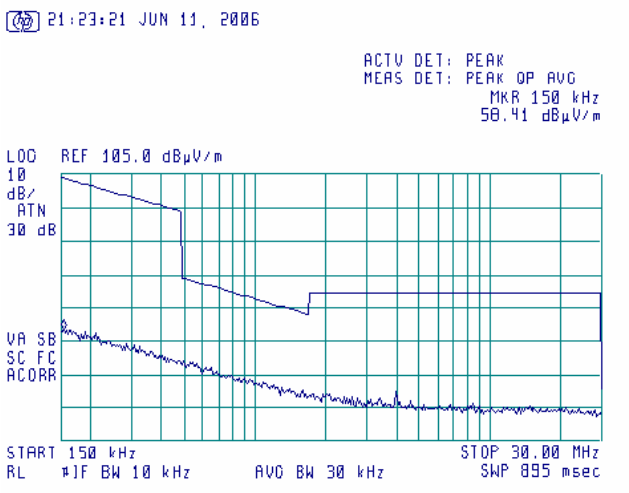
Plot 8.1.7 Radiated emission measurements from 0.15 to 30 MHz at the low carrier frequency (BT+G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Plot 8.1.8 Radiated emission measurements from 0.15 to 30 MHz at the mid carrier frequency (BT+G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

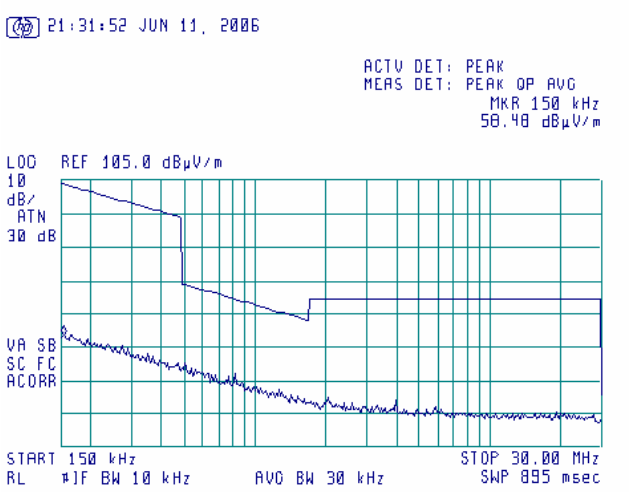


Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

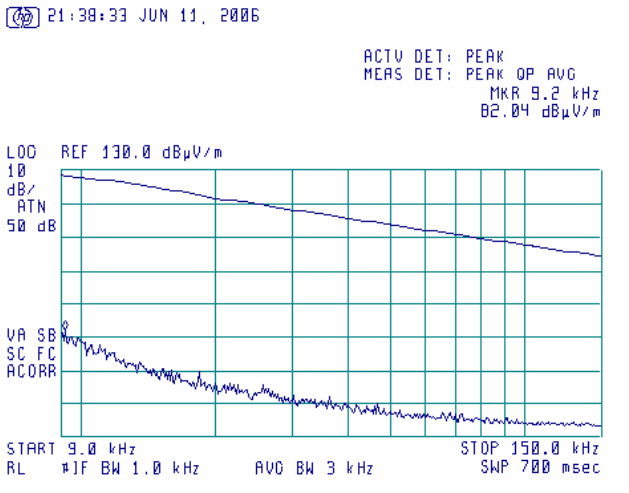
Plot 8.1.9 Radiated emission measurements from 0.15 to 30 MHz at the high carrier frequency (BT+G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Plot 8.1.10 Radiated emission measurements from 9 to 150 kHz at the low carrier frequency (BT+G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

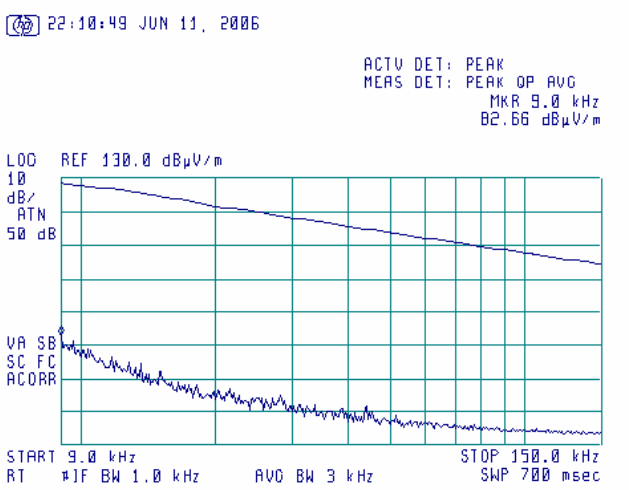


Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

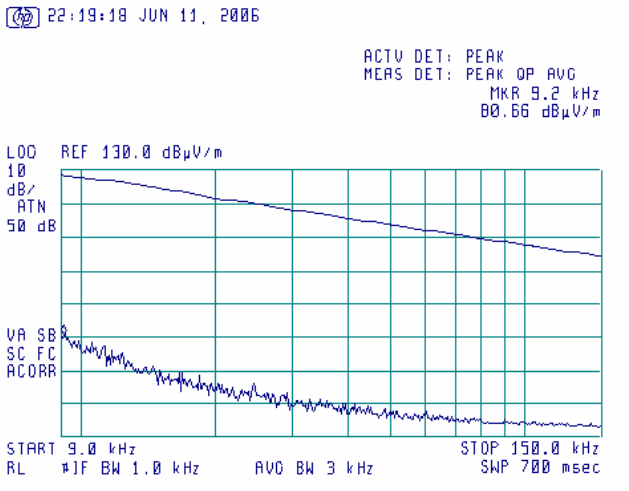
Plot 8.1.11 Radiated emission measurements from 9 to 150 kHz at the mid carrier frequency (BT+G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Plot 8.1.12 Radiated emission measurements from 9 to 150 kHz at the high carrier frequency (BT+G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

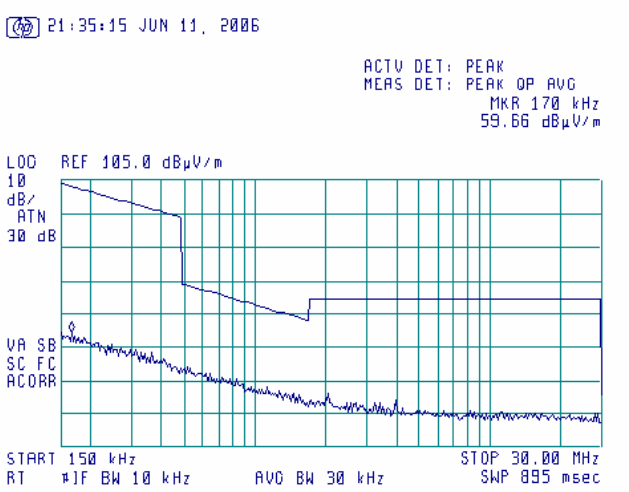


Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

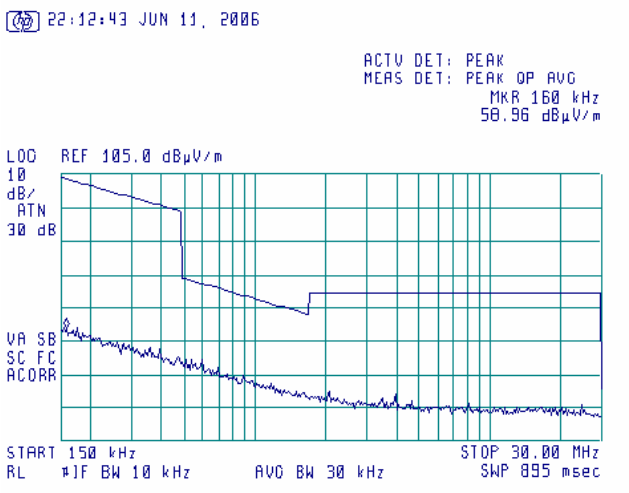
Plot 8.1.13 Radiated emission measurements from 0.15 to 30 MHz at the low carrier frequency (BT+G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Plot 8.1.14 Radiated emission measurements from 0.15 to 30 MHz at the mid carrier frequency (BT+G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical

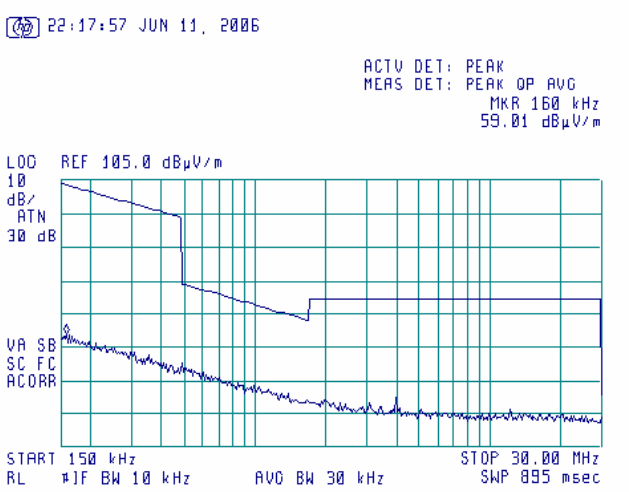


Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

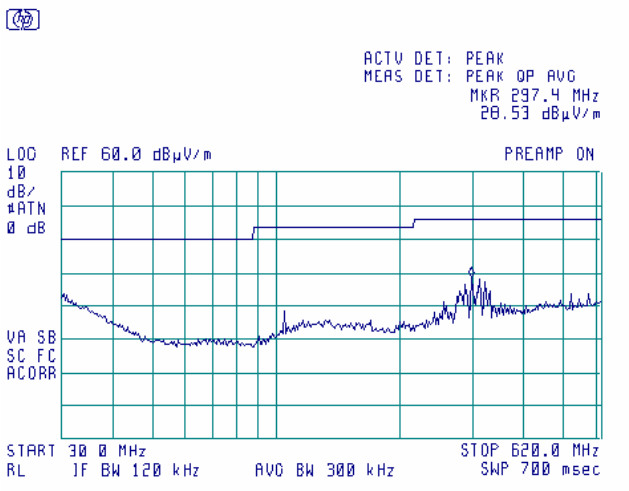
Plot 8.1.15 Radiated emission measurements from 0.15 to 30 MHz at the high carrier frequency (BT+G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical



Plot 8.1.16 Radiated emission measurements from 30 to 620 MHz at the low carrier frequency (BT+G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



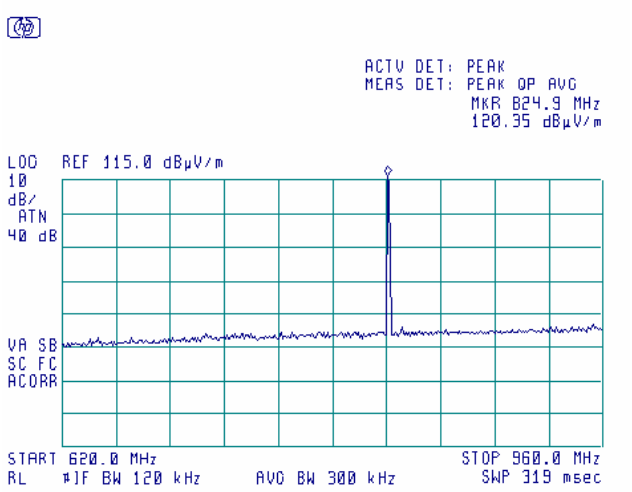
Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Digital part emissions

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

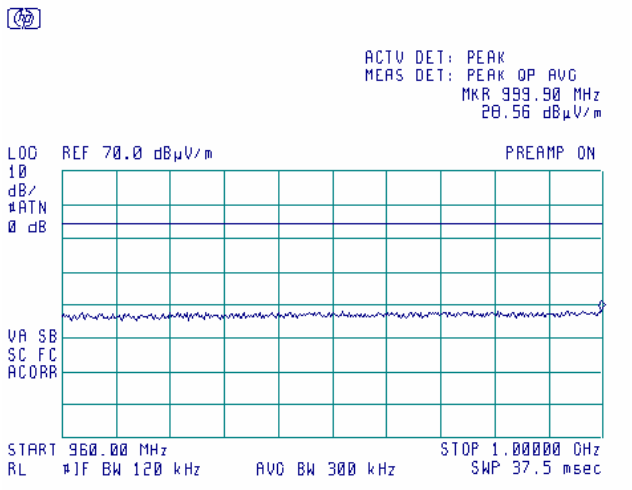
Plot 8.1.17 Radiated emission measurements from 620 to 960 MHz at the low carrier frequency (BT+G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.18 Radiated emission measurements from 960 to 1000 MHz at the low carrier frequency (BT+G20-850)

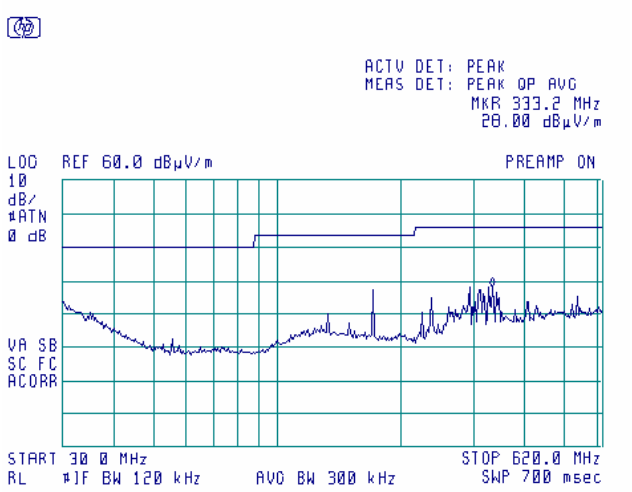
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.19 Radiated emission measurements from 30 to 620 MHz at the mid carrier frequency (BT+G20-850)

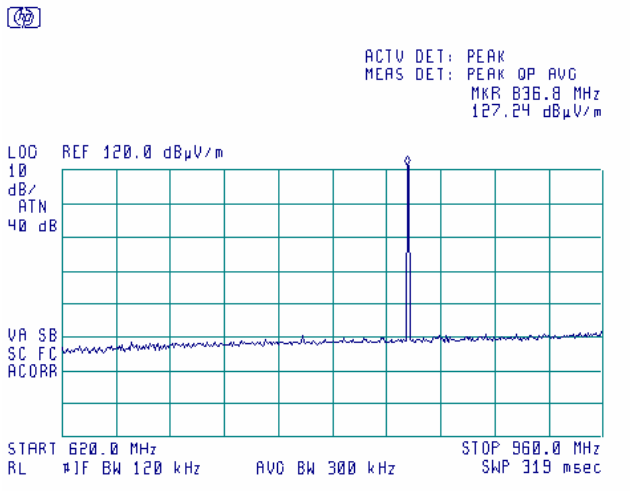
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Digital part emissions

Plot 8.1.20 Radiated emission measurements from 620 to 960 MHz at the mid carrier frequency (BT+G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

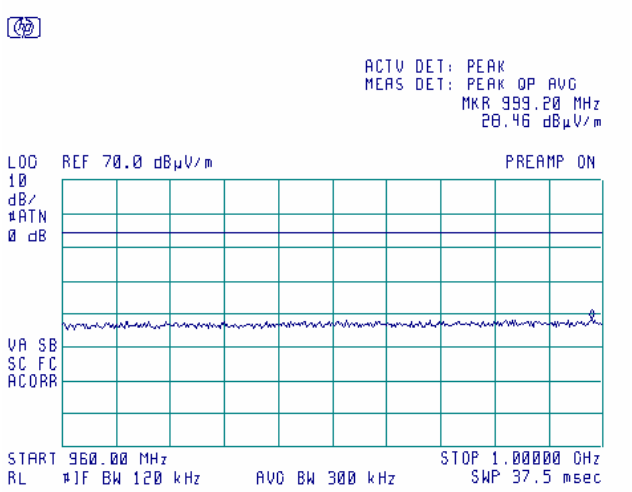


Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

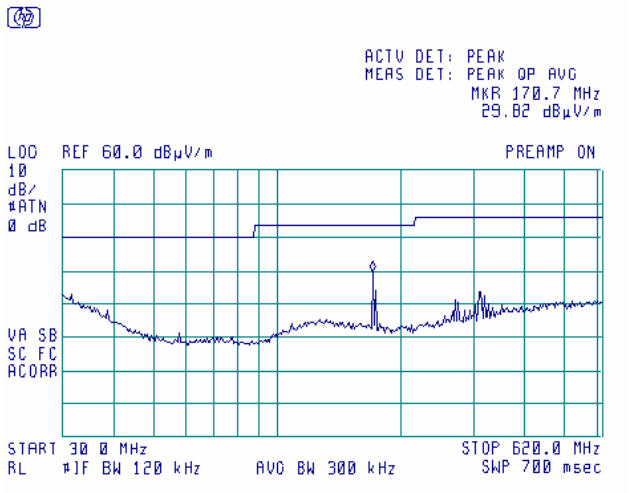
Plot 8.1.21 Radiated emission measurements from 960 to 1000 MHz at the mid carrier frequency (BT+G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.22 Radiated emission measurements from 30 to 620 MHz at the high carrier frequency (BT+G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



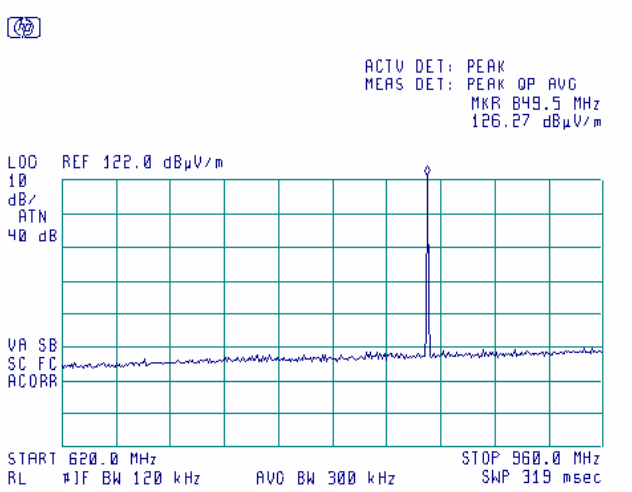
Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Digital part emissions

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

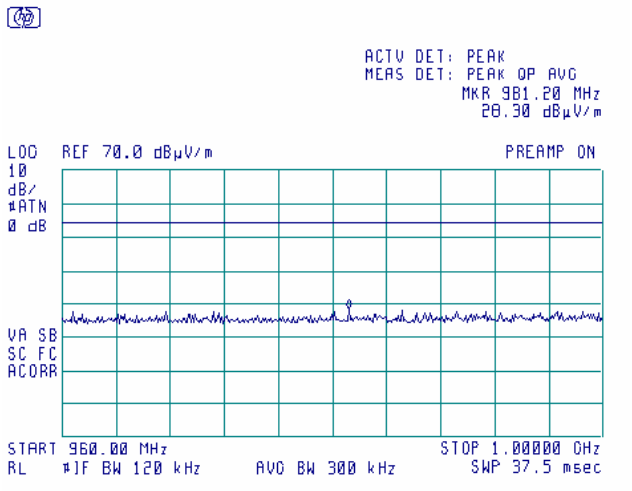
Plot 8.1.23 Radiated emission measurements from 620 to 960 MHz at the high carrier frequency (BT+G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.24 Radiated emission measurements from 960 to 1000 MHz at the high carrier frequency (BT+G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

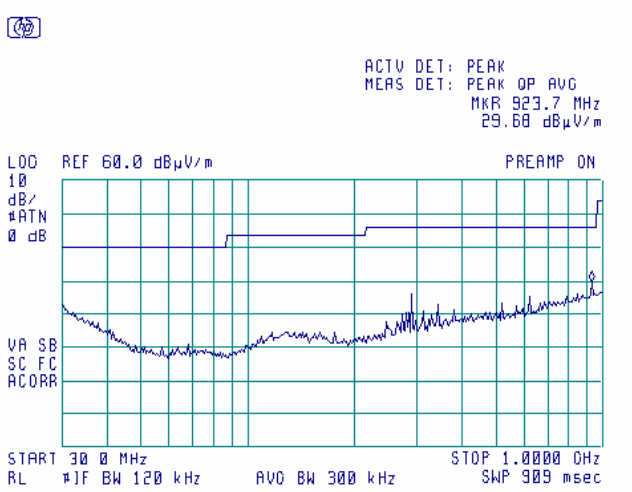


Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.25 Radiated emission measurements from 30 to 1000 MHz at the low carrier frequency (BT+G20-1900)

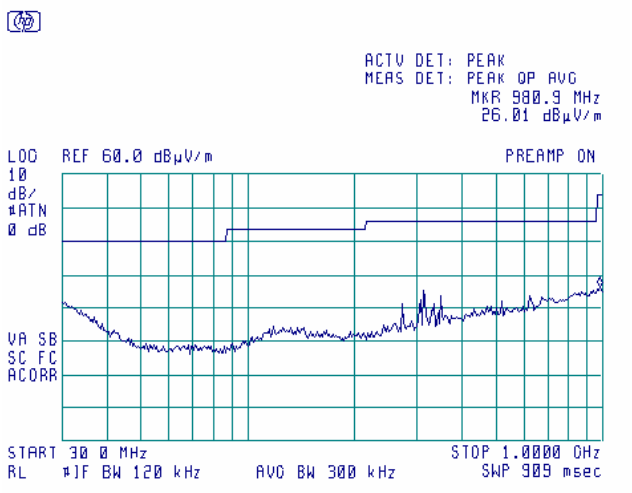
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Digital part emissions

Plot 8.1.26 Radiated emission measurements from 30 to 1000 MHz at the mid carrier frequency (BT+G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

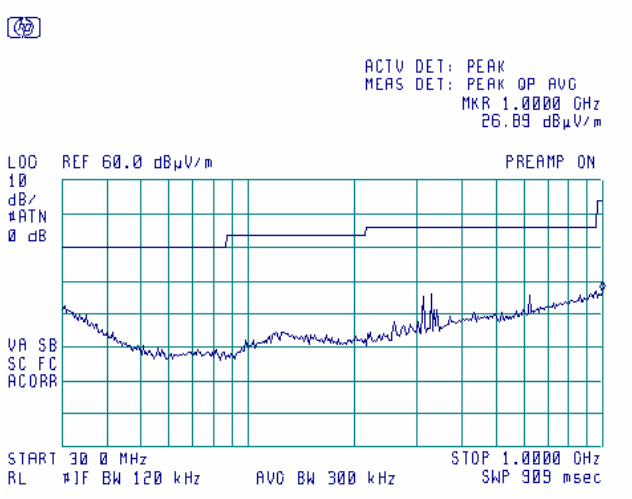


Digital part emissions

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.27 Radiated emission measurements from 30 to 1000 MHz at the high carrier frequency (BT+G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

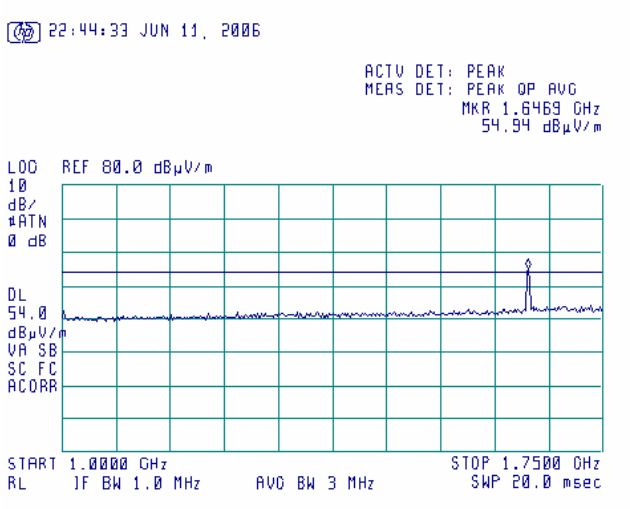


Digital part emissions

Plot 8.1.28 Radiated emission measurements from 1000 to 1750 MHz at the low carrier frequency (BT and G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

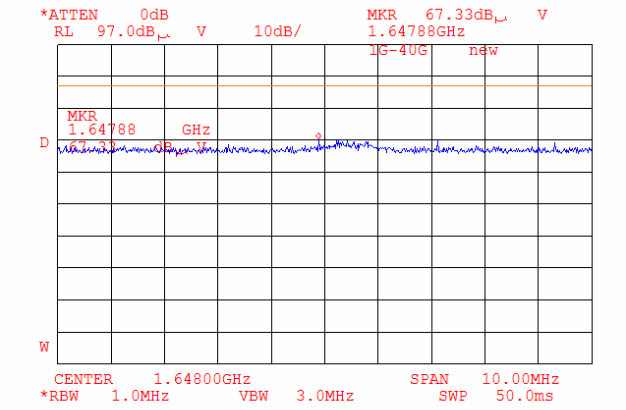
Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.29 Radiated emission measurements at 1648 MHz at the low carrier frequency (BT and G20-850)

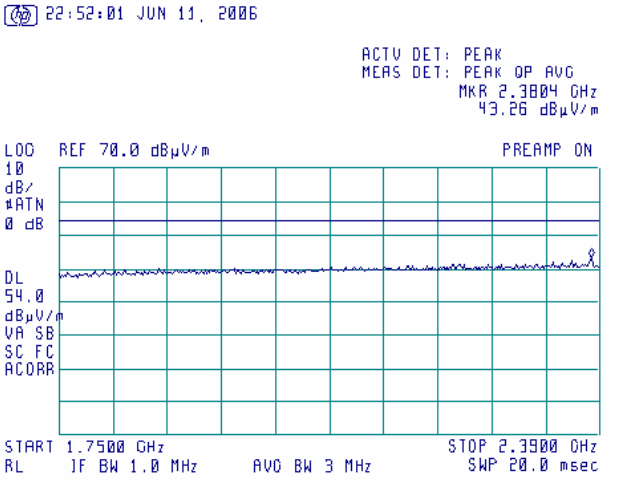
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



1648 MHz – 2nd harmonic of G20-850 low carrier frequency (824.2 MHz), limit 84.4 dBµV/m

Plot 8.1.30 Radiated emission measurements from 1750 to 2390 MHz at the low carrier frequency (BT and G20-850)

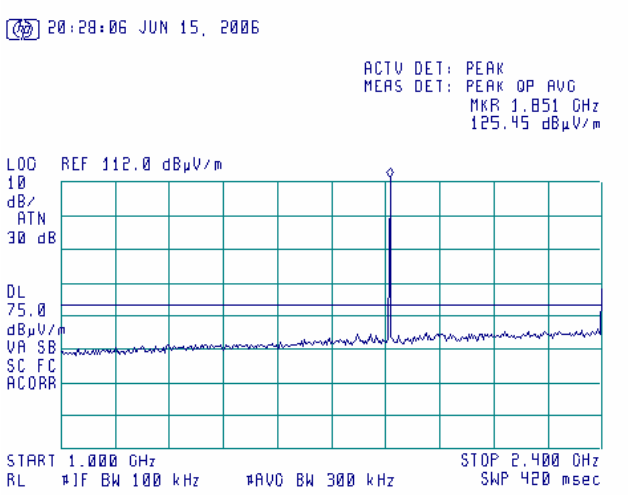
TEST SITE: Semi Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.31 Radiated emission measurements from 1000 to 2400 MHz at the low carrier frequency (BT and G20-1900)

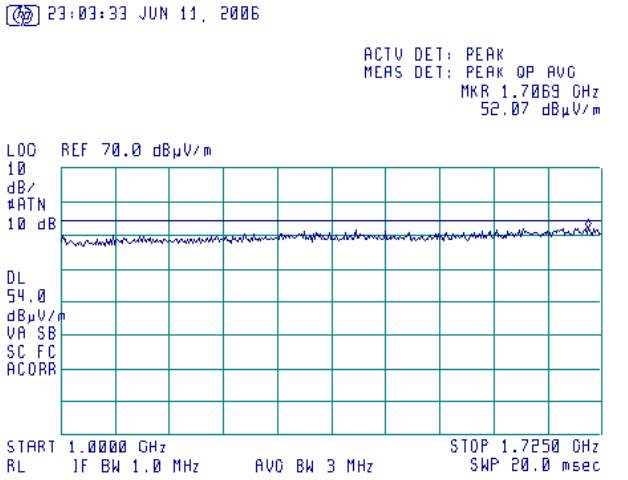
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Intended emission of GPRS module

Plot 8.1.32 Radiated emission measurements from 1000 to 1725 MHz at the low carrier frequency (BT and G20-1900)

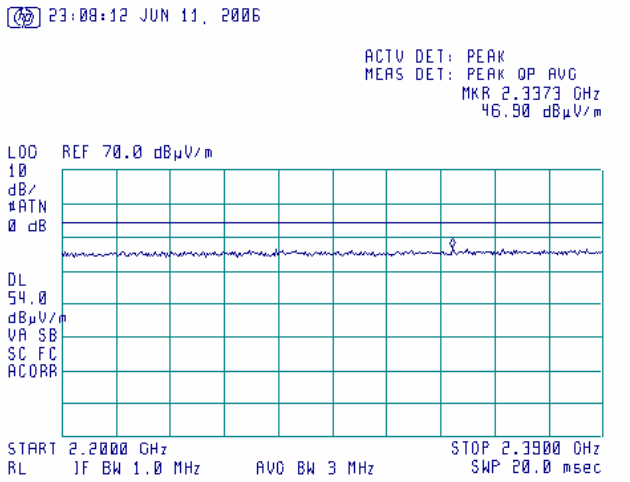
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

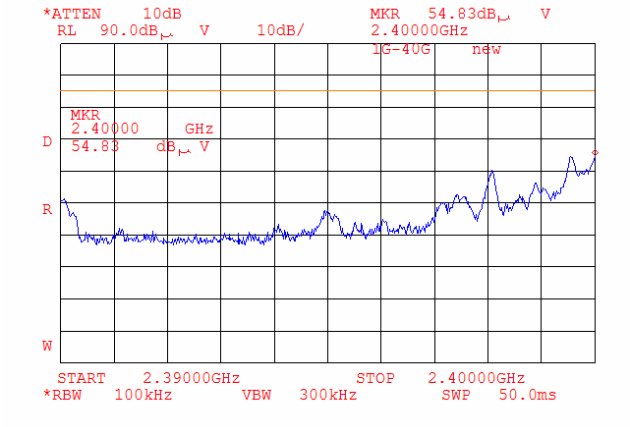
Plot 8.1.33 Radiated emission measurements from 2200 to 2390 MHz at the low carrier frequency (BT and G20-1900)

TEST SITE: Semi Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.34 Radiated emission measurements from 2390 to 2400 MHz at the low carrier frequency (BT and G20-1900 / BT and G20-850)

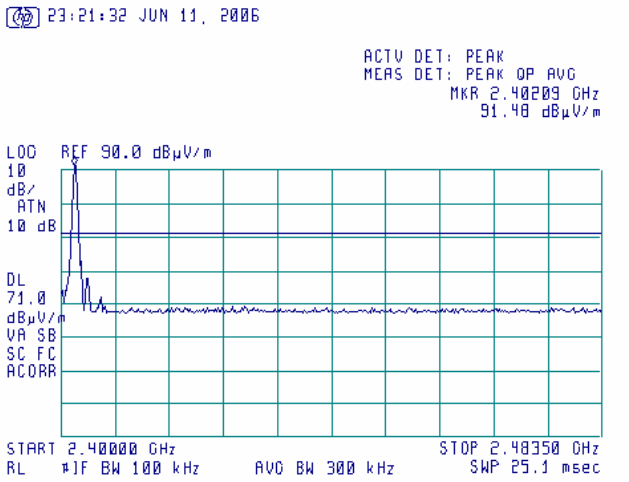
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

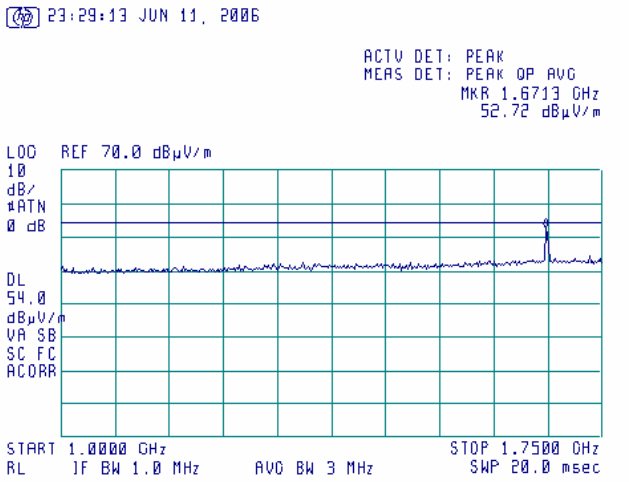
Plot 8.1.35 Radiated emission measurements from 2400 to 2483.5 MHz at the low carrier frequency (BT and G20-1900 / BT and G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.36 Radiated emission measurements from 1000 to 1750 MHz at the mid carrier frequency (BT and G20-850)

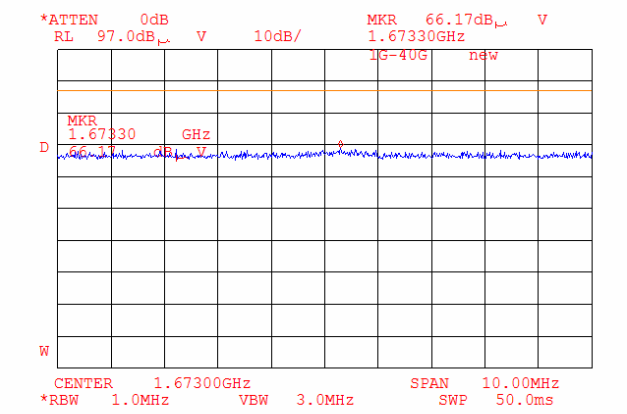
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.37 Radiated emission measurements at 1673 MHz at the mid carrier frequency (BT and G20-850)

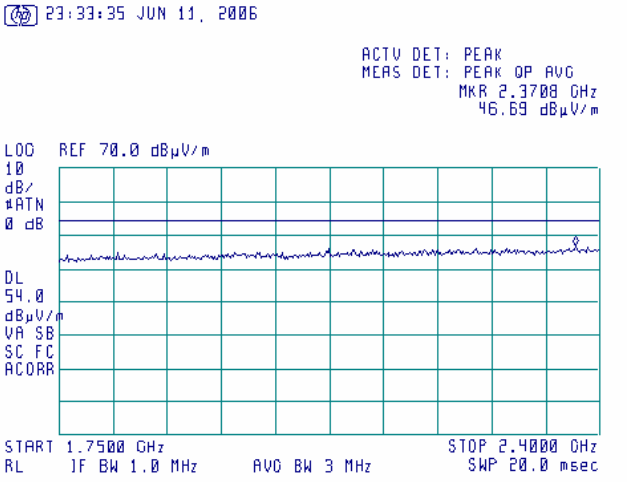
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



1673 MHz – 2-nd harmonic of G20-850 mid carrier frequency (836.6 MHz) limit 84.4 dBµV/m

Plot 8.1.38 Radiated emission measurements from 1750 to 2400 MHz at the mid carrier frequency (BT and G20-850)

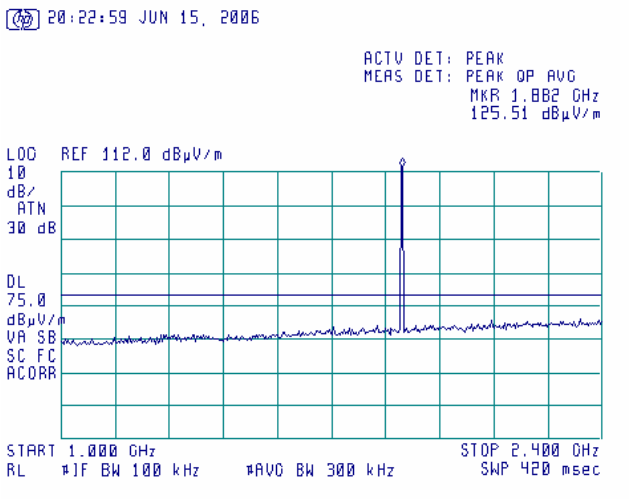
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.39 Radiated emission measurements from 1000 to 2400 MHz at the mid carrier frequency (BT and G20-1900)

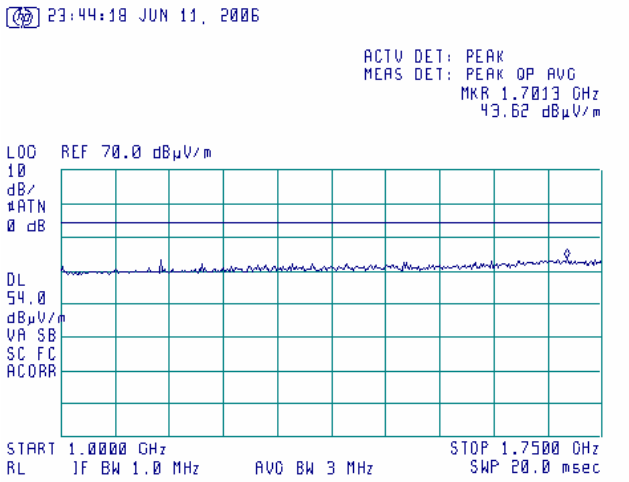
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Intended emission of GPRS module

Plot 8.1.40 Radiated emission measurements from 1000 to 1750 MHz at the mid carrier frequency (BT and G20-1900)

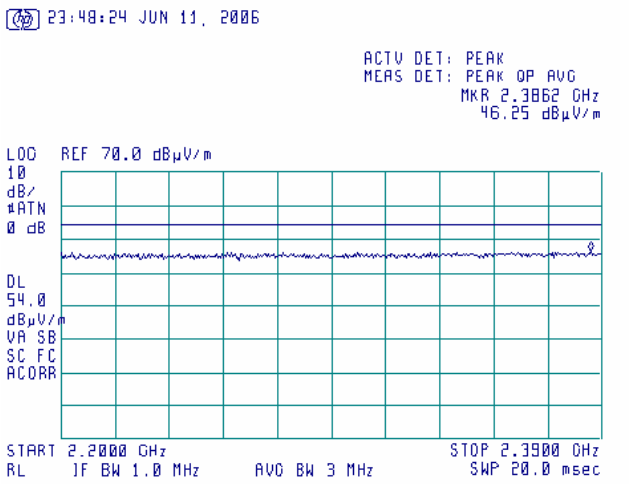
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

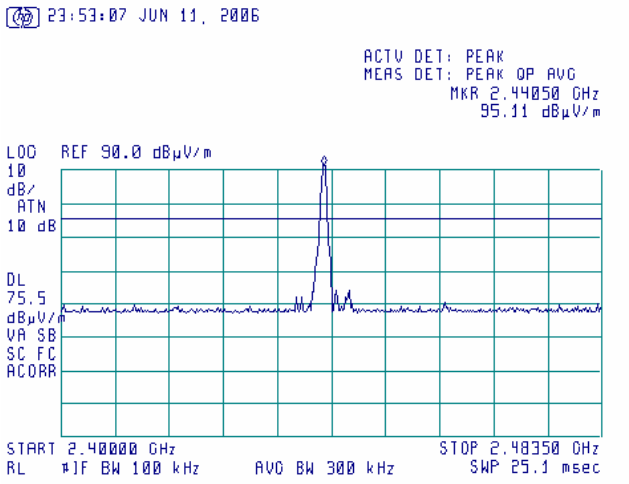
Plot 8.1.41 Radiated emission measurements from 2200 to 2390 MHz at the mid carrier frequency (BT and G20-1900)

TEST SITE: Semi Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.42 Radiated emission measurements from 2400 to 2483.5 MHz at the mid carrier frequency (BT and G20-1900 / BT and G20-850)

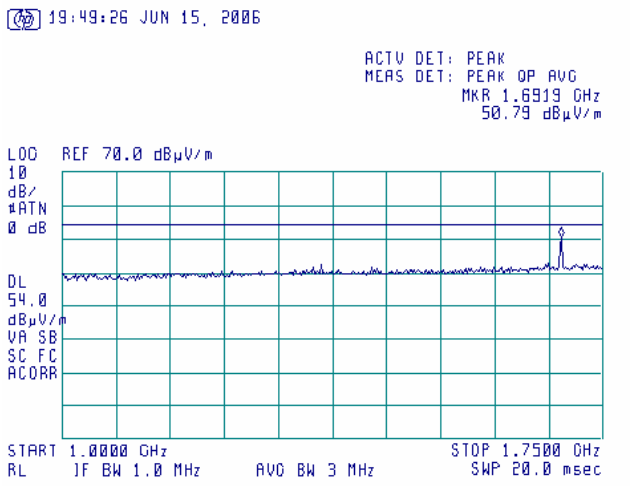
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

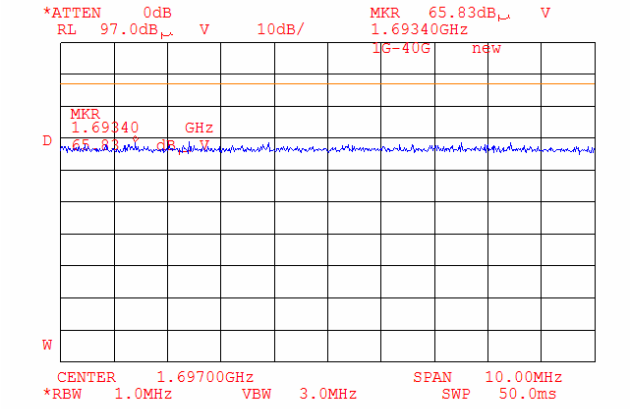
Plot 8.1.43 Radiated emission measurements from 1000 to 1750 MHz at the high carrier frequency (BT and G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.44 Radiated emission measurements at 1697 MHz at the high carrier frequency (BT and G20-850)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

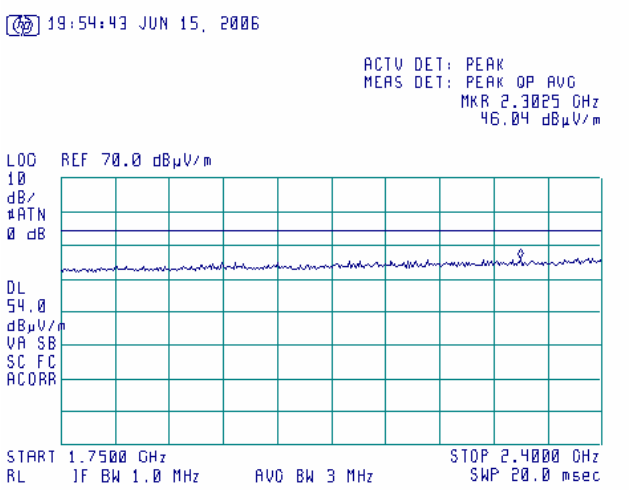


1697 MHz – 2-nd harmonic of G20-850 high carrier frequency (848.8 MHz), limit 84.4 dBµV/m.

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

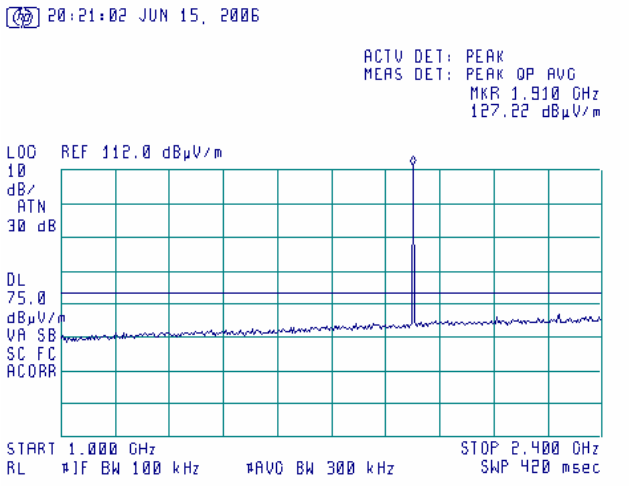
Plot 8.1.45 Radiated emission measurements from 1750 to 2400 MHz at the high carrier frequency (BT and G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.46 Radiated emission measurements from 1000 to 2400 MHz at the high carrier frequency (BT and G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



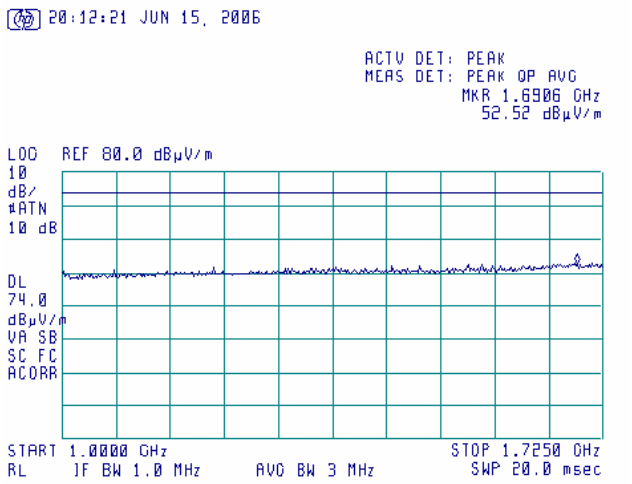
Intended emission of GPRS module

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

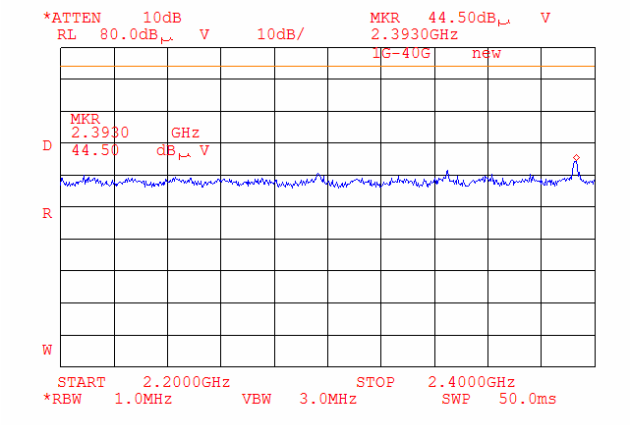
Plot 8.1.47 Radiated emission measurements from 1000 to 1725 MHz at the high carrier frequency (BT and G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.48 Radiated emission measurements from 2200 to 2400 MHz at the high carrier frequency (BT and G20-1900)

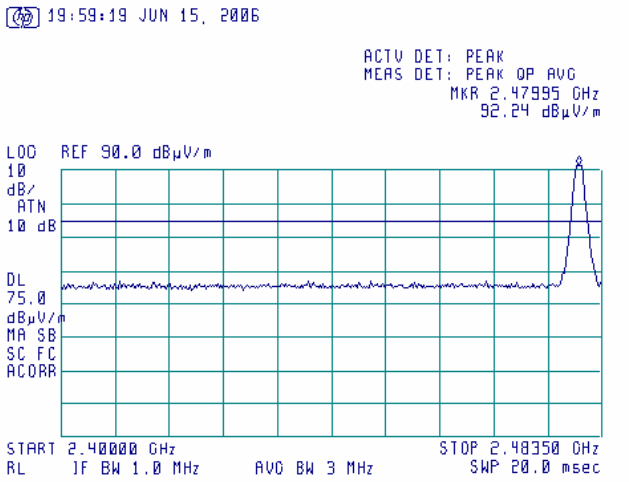
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

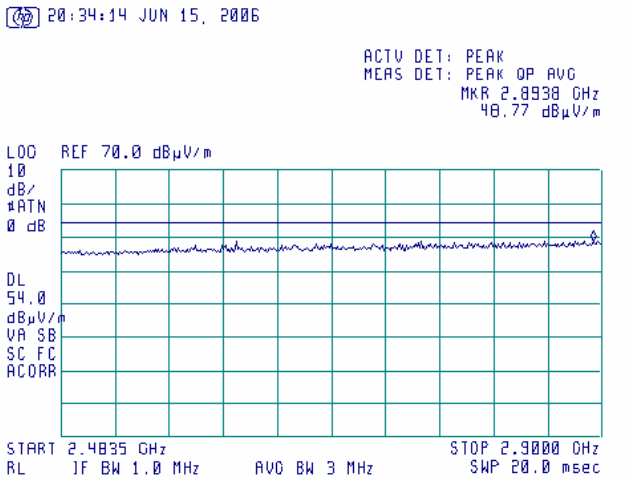
Plot 8.1.49 Radiated emission measurements from 2400 to 2483.5 MHz at the high carrier frequency (BT and G20-1900 / BT and G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.50 Radiated emission measurements from 2483.5 to 2900 MHz at the low carrier frequency (BT and G20-850)

TEST SITE: Semi Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

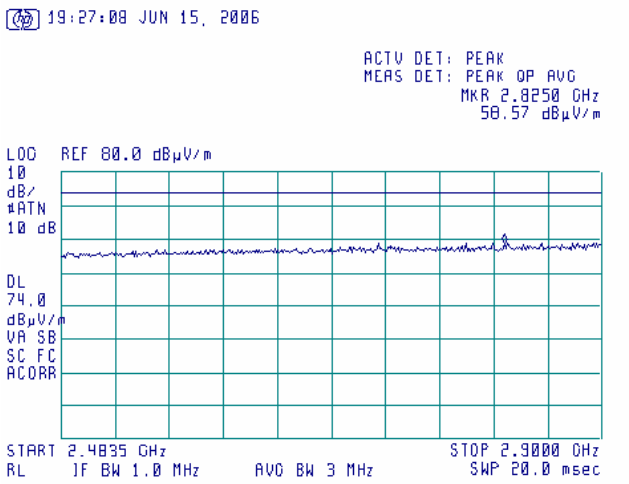


Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

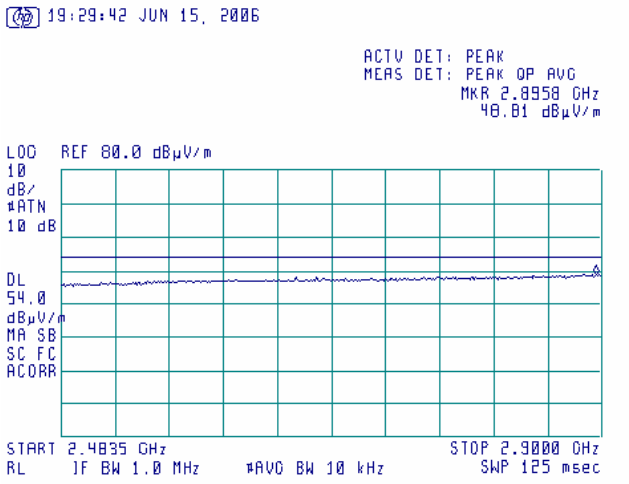
Plot 8.1.51 Radiated emission measurements from 2483.5 to 2900 MHz at the low carrier frequency (BT and G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.52 Radiated emission measurements from 2483.5 to 2900 MHz at the low carrier frequency (BT and G20-1900)

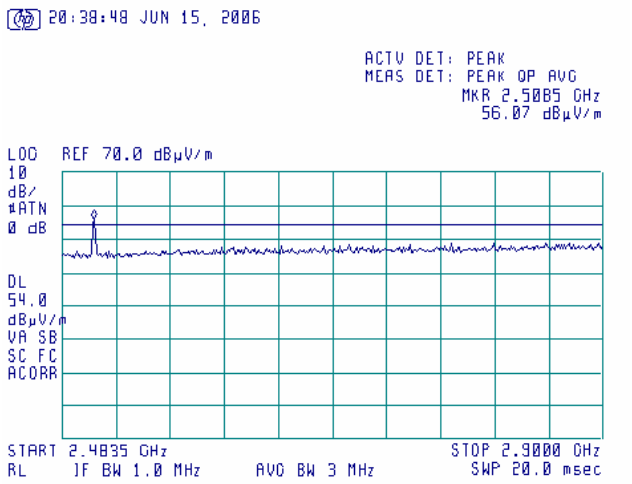
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

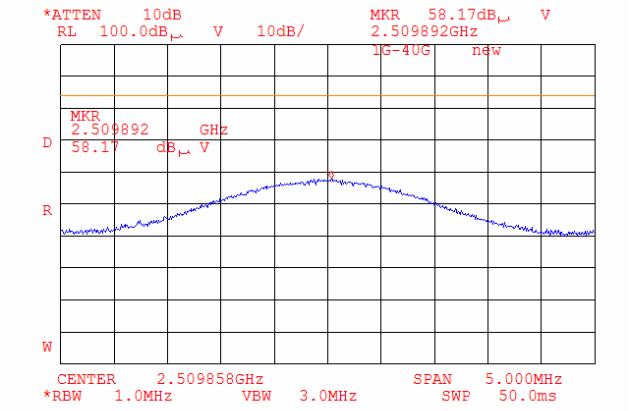
Plot 8.1.53 Radiated emission measurements from 2483.5 to 2900 MHz at the mid carrier frequency (BT and G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.54 Radiated emission measurements at 2509 MHz at the mid carrier frequency (BT and G20-850)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

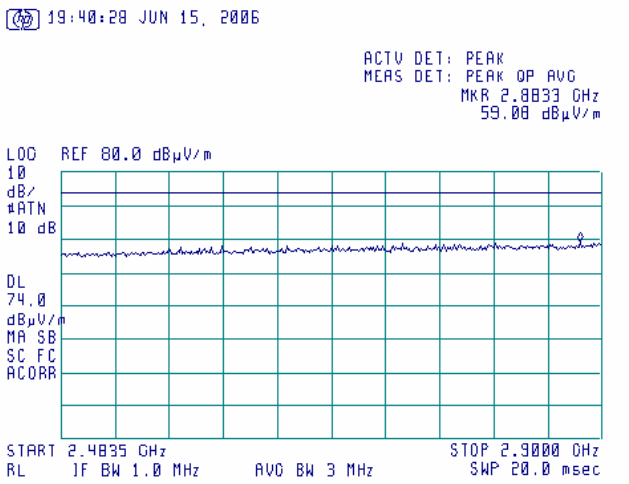


2509 MHz – 3-rd harmonic of G20-850 mid carrier frequency (836.6 MHz), limit 84.4 dBµV/m

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

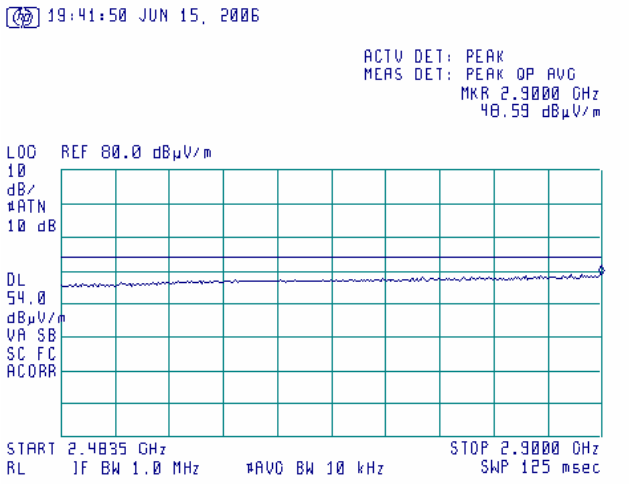
Plot 8.1.55 Radiated emission measurements from 2483.5 to 2900 MHz at the mid carrier frequency (BT and G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.56 Radiated emission measurements from 2483.5 to 2900 MHz at the mid carrier frequency (BT and G20-1900)

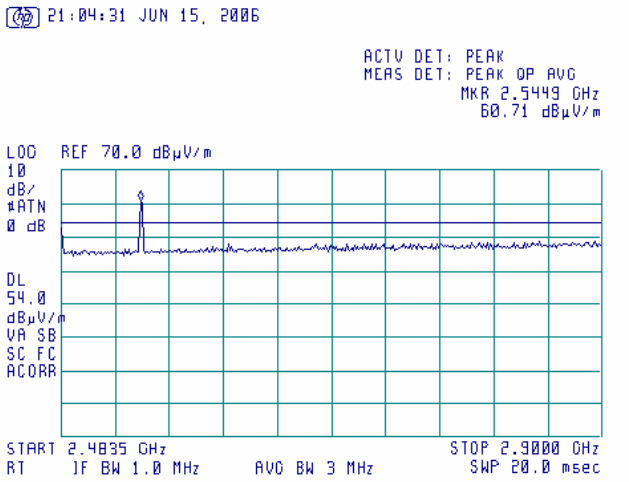
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

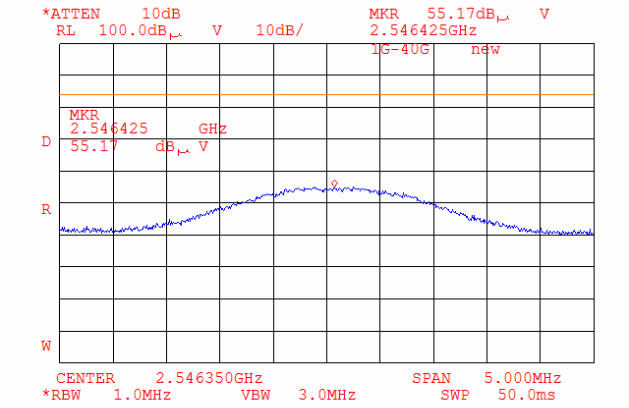
Plot 8.1.57 Radiated emission measurements from 2483.5 to 2900 MHz at the high carrier frequency (BT and G20-850)

TEST SITE: Semi Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.58 Radiated emission measurements at 2546 MHz at the high carrier frequency (BT and G20-850)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

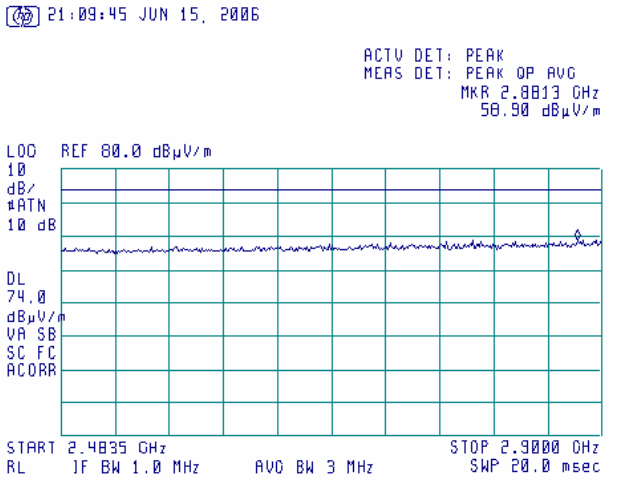


2546 MHz – 3-rd harmonic of G20-850 high carrier frequency (848.8 MHz), limit 84.4 dBµV/m

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

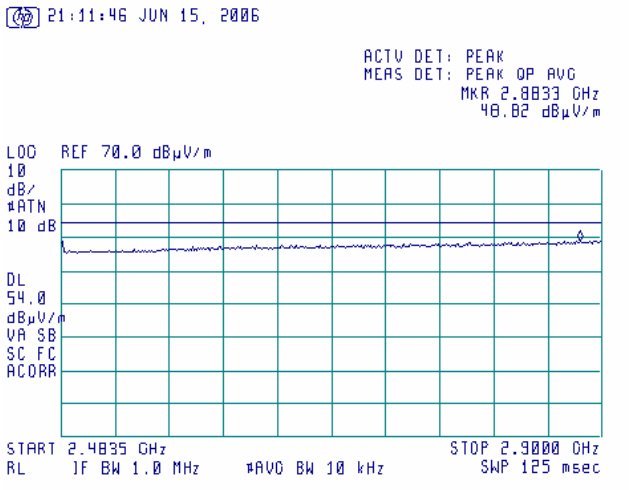
Plot 8.1.59 Radiated emission measurements from 2483.5 to 2900 MHz at the high carrier frequency (BT and G20-1900)

TEST SITE: Semi Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.60 Radiated emission measurements from 2500 to 2900 MHz at the high carrier frequency (BT and G20-1900)

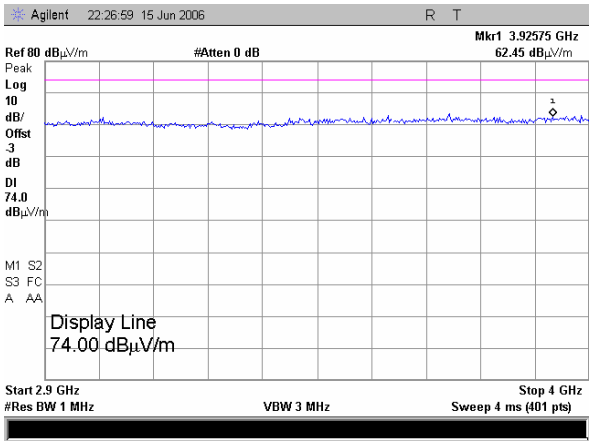
TEST SITE: Semi Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

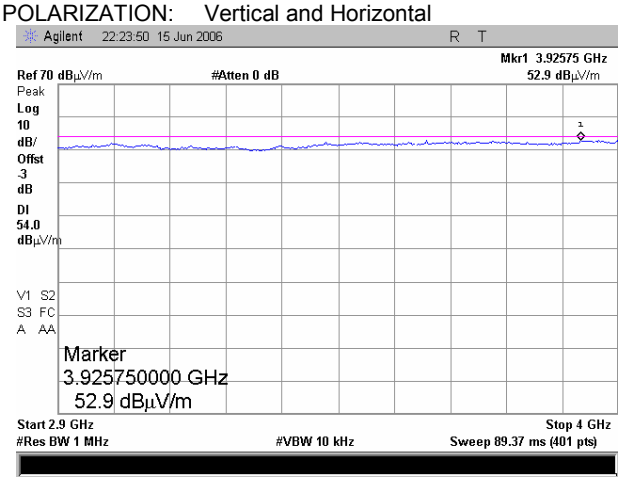
Plot 8.1.61 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency (BT and G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.62 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency (BT and G20-850)

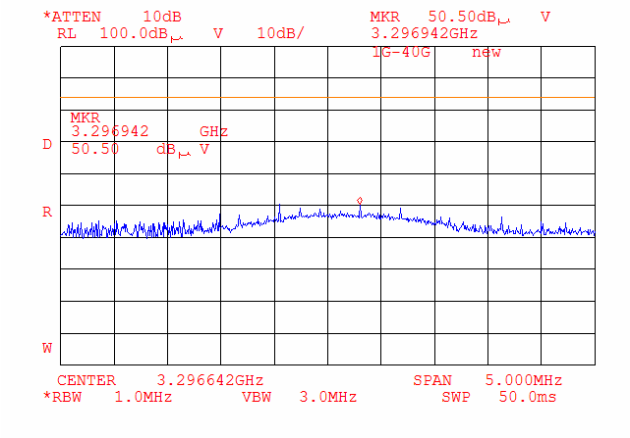
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

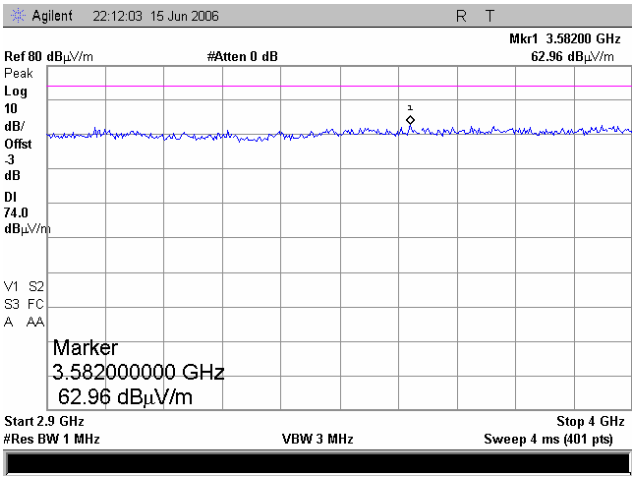
Plot 8.1.63 Radiated emission measurements at 3296 MHz at the low carrier frequency (BT and G20-850)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.64 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency (BT and G20-850)

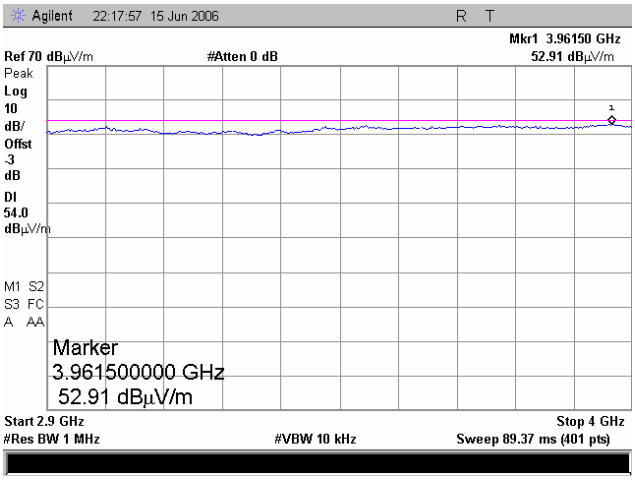
TEST SITE: Semi Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

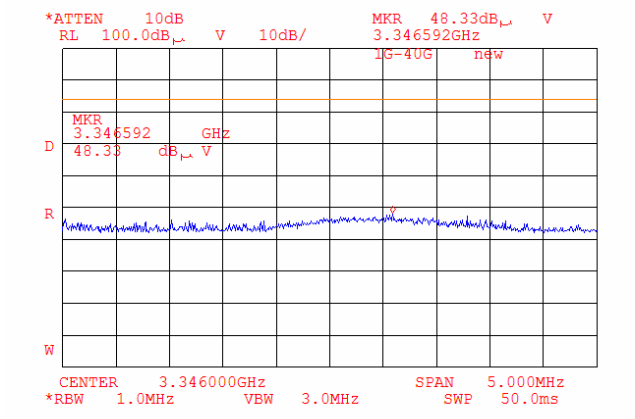
Plot 8.1.65 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency (BT and G20-850)

TEST SITE: Semi Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.66 Radiated emission measurements at 3346 MHz at the mid carrier frequency (BT and G20-850)

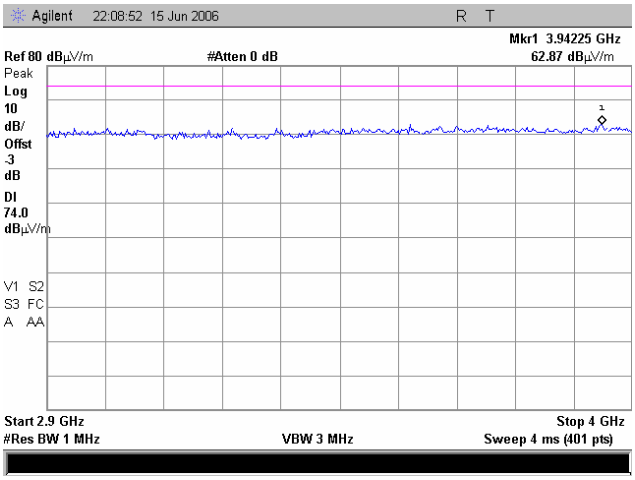
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

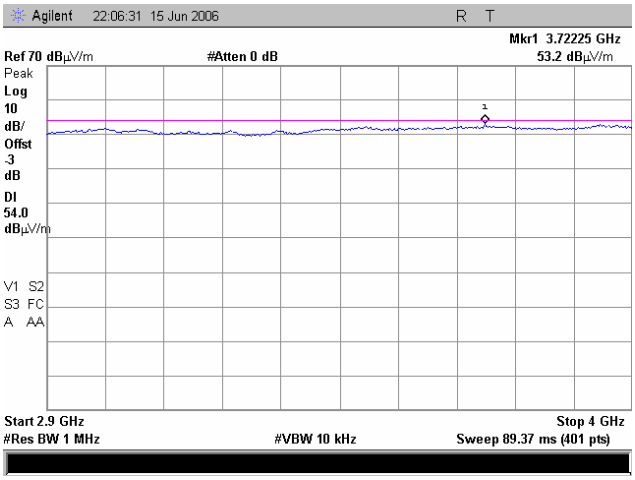
Plot 8.1.67 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency (BT and G20-850)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.68 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency (BT and G20-850)

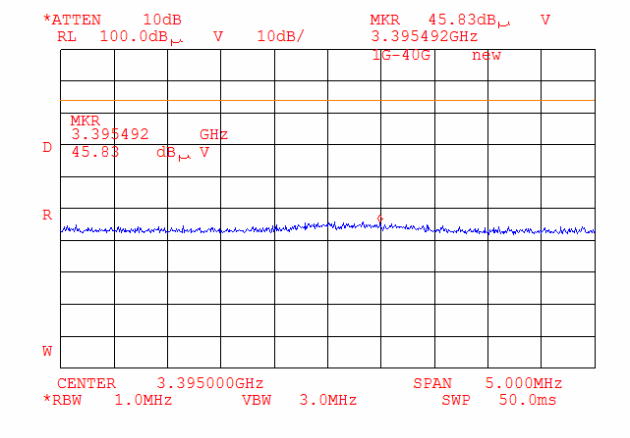
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

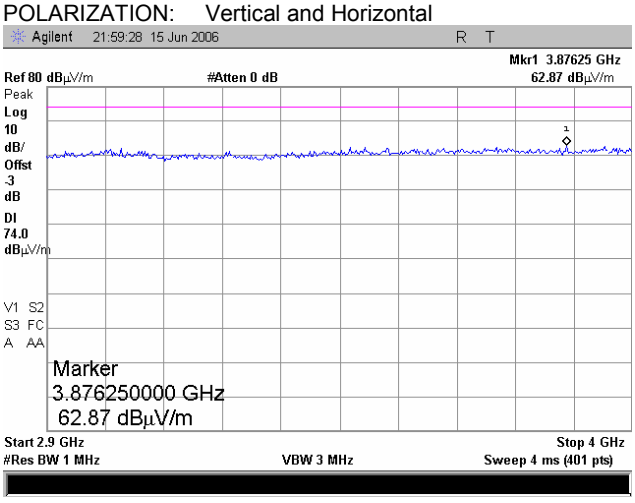
Plot 8.1.69 Radiated emission measurements at 3395 MHz at the high carrier frequency (BT and G20-850)

TEST SITE: Semi Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.70 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency (BT and G20-1900)

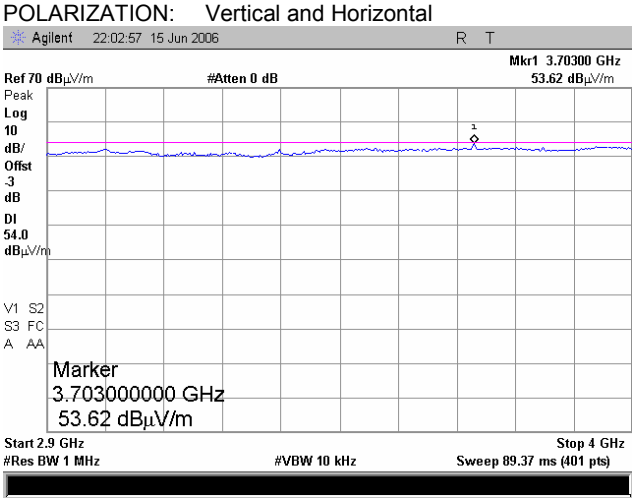
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

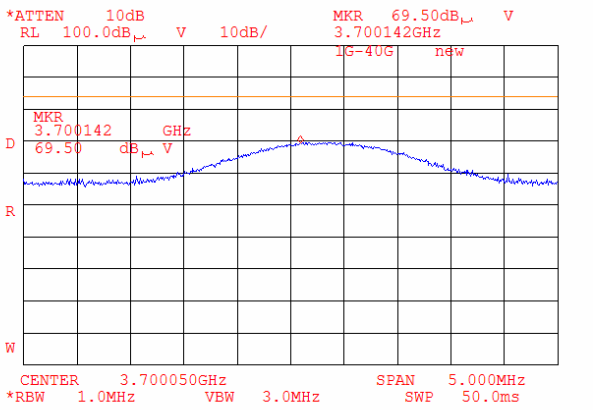
Plot 8.1.71 Radiated emission measurements from 2900 to 4000 MHz at the low carrier frequency (BT and G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.72 Radiated emission measurements at 3700 MHz at the low carrier frequency (BT and G20-1900)

TEST SITE: Semi Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

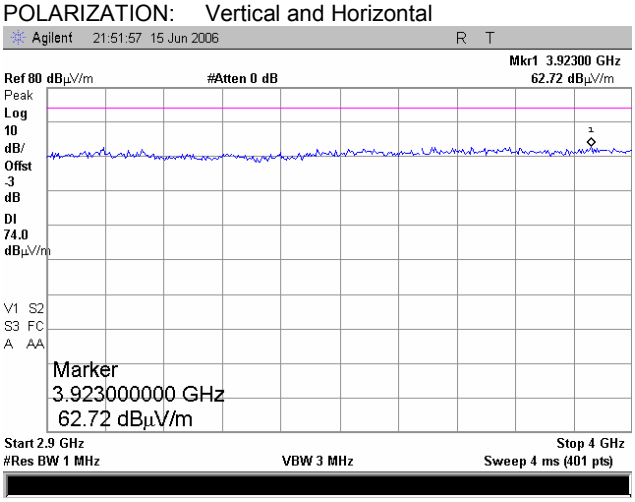


3700 MHz – 2-rd harmonic of G20-1900 low carrier frequency (1850.2 MHz), limit 84.4 dBµV/m

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

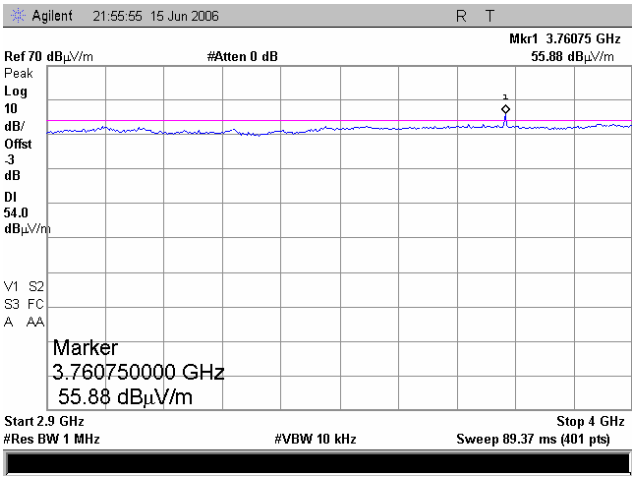
Plot 8.1.73 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency (BT and G20-1900)

TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.74 Radiated emission measurements from 2900 to 4000 MHz at the mid carrier frequency (BT and G20-1900)

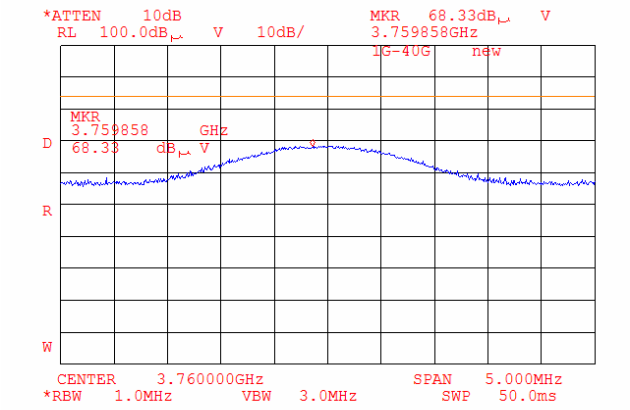
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.75 Radiated emission measurements at 3760 MHz at the mid carrier frequency (BT and G20-1900)

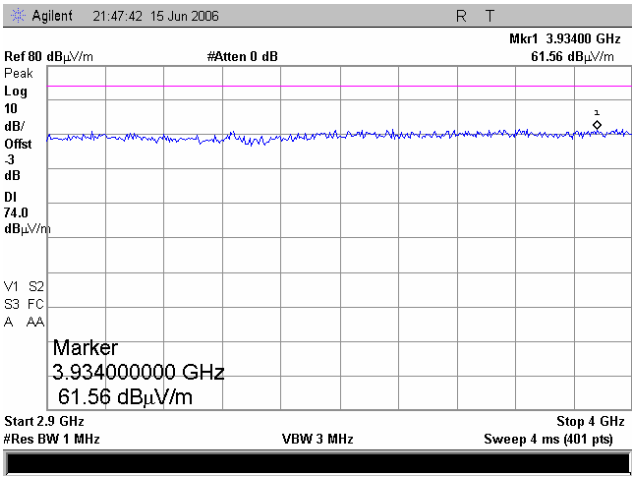
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



3760 MHz – 2-rd harmonic of G20-1900 mid carrier frequency (1880 MHz), limit 84.4 dBµV/m

Plot 8.1.76 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency (BT and G20-1900)

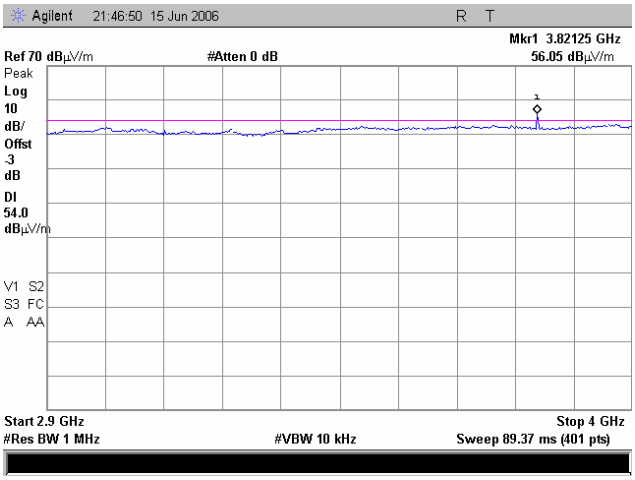
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.77 Radiated emission measurements from 2900 to 4000 MHz at the high carrier frequency (BT and G20-1900)

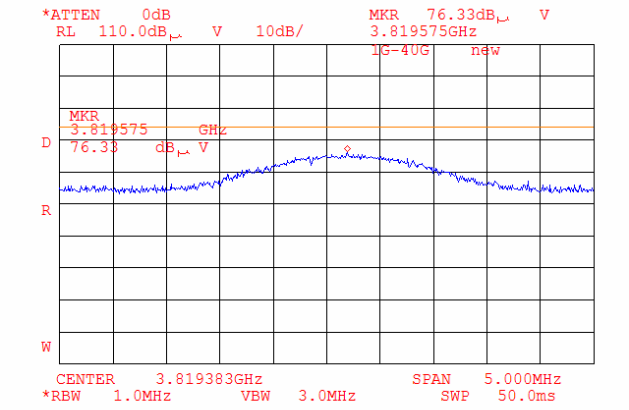
TEST SITE: Anechoic Chamber
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.78 Radiated emission measurements at 3819 MHz at the high carrier frequency (BT and G20-1900)

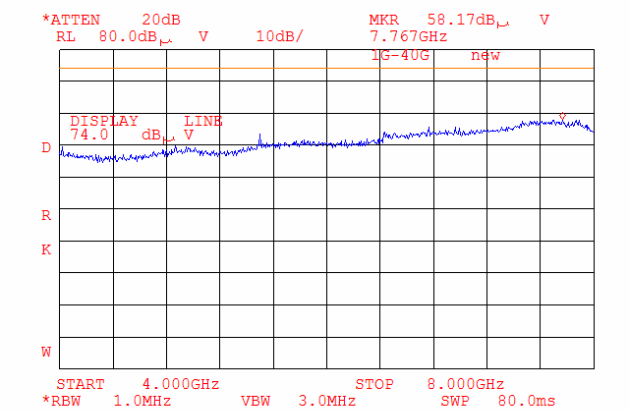
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



3819 MHz – 2-rd harmonic of G20-1900 high carrier frequency (1909.8 MHz), limit 84.4 dBµV/m

Plot 8.1.79 Radiated emission measurements from 4000 to 8000 MHz at the low carrier frequency (G20-850 and BT)

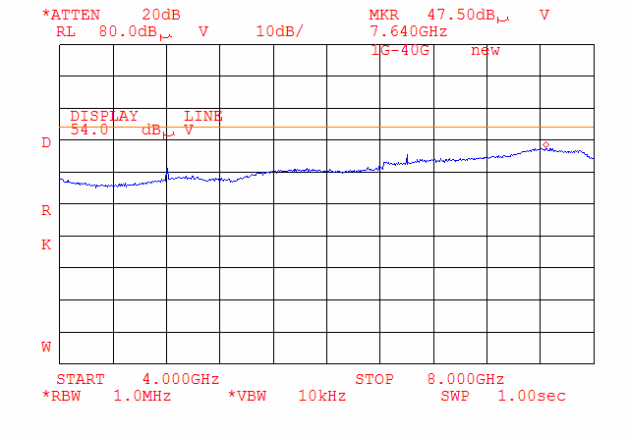
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

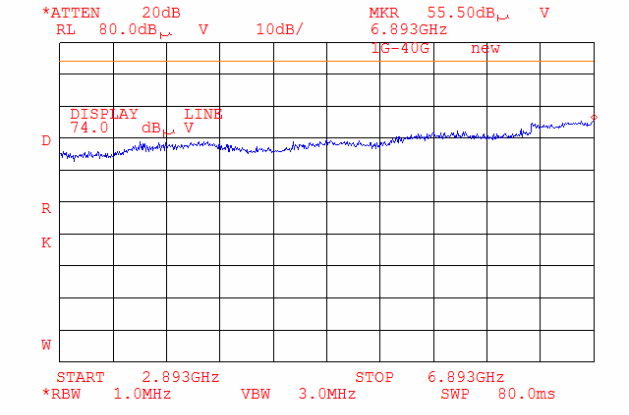
Plot 8.1.80 Radiated emission measurements from 4000 to 8000 MHz at the low carrier frequency (G20-850 and BT)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Plot 8.1.81 Radiated emission measurements from 4000 to 8000 MHz at the mid carrier frequency (G20-850 and BT)

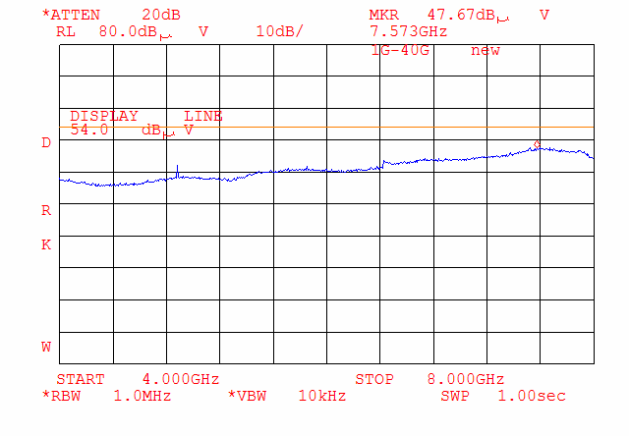
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

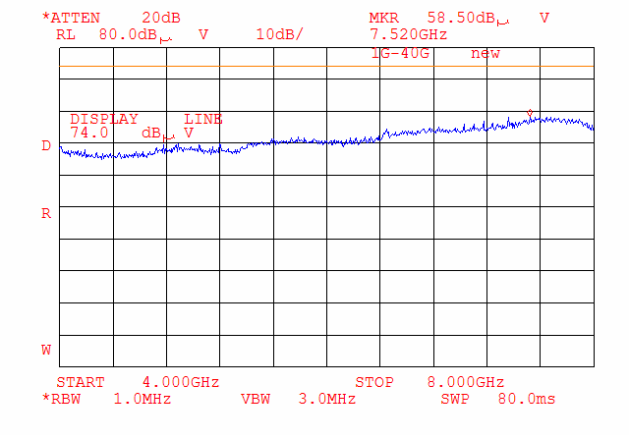
Plot 8.1.82 Radiated emission measurements from 4000 to 8000 MHz at the mid carrier frequency (G20-850 and BT)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Plot 8.1.83 Radiated emission measurements from 4000 to 8000 MHz at the high carrier frequency (G20-850 and BT)

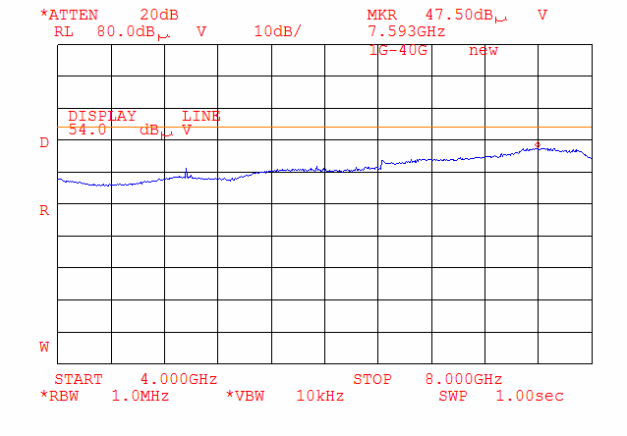
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

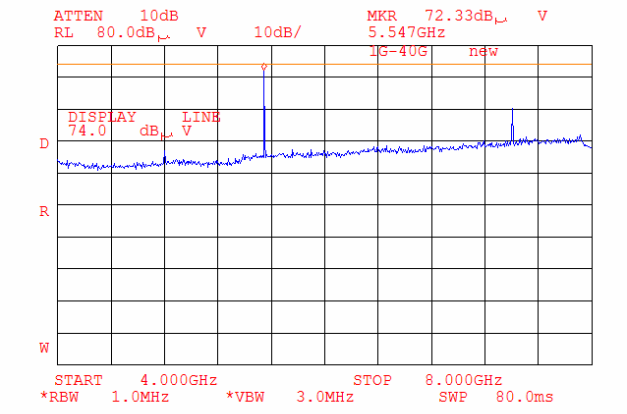
Plot 8.1.84 Radiated emission measurements from 4000 to 8000 MHz at the high carrier frequency (G20-850 and BT)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Plot 8.1.85 Radiated emission measurements from 4000 to 8000 MHz at the low carrier frequency (G20-1900 and BT)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

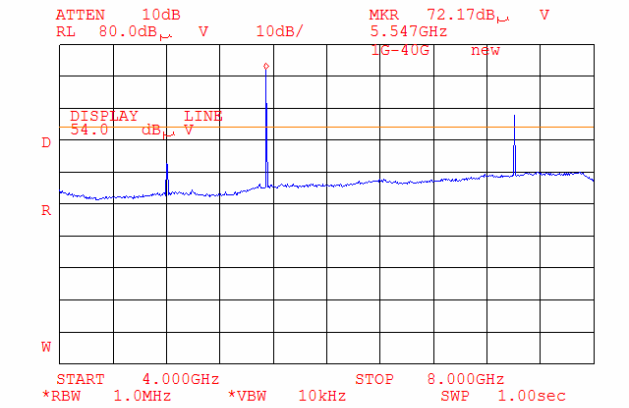


Note: 5550 MHz - third harmonic and 7400 MHz - forth harmonic of G20-1900 module

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.86 Radiated emission measurements from 4000 to 8000 MHz at the low carrier frequency (G20-1900 and BT)

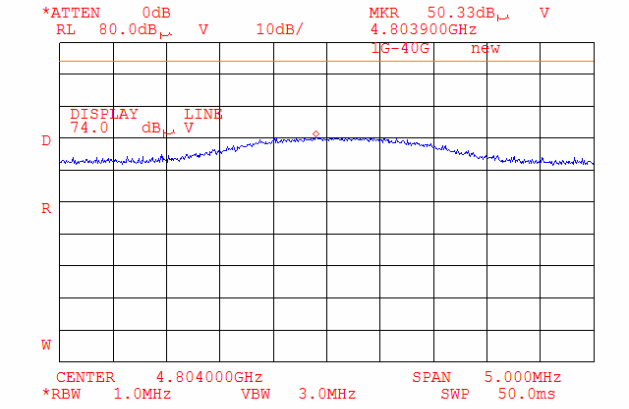
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Note: 4804 MHz - second harmonic of Bluetooth module

Plot 8.1.87 Radiated emission measurements at 4804 MHz at the low carrier frequency (G20-1900 and BT)

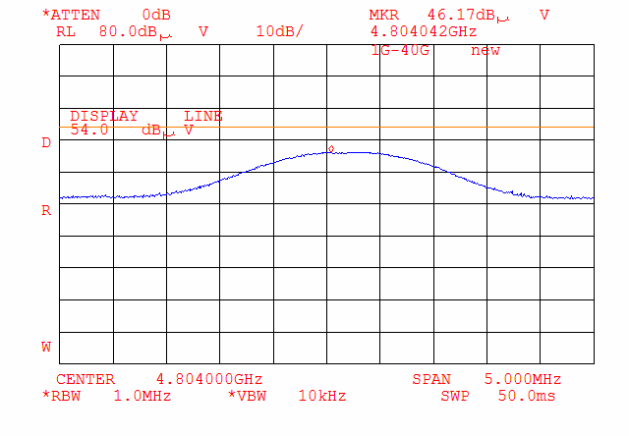
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

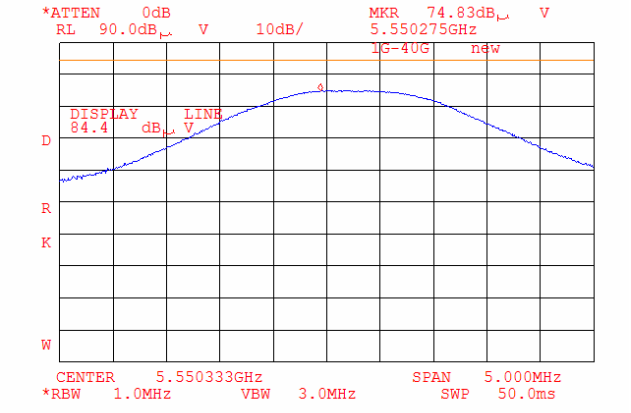
Plot 8.1.88 Radiated emission measurements at 4804 MHz at the low carrier frequency (G20-1900 and BT)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Plot 8.1.89 Radiated emission measurements at 5550 MHz at the low carrier frequency (G20-1900 and BT)

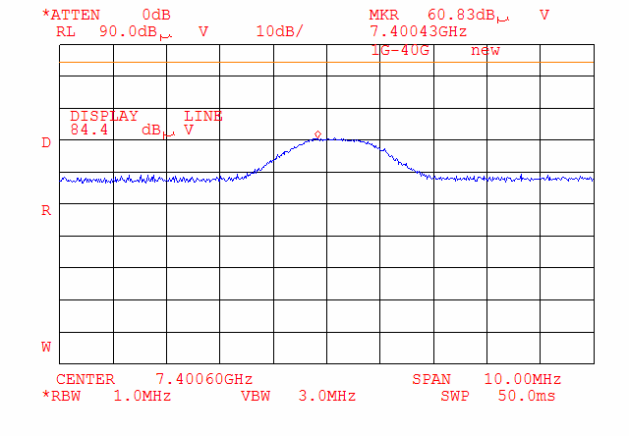
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

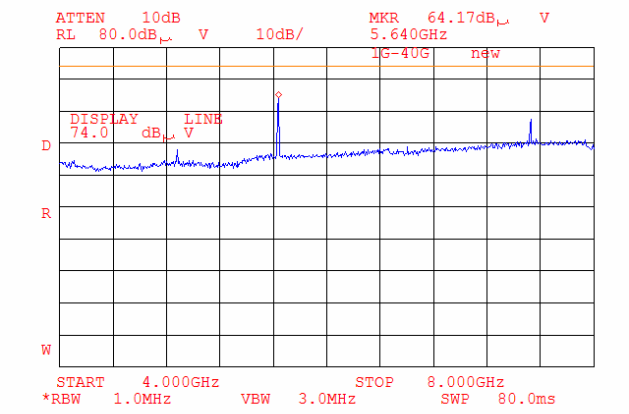
Plot 8.1.90 Radiated emission measurements at 7400MHz at the low carrier frequency (G20-1900 and BT)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 8.1.91 Radiated emission measurements from 4000 to 8000 MHz at the mid carrier frequency (G20-1900 and BT)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak

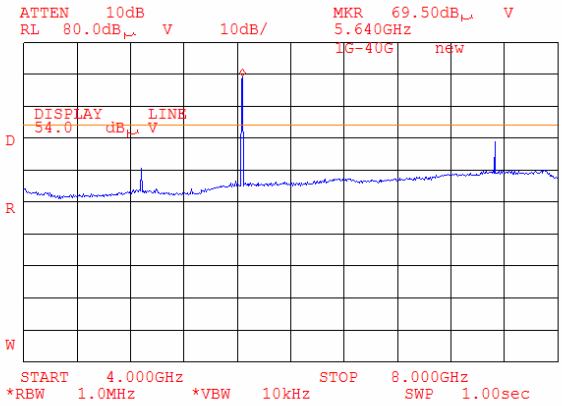


Note: 5640 MHz - third harmonic and 7520 MHz - forth harmonic of G20-1900 module

Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.92 Radiated emission measurements from 4000 to 8000 MHz at the mid carrier frequency (G20-1900 and BT)

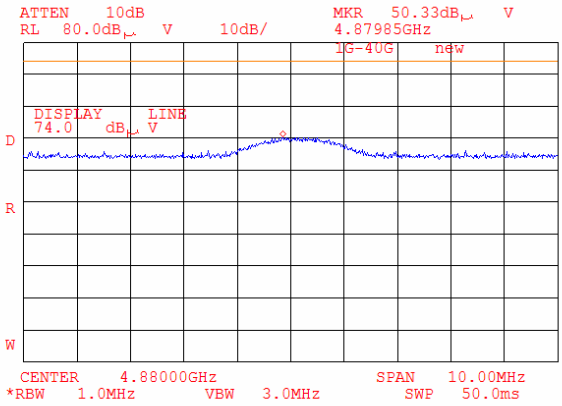
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Note: 4880 MHz - second harmonic of Bluetooth module

Plot 8.1.93 Radiated emission measurements at 4880 MHz at the mid carrier frequency (G20-1900 and BT)

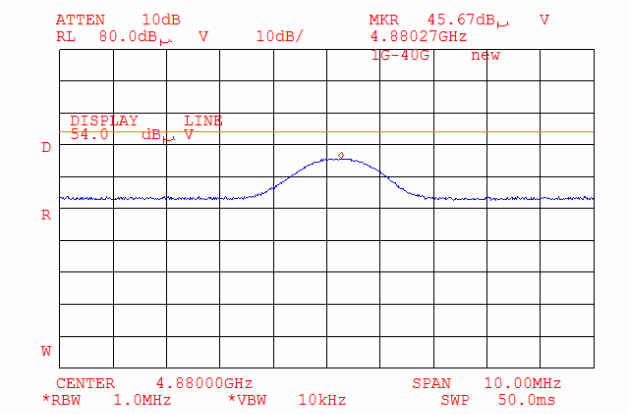
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

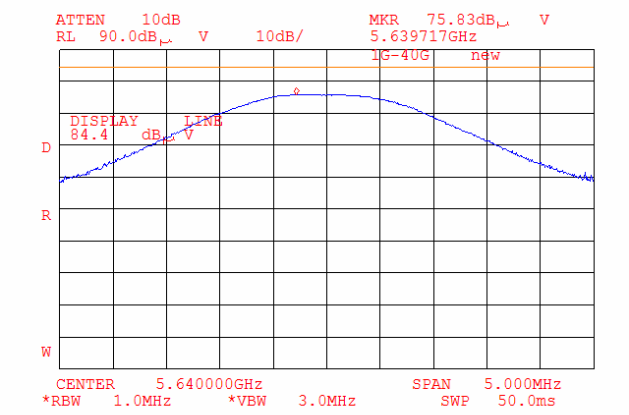
Plot 8.1.94 Radiated emission measurements at 4880 MHz at the mid carrier frequency (G20-1900 and BT)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Plot 8.1.95 Radiated emission measurements at 5640 MHz at the mid carrier frequency (G20-1900 and BT)

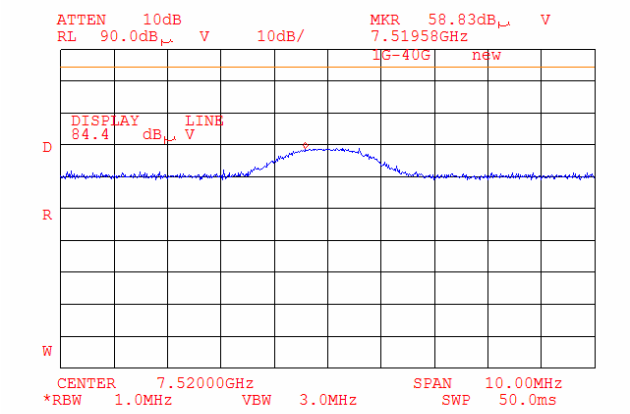
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

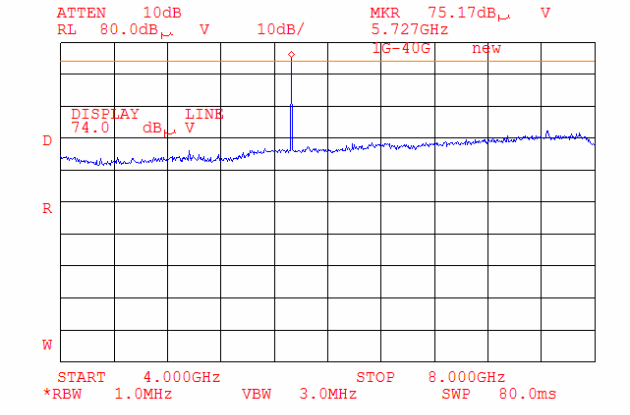
Plot 8.1.96 Radiated emission measurements at 7520 MHz at the mid carrier frequency (G20-1900 and BT)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 8.1.97 Radiated emission measurements from 4000 to 8000 MHz at the high carrier frequency (G20-1900 and BT)

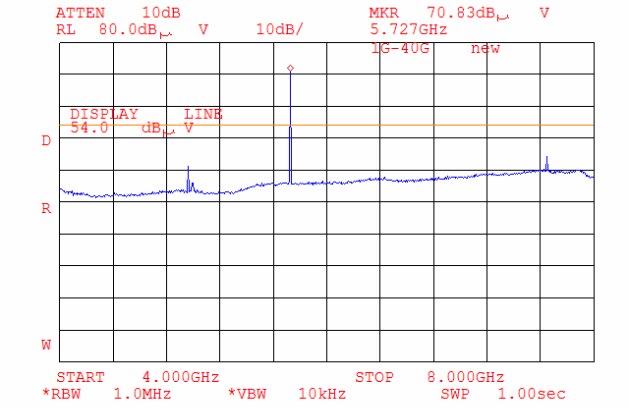
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.98 Radiated emission measurements from 4000 to 8000 MHz at the high carrier frequency (G20-1900 and BT)

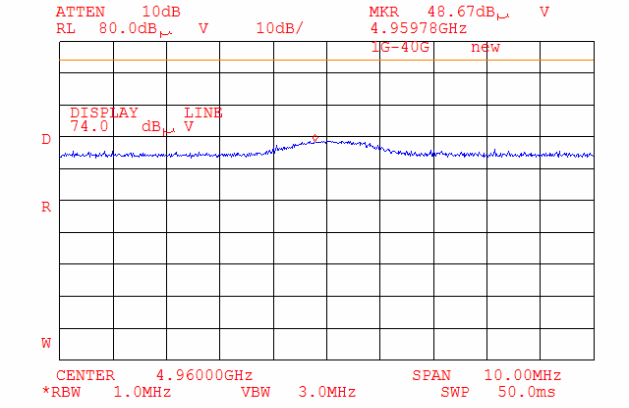
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Note: 5729 MHz - third harmonic and 7639 MHz - forth harmonic of G20-1900 module
4960 MHz - second harmonic of Bluetooth module

Plot 8.1.99 Radiated emission measurements at 4960 MHz at the high carrier frequency (G20-1900 and BT)

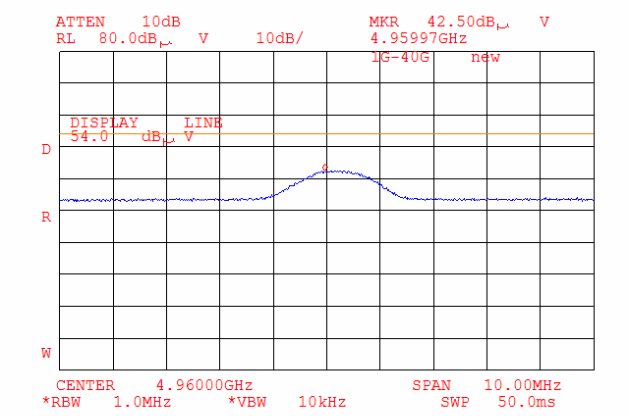
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

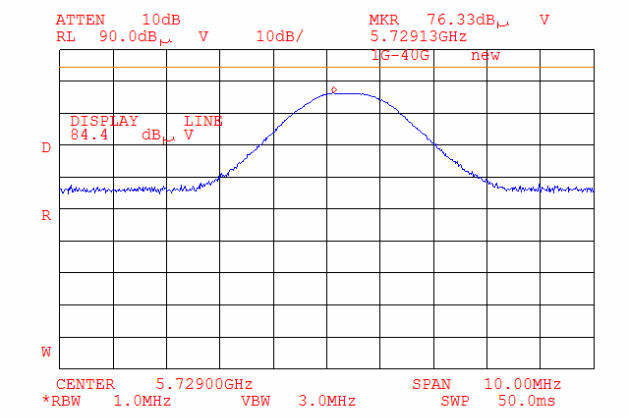
Plot 8.1.100 Radiated emission measurements at 4960 MHz at the high carrier frequency (G20-1900 and BT)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Average



Plot 8.1.101 Radiated emission measurements at 5729 MHz at the high carrier frequency (G20-1900 and BT)

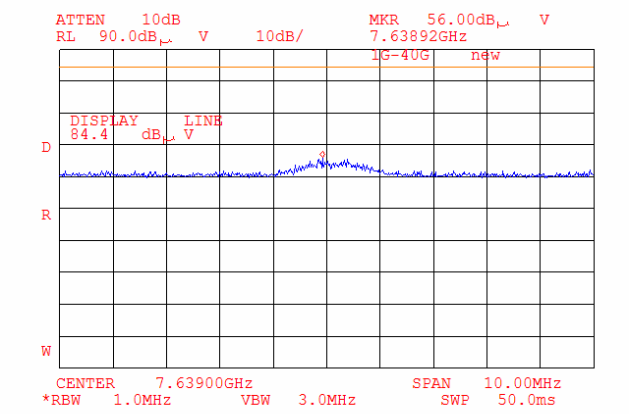
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

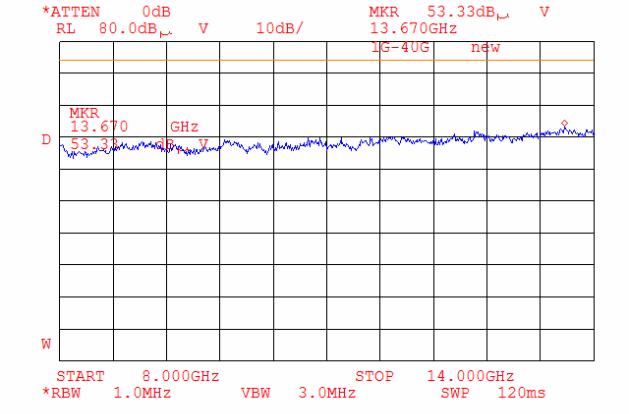
Plot 8.1.102 Radiated emission measurements at 7639 MHz at the high carrier frequency (G20-1900 and BT)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal
DETECTOR: Peak



Plot 8.1.103 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency (BT and G20-850)

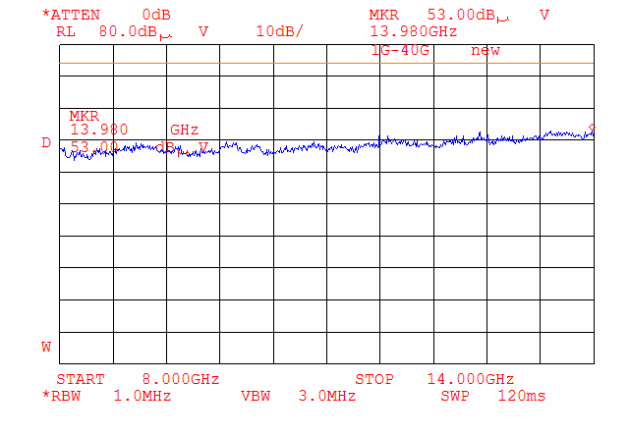
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

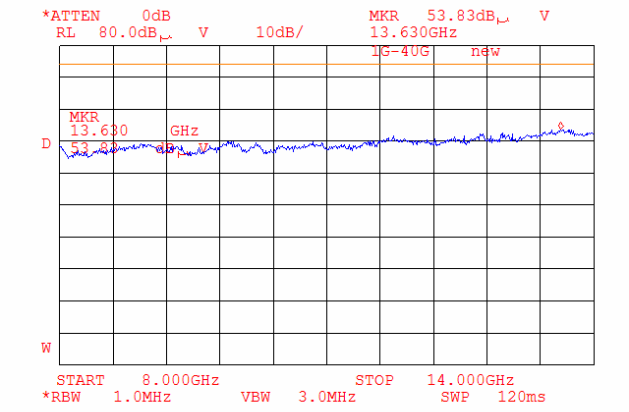
Plot 8.1.104 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency (BT and G20-850)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.105 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency (BT and G20-850)

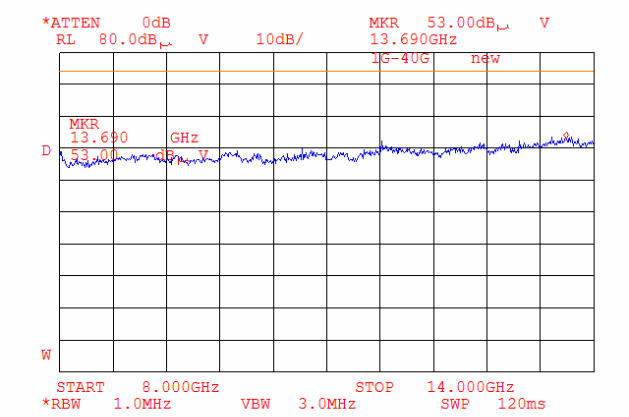
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

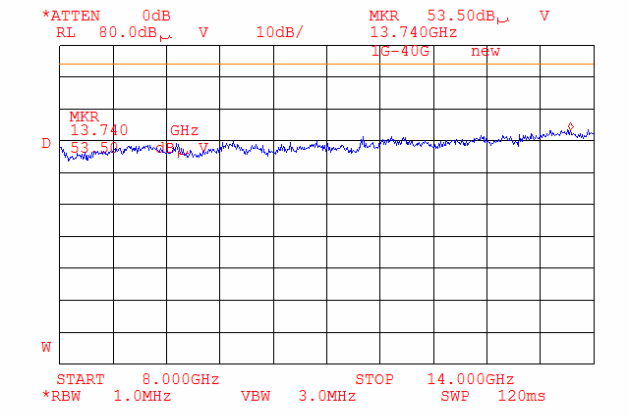
Plot 8.1.106 Radiated emission measurements from 8000 to 14000 MHz at the low carrier frequency (BT and G20-1900)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.107 Radiated emission measurements from 8000 to 14000 MHz at the mid carrier frequency (BT and G20-1900)

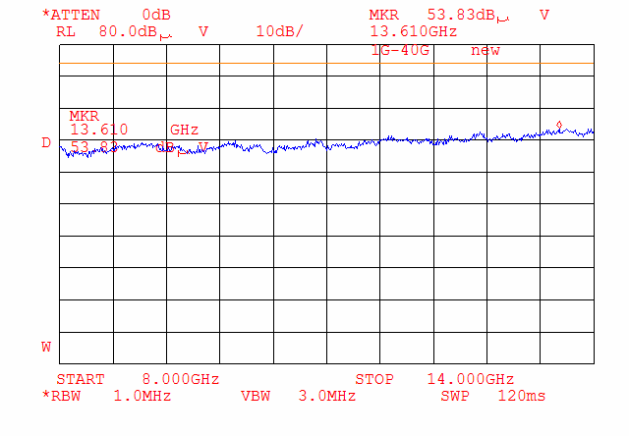
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

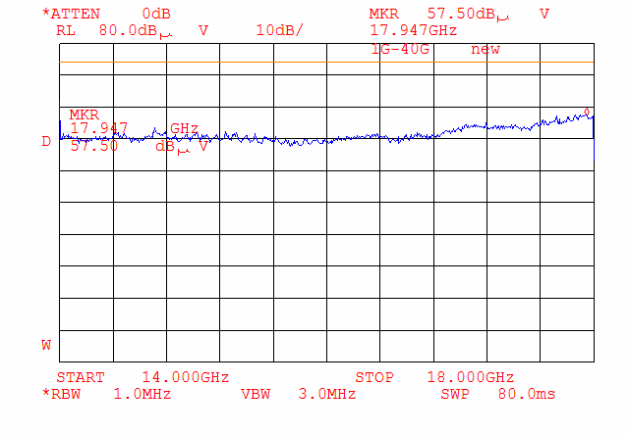
Plot 8.1.108 Radiated emission measurements from 8000 to 14000 MHz at the high carrier frequency (BT and G20-1900)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.109 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency (BT and G20-850)

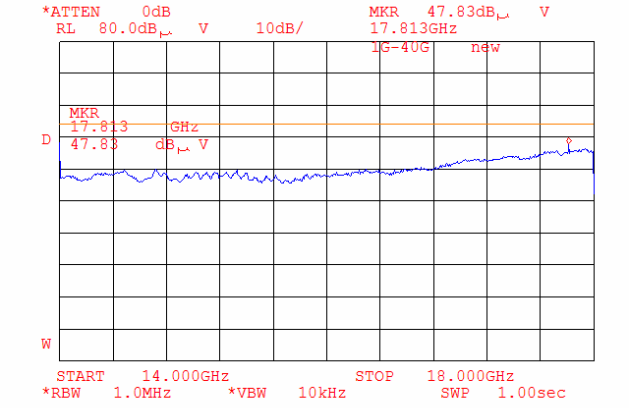
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

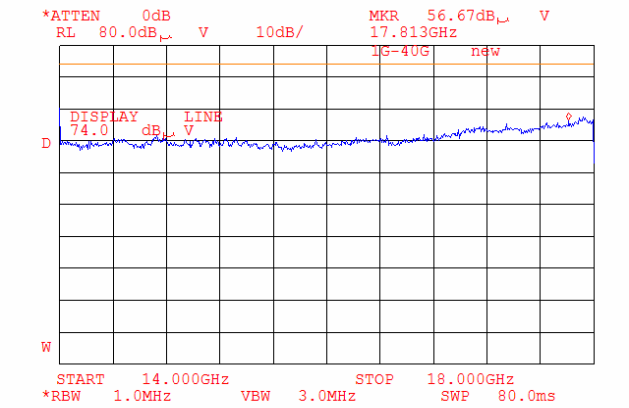
Plot 8.1.110 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency (BT and G20-850)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.111 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency (BT and G20-850)

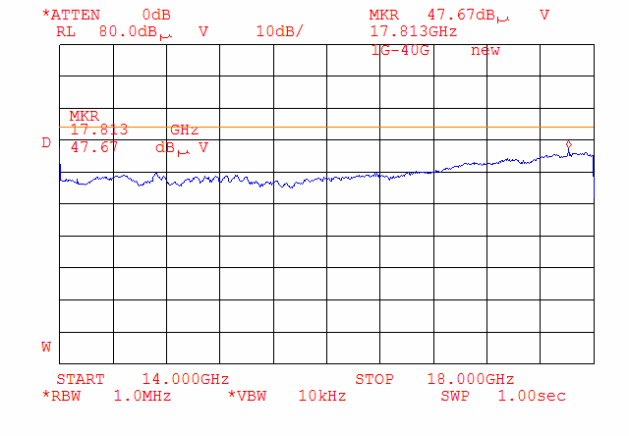
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

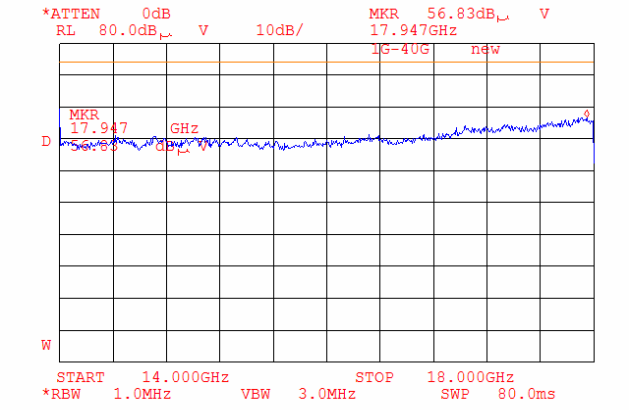
Plot 8.1.112 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency (BT and G20-850)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.113 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency (BT and G20-850)

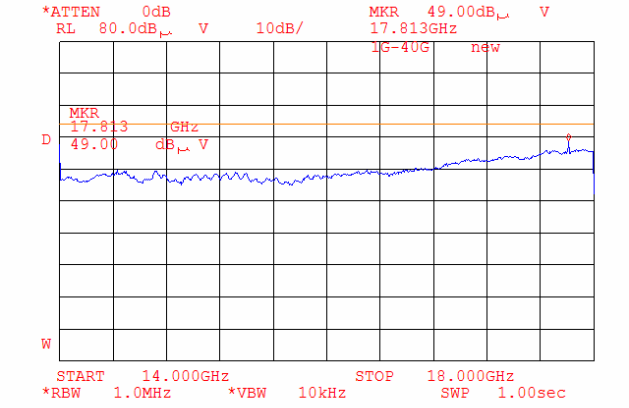
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

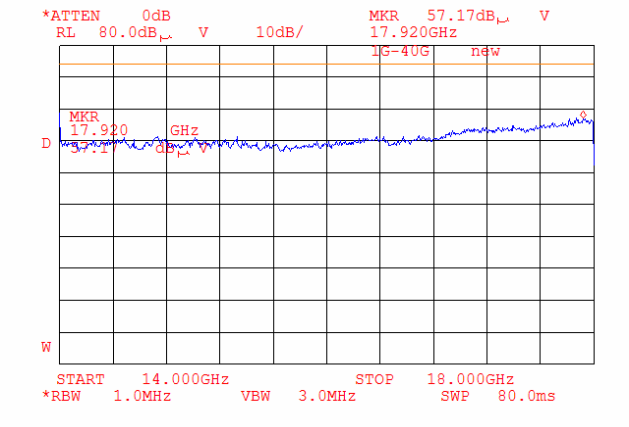
Plot 8.1.114 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency (BT and G20-850)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.115 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency (BT and G20-1900)

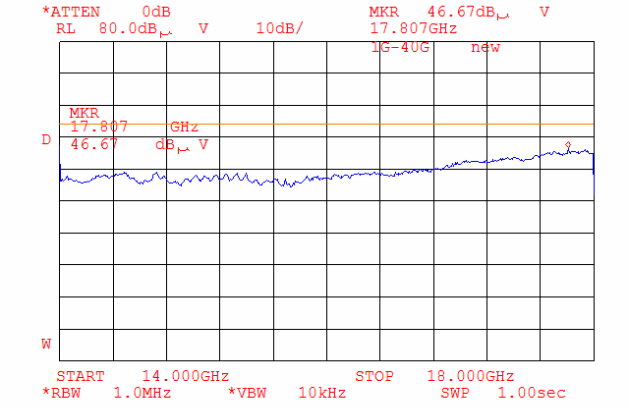
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

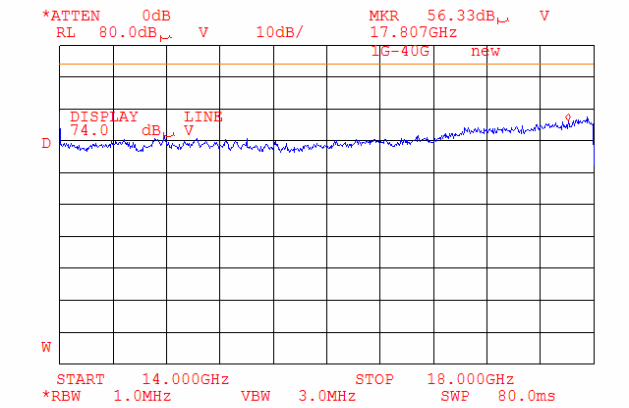
Plot 8.1.116 Radiated emission measurements from 14000 to 18000 MHz at the low carrier frequency (BT and G20-1900)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.117 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency (BT and G20-1900)

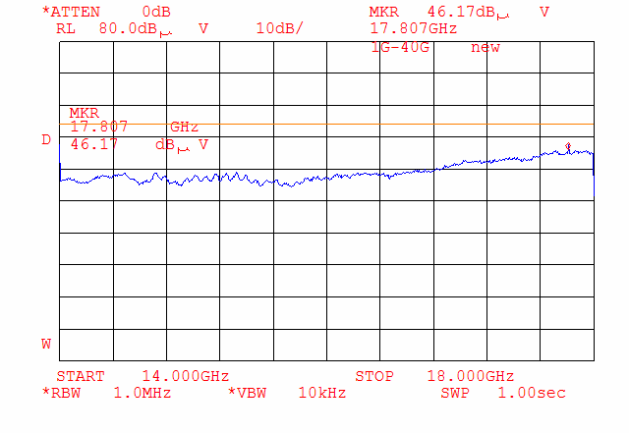
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

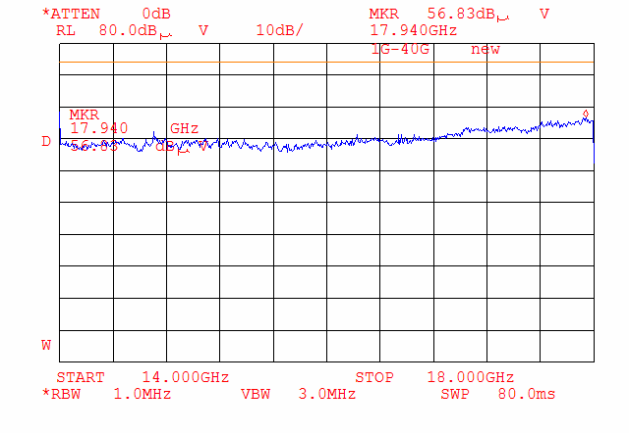
Plot 8.1.118 Radiated emission measurements from 14000 to 18000 MHz at the mid carrier frequency (BT and G20-1900)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.119 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency (BT and G20-1900)

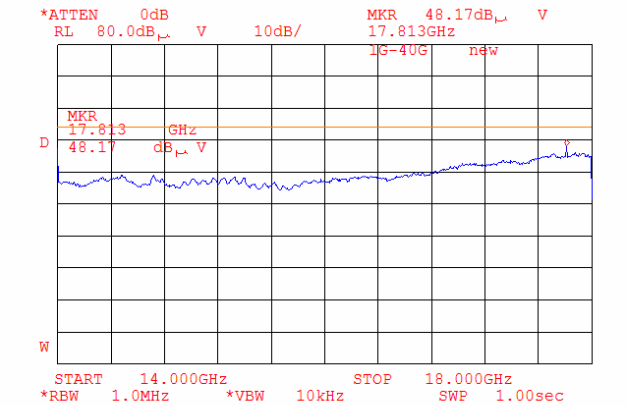
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

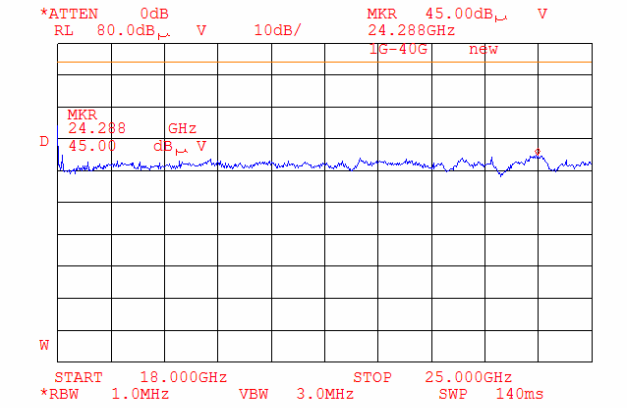
Plot 8.1.120 Radiated emission measurements from 14000 to 18000 MHz at the high carrier frequency (BT and G20-1900)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.121 Radiated emission measurements from 18000 to 25000 MHz at the low carrier frequency (BT and G20-850)

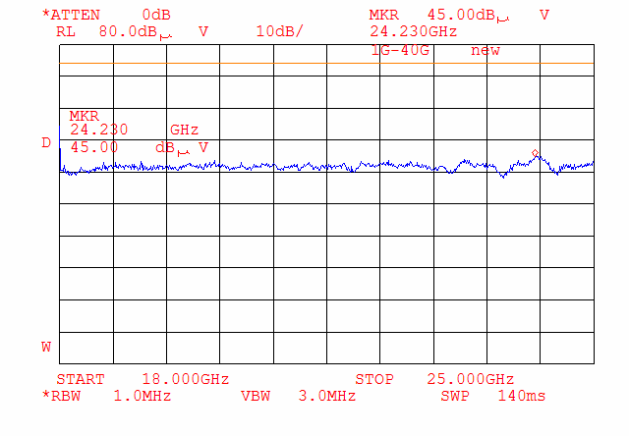
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

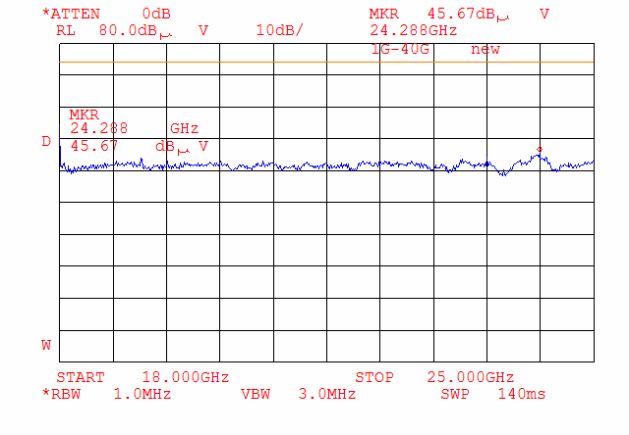
Plot 8.1.122 Radiated emission measurements from 18000 to 25000 MHz at the mid carrier frequency (BT and G20-850)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.123 Radiated emission measurements from 18000 to 25000 MHz at the high carrier frequency (BT and G20-850)

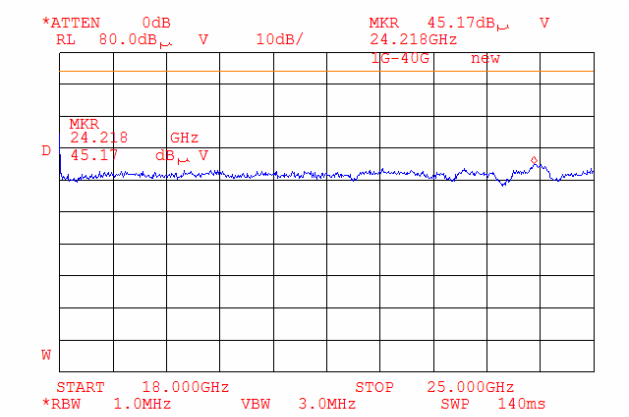
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

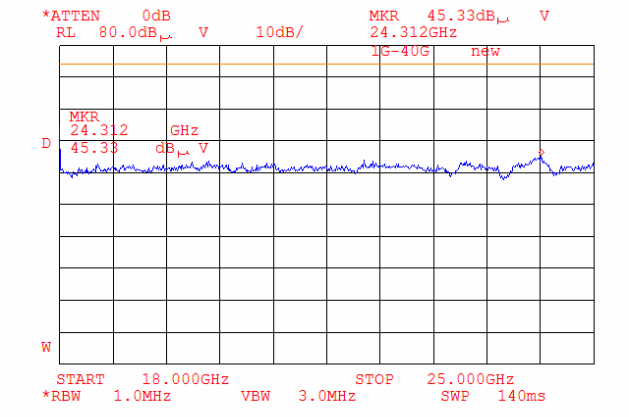
Plot 8.1.124 Radiated emission measurements from 18000 to 25000 MHz at the low carrier frequency (BT and G20-1900)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Plot 8.1.125 Radiated emission measurements from 18000 to 25000 MHz at the mid carrier frequency (BT and G20-1900)

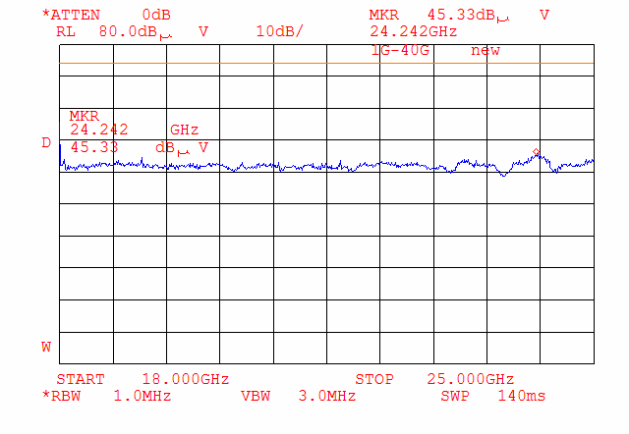
TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal



Test specification:	**FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions**		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	**Verdict:**	PASS
Date:	6/14/2006		
Temperature: 22 ºC	**Air Pressure:** 1013 hPa	**Relative Humidity:** 48 %	**Power Supply:** 7.2 V battery
Remarks: G20 + BT			

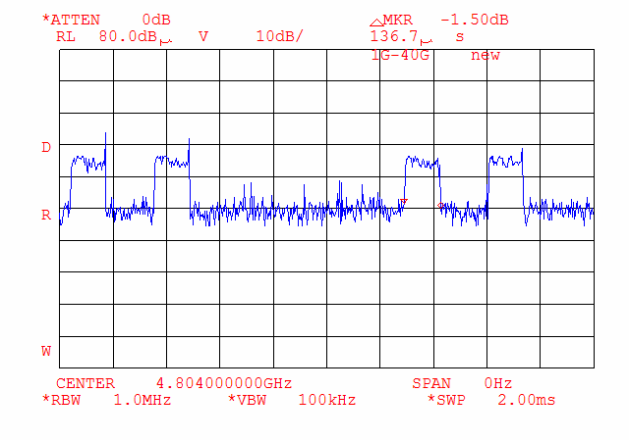
Plot 8.1.126 Radiated emission measurements from 18000 to 25000 MHz at the high carrier frequency (BT and G20-1900)

TEST SITE: OATS
TEST DISTANCE: 3 m
ANTENNA POLARIZATION: Vertical and Horizontal

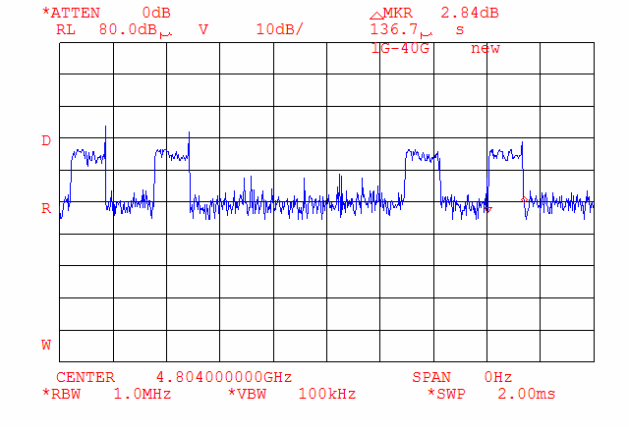


Test specification:	FCC prt 15 section 15.247(c); part 22 section 22.917; part 24 section 24.238; Radiated spurious emissions		
Test procedure:	FR Vol. 62, page 26243, Section 15.247(c) / ANSI C63.4, Section 13.1.4		
Test mode:	Compliance	Verdict:	PASS
Date:	6/14/2006		
Temperature: 22 ºC	Air Pressure: 1013 hPa	Relative Humidity: 48 %	Power Supply: 7.2 V battery
Remarks: G20 + BT			

Plot 8.1.127 First pulse duration measurements



Plot 8.1.128 Second pulse duration measurements



9 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
0034	Antenna, Log Periodic, 200 - 1000 MHz	Electro-Metrics	LPA 25/30	1988	10-Jan-06	10-Jan-07
0410	Cable, Coax, Microwave, DC-18 GHz, N-N, 1 m	Gore	PFP01P0 1039.4	9338767	17-Oct-05	17-Oct-06
0415	Cable, Coax, RF, RG-214	HL	CC-3	056	02-Dec-05	02-Dec-06
0521	EMI Receiver (Spectrum Analyzer) with RF filter section 9 kHz-6.5 GHz	Hewlett Packard	8546A	3617A 00319, 3448A002 53	26-Sep-05	26-Sep-06
0589	Cable Coaxial, GORE A2P01POL118, 2.3 m	HL	GORE-3	176	02-Dec-05	02-Dec-06
0604	Antenna BiconiLog Log-Periodic/T Bow-TIE 26 - 2000 MHz	EMCO	3141	9611-1011	10-Jan-06	10-Jan-07
0661	Generator Swept Signal, 10 MHz to 40 GHz, + 10 dBm	Hewlett Packard	83640B	3614A002 66	14-Sep-05	14-Sep-06
0768	Antenna Standard Gain Horn,18-26.5 GHz, WR-42, K-band, Gain - 25 dB	Quinstar Technology	QWH-4200-BA	110	21-Jul-04	21-Jul-07
0812	Cable Coax, RG-214, 11.5 m, N-type connectors	HL	C214-11	148	02-Dec-05	02-Dec-06
1200	Quadruplexer 1-12 GHz (1-2 GHz; 2-4GHz;4-8 GHz; 8-12GHz)	Elettronica S.p.A. - Roma	UE 84	D/00240	10-Feb-05	10-Feb-07
1424	Spectrum Analyzer, 30 Hz- 40 GHz	Agilent Technologies	8564EC	3946A002 19	30-Aug-05	30-Aug-06
1430	EMI Receiver, 9 kHz - 2.9 GHz, System: HL1431, HL1432	Agilent Technologies	8542E	3807A002 62,3705A0 0217	01-Sep-05	01-Sep-06
1565	Antenna, Dipole, Tunable 500 - 1000 MHz	Electro-Metrics	TDS-30-2	334	29-Jan-06	29-Jan-07
1942	Cable 18GHz, 4 m, blue	Rhophase Microwave Limited	SPS-1803A-4000-NPS	T4658	17-Oct-05	17-Oct-06
1947	Cable 18GHz, 6.5 m, blue	Rhophase Microwave Limited	NPS-1803A-6500-NPS	T4974	17-Oct-05	17-Oct-06
1984	Antenna, Double-Ridged Waveguide Horn, 1-18 GHz, 300 W, N-type	EMC Test Systems	3115	9911-5964	03-Mar-06	03-Mar-07
2009	Cable RF, 8 m	Alpha Wire	RG-214	C-56	02-Dec-05	02-Dec-06
2259	Amplifier Low Noise 2-20 GHz	Sophia Wireless	LNA0220-C	0223	05-Nov-05	05-Nov-06
2260	Amplifier Low Noise 14-33 GHz	Sophia Wireless	LNA28-B	0233	05-Nov-05	05-Nov-06
2399	Cable 40GHz, 1.5 m, blue	Rhophase Microwave Limited	KPS-1503A-1500-KPS	X2945	24-Jun-05	24-Jun-06
2400	Cable 40GHz, 1.5 m, green	Rhophase Microwave Limited	KPS-1503A-1500-KPS	X2946	24-Jun-05	24-Jun-06
2432	Antenna, Double-Ridged Waveguide Horn 1-18 GHz	EMC Test Systems	3115	00027177	03-Mar-06	03-Mar-07

10 APPENDIX B Measurement uncertainties

Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Conducted carrier power at RF antenna connector	Below 12.4 GHz: ± 1.7 dB 12.4 GHz to 40 GHz: ± 2.3 dB
Conducted emissions at RF antenna connector	9 kHz to 2.9 GHz: ± 2.6 dB 2.9 GHz to 6.46 GHz: ± 3.5 dB 6.46 GHz to 13.2 GHz: ± 4.3 dB 13.2 GHz to 22.0 GHz: ± 5.0 dB 22.0 GHz to 26.8 GHz: ± 5.5 dB 26.8 GHz to 40.0 GHz: ± 4.8 dB
Occupied bandwidth	± 8.0 %
Duty cycle, timing (Tx ON / OFF) and average factor measurements	± 1.0 %
Conducted emissions with LISN	9 kHz to 150 kHz: ± 3.9 dB 150 kHz to 30 MHz: ± 3.8 dB
Radiated emissions at 3 m measuring distance Horizontal polarization Vertical polarization	 Biconilog antenna: ± 5.3 dB Biconical antenna: ± 5.0 dB Log periodic antenna: ± 5.3 dB Double ridged horn antenna: ± 5.3 dB Biconilog antenna: ± 6.0 dB Biconical antenna: ± 5.7 dB Log periodic antenna: ± 6.0 dB Double ridged horn antenna: ± 6.0 dB

The test equipment has been calibrated according to its recommended procedures and is within the manufacturer's published limit of error. The standards and instruments used in the calibration system conform to the present requirements of ISO/IEC 17025 (or alternately ANSI/NCSL Z540-1).
The laboratory calibrates its measurement standards by a third party (traceable to NIST, USA) on a regular basis according to equipment manufacturer requirements. The Hermon Labs EMC measurements uncertainty is given in the table above.

11 APPENDIX C Test facility description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, safety, environmental and telecommunication testing facility. Hermon Laboratories is listed by the Federal Communications Commission (USA) for all parts of Code of Federal Regulations 47 (CFR 47) and by Industry Canada for electromagnetic emissions (file numbers IC 2186-1 for OATS and IC 2186-2 for anechoic chamber), certified by VCCI, Japan (the registration numbers are R-808 for OATS, R-1082 for anechoic chamber, C-845 for conducted emissions site), assessed by TNO Certification EP&S (Netherlands) for a number of EMC, telecommunications, environmental, safety standards, and by AMTAC (UK) for safety of medical devices. The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing and environmental simulation (for exact scope please refer to Certificate No. 839.01).

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12 APPENDIX D Specification references

47CFR part 15: 2005	Radio Frequency Devices.
47CFR part 22:2005	Public Mobile Services
47CFR part 24: 2005	Personal Communications Services
Public notice DA 00- 705: 2000	Filing and measurement guidelines for frequency hopping spread spectrum systems.
ANSI C63.2: 1996	American National Standard for Instrumentation-Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz-Specifications.
ANSI C63.4: 2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

13 APPENDIX E Abbreviations and acronyms

A	ampere
AC	alternating current
A/m	ampere per meter
AM	amplitude modulation
AVRG	average (detector)
cm	centimeter
dB	decibel
dBm	decibel referred to one milliwatt
dB(μV)	decibel referred to one microvolt
dB(μV/m)	decibel referred to one microvolt per meter
dB(μA)	decibel referred to one microampere
dBΩ	decibel referred to one Ohm
DC	direct current
DTS	digital transmission system
EIRP	equivalent isotropically radiated power
ERP	effective radiated power
EUT	equipment under test
F	frequency
FHSS	frequency hopping spread spectrum
GHz	gigahertz
GND	ground
H	height
HL	Hermon laboratories
Hz	hertz
ITE	information technology equipment
k	kilo
kHz	kilohertz
LISN	line impedance stabilization network
LO	local oscillator
m	meter
MHz	megahertz
min	minute
mm	millimeter
ms	millisecond
μs	microsecond
NA	not applicable
NT	not tested
OATS	open area test site
Ω	Ohm
PCB	printed circuit board
PM	pulse modulation
PS	power supply
ppm	part per million (10^{-6})
QP	quasi-peak
RE	radiated emission
RF	radio frequency
rms	root mean square
Rx	receive
s	second
T	temperature
Tx	transmit
V	volt
VA	volt-ampere

14 APPENDIX F Test equipment correction factors

Antenna factor

Biconilog antenna EMCO, model 3141, serial number 1011, HL 0604

Frequency, MHz	Antenna factor, dB(1/m)	Frequency, MHz	Antenna factor, dB(1/m)	Frequency, MHz	Antenna factor, dB(1/m)
26	7.8	560	19.8	1300	27.0
28	7.8	580	20.6	1320	27.8
30	7.8	600	21.3	1340	28.3
40	7.2	620	21.5	1360	28.2
60	7.1	640	21.2	1380	27.9
70	8.5	660	21.4	1400	27.9
80	9.4	680	21.9	1420	27.9
90	9.8	700	22.2	1440	27.8
100	9.7	720	22.2	1460	27.8
110	9.3	740	22.1	1480	28.0
120	8.8	760	22.3	1500	28.5
130	8.7	780	22.6	1520	28.9
140	9.2	800	22.7	1540	29.6
150	9.8	820	22.9	1560	29.8
160	10.2	840	23.1	1580	29.6
170	10.4	860	23.4	1600	29.5
180	10.4	880	23.8	1620	29.3
190	10.3	900	24.1	1640	29.2
200	10.6	920	24.1	1660	29.4
220	11.6	940	24.0	1680	29.6
240	12.4	960	24.1	1700	29.8
260	12.8	980	24.5	1720	30.3
280	13.7	1000	24.9	1740	30.8
300	14.7	1020	25.0	1760	31.1
320	15.2	1040	25.2	1780	31.0
340	15.4	1060	25.4	1800	30.9
360	16.1	1080	25.6	1820	30.7
380	16.4	1100	25.7	1840	30.6
400	16.6	1120	26.0	1860	30.6
420	16.7	1140	26.4	1880	30.6
440	17.0	1160	27.0	1900	30.6
460	17.7	1180	27.0	1920	30.7
480	18.1	1200	26.7	1940	30.9
500	18.5	1220	26.5	1960	31.2
520	19.1	1240	26.5	1980	31.6
540	19.5	1260	26.5	2000	32.0
		1280	26.6		

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μV/m).

Antenna factor
Double-ridged wave guide horn antenna
EMC Test Systems, model 3115, serial no: 9911-5964, HL 1984

Frequency, MHz	Antenna gain, dBi	Antenna factor. dB(1/m)
1000.0	5.8	24.5
1500.0	9.0	24.8
2000.0	8.6	27.7
2500.0	9.5	28.7
3000.0	8.9	30.8
3500.0	8.2	32.9
4000.0	9.6	32.7
4500.0	11.2	32.1
5000.0	10.6	33.6
5500.0	9.8	35.3
6000.0	10.1	35.7
6500.0	10.7	35.8
7000.0	10.9	36.2
7500.0	10.5	37.2
8000.0	11.1	37.2
8500.0	10.8	38.1
9000.0	10.7	38.6
9500.0	11.5	38.3
10000.0	11.8	38.4
10500.0	12.3	38.3
11000.0	12.3	38.8
11500.0	11.5	39.9
12000.0	12.2	39.6
12500.0	12.6	39.5
13000.0	12.0	40.5
13500.0	11.7	41.1
14000.0	11.7	41.5
14500.0	12.7	40.8
15000.0	14.2	39.5
15500.0	16.0	38.1
16000.0	16.2	38.1
16500.0	14.5	40.1
17000.0	12.2	42.6
17500.0	9.7	45.4
18000.0	6.6	48.7

Antenna factor is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μV/m).

Antenna Factor
Active Loop Antenna
EMC Test Systems, model 6502, serial number 2857, HL 0446

Frequency, MHz	Magnetic Antenna Factor, dB(S/m)	Electric Antenna Factor, dB(1/m)
0.009	-32.8	18.7
0.010	-33.8	17.7
0.020	-38.3	13.2
0.050	-41.1	10.4
0.075	-41.3	10.2
0.100	-41.6	9.9
0.150	-41.7	9.8
0.250	-41.6	9.9
0.500	-41.8	9.7
0.750	-41.9	9.6
1.000	-41.4	10.1
2.000	-41.5	10.0
3.000	-41.4	10.1
4.000	-41.4	10.1
5.000	-41.5	10.0
10.000	-41.9	9.6
15.000	-41.9	9.6
20.000	-42.2	9.3
25.000	-42.8	8.7
30.000	-44.0	7.5

Antenna factor in dB(S/m) is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μA/m).
Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μV/m).

Antenna factor
Standard gain horn antenna
Quinstar Technology
Model QWH
Ser.No.110, HL 0768

Frequency min, GHz	Frequency max, GHz	Antenna factor, dB(1/m)
18.000	26.500	32.01
26.500	40.000	35.48
40.000	60.000	39.03
60.000	90.000	42.55
90.000	140.000	46.23
140.000	220.000	50.11

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μV/m).

Antenna factor
Double-ridged guide horn antenna
Model 3115, serial number: 00027177, HL2432

Frequency, MHz	Antenna factor. dB(1/m)
1000.0	24.7
1500.0	25.7
2000.0	27.8
2500.0	28.9
3000.0	30.7
3500.0	31.8
4000.0	33.0
4500.0	32.8
5000.0	34.2
5500.0	34.9
6000.0	35.2
6500.0	35.4
7000.0	36.3
7500.0	37.3
8000.0	37.5
8500.0	38.0
9000.0	38.3
9500.0	38.3
10000.0	38.7
10500.0	38.7
11000.0	38.9
11500.0	39.5
12000.0	39.5
12500.0	39.4
13000.0	40.5
13500.0	40.8
14000.0	41.5
14500.0	41.3
15000.0	40.2
15500.0	38.7
16000.0	38.5
16500.0	39.8
17000.0	41.9
17500.0	45.8
18000.0	49.1

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB(μV) to convert it into field intensity in dB(μV/m).

Cable loss
Cable GORE, HL 0410

No.	Frequency, GHz	Cable loss, dB
1	0.5	0.16
2	1	0.28
3	2	0.38
4	4	0.55
5	6	0.85
6	8	0.90
7	10	1.07
8	12	1.11
9	14	1.29
10	16	1.41
11	18	1.73

Cable loss
Cable Coaxial, RG-58/RG-214, s/n 056, HL 0415
+ Cable Coaxial, RG-214, 11.5m, s/n 148, HL 0812

No.	Frequency, MHz	Cable loss, dB	Measured uncertainty, dB
1	20	0.73	±0.12
2	30	0.91	
3	50	1.2	
4	80	1.56	
5	100	1.76	
6	200	2.59	
7	300	3.26	
8	400	3.93	
9	500	4.42	
10	600	4.92	
11	700	5.36	
12	800	5.88	
13	900	6.41	
14	1000	6.71	
15	1500	8.63	
16	2000	10.39	

Cable loss
Cable Coaxial, GORE A2P01POL118, 2.3 m, model:GORE-3, HL 0589
+ Cable Coaxial, ANDREW PSWJ4, 6m, model: ANDREW-6, HL 1004

No.	Frequency, MHz	Cable loss, dB	Tolerance (Specification), dB	Measurement uncertainty, dB
1	30	0.33	≤ 6.5	±0.12
2	50	0.40		
3	100	0.57		
4	300	0.97		
5	500	1.25		
6	800	1.59		
7	1000	1.81		
8	1200	1.97		
9	1400	2.15		
10	1600	2.28		
11	1800	2.43		
12	2000	2.61		
13	2200	2.75		
14	2400	2.89		
15	2600	2.97		
16	2800	3.21	≤ 6.5	±0.12
17	3000	3.32		
18	3300	3.47		
19	3600	3.62		
20	3900	3.84		
21	4200	3.92		±0.17
22	4500	4.07		
23	4800	4.36		
24	5100	4.62		
25	5400	4.78		
26	5700	5.16		
27	6000	5.67		
28	6500	5.99		

Cable loss
Cable 18 GHz, 4 m, blue, model: SPS-1803A-4000-NPS, S/N T4658, HL 1942

Frequency, GHz	Cable loss, dB
0.03	0.21
0.05	0.26
0.10	0.36
0.20	0.50
0.30	0.61
0.40	0.70
0.50	0.78
0.60	0.85
0.70	0.93
0.80	0.99
0.90	1.04
1.00	1.10
1.10	1.16
1.20	1.22
1.30	1.26
1.40	1.31
1.50	1.35
1.60	1.41
1.70	1.45
1.80	1.49
1.90	1.53
2.00	1.57
2.10	1.61
2.20	1.65
2.30	1.69
2.40	1.72
2.50	1.76
2.60	1.79
2.70	1.83
2.80	1.87
2.90	1.90
3.10	1.97
3.30	2.04
3.50	2.11
3.70	2.18
3.90	2.24
4.10	2.31
4.30	2.38
4.50	2.43
4.70	2.53
4.90	2.53
5.10	2.63
5.30	2.65
5.50	2.72
5.70	2.76
5.90	2.79

Frequency, GHz	Cable loss, dB
6.10	2.88
6.30	2.90
6.50	2.97
6.70	3.02
6.90	3.04
7.10	3.07
7.30	3.12
7.50	3.13
7.70	3.19
7.90	3.24
8.10	3.30
8.30	3.36
8.50	3.45
8.70	3.41
8.90	3.45
9.10	3.42
9.30	3.55
9.50	3.48
9.70	3.58
9.90	3.61
10.10	3.66
10.30	3.68
10.50	3.70
10.70	3.70
10.90	3.75
11.10	3.78
11.30	3.86
11.50	3.98
11.70	4.10
11.90	4.12
12.10	4.09
12.40	4.13
13.00	4.23
13.50	4.35
14.00	4.40
14.50	4.44
15.00	4.57
15.50	4.66
16.00	4.64
16.50	4.66
17.00	4.75
17.50	4.85
18.00	4.93

Cable loss
Cable 18 GHz, 6.5 m, blue, model: NPS-1803A-6500-NPS, S/N T4974, HL 1947

Frequency, GHz	Cable loss, dB
0.03	0.30
0.05	0.38
0.10	0.53
0.20	0.74
0.30	0.91
0.40	1.05
0.50	1.18
0.60	1.29
0.70	1.40
0.80	1.50
0.90	1.59
1.00	1.68
1.10	1.77
1.20	1.86
1.30	1.94
1.40	2.01
1.50	2.08
1.60	2.16
1.70	2.22
1.80	2.29
1.90	2.36
2.00	2.42
2.10	2.48
2.20	2.54
2.30	2.60
2.40	2.66
2.50	2.71
2.60	2.77
2.70	2.83
2.80	2.89
2.90	2.95
3.10	3.06
3.30	3.17
3.50	3.28
3.70	3.39
3.90	3.51
4.10	3.62
4.30	3.76
4.50	3.87
4.70	4.01
4.90	4.10
5.10	4.21
5.30	4.31
5.50	4.43
5.70	4.56
5.90	4.71

Frequency, GHz	Cable loss, dB
6.10	4.87
6.30	4.95
6.50	4.94
6.70	4.88
6.90	4.87
7.10	4.83
7.30	4.85
7.50	4.86
7.70	4.91
7.90	4.96
8.10	5.03
8.30	5.08
8.50	5.13
8.70	5.21
8.90	5.22
9.10	5.34
9.30	5.35
9.50	5.52
9.70	5.51
9.90	5.66
10.10	5.70
10.30	5.78
10.50	5.79
10.70	5.82
10.90	5.86
11.10	5.94
11.30	6.06
11.50	6.21
11.70	6.44
11.90	6.61
12.10	6.76
12.40	6.68
13.00	6.66
13.50	6.81
14.00	6.90
14.50	6.90
15.00	6.97
15.50	7.17
16.00	7.28
16.50	7.27
17.00	7.38
17.50	7.68
18.00	7.92

Cable loss
RF cable 8 m, model RG-214, HL 2009

No.	Frequency, MHz	Cable loss, dB	Tolerance (Specification), dB	Measurement uncertainty, dB
1	1	0.10	NA	±0.12
2	10	0.14		
3	30	0.25		
4	50	0.34		
5	100	0.53		
6	300	0.99		
7	500	1.31		
8	800	1.73		
9	1000	1.98		
10	1100	2.11		
11	1200	2.21		
12	1300	2.35		
13	1400	2.46		
14	1500	2.55		
15	1600	2.68		
16	1700	2.78		
17	1800	2.88		
18	1900	2.98		
19	2000	3.09		

Cable loss
Cable coaxial, 40GHz, 1.5 m, Blue, Rhophase Microwave Limited, model: KPS-1503A-1500-KPS, HL 2399

Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB
0.03	0.07	6.5	1.57	15.50	2.50
0.05	0.10	6.7	1.60	16.00	2.51
0.1	0.16	6.9	1.55	16.50	2.58
0.2	0.26	7.1	1.65	17.00	2.65
0.3	0.33	7.3	1.65	17.50	2.73
0.5	0.38	7.5	1.70	18.00	2.74
0.7	0.41	7.7	1.71	18.50	2.67
0.9	0.58	7.9	1.73	19.00	2.67
1.1	0.64	8.1	1.79	19.50	2.74
1.3	0.70	8.3	1.81	20.00	2.69
1.5	0.75	8.5	1.84	20.50	2.80
1.7	0.79	8.7	1.85	21.00	2.82
1.9	0.83	8.9	1.90	21.50	2.87
2.1	0.88	9.1	1.95	22.00	2.87
2.3	0.93	9.3	1.93	22.50	2.92
2.5	0.97	9.5	1.98	23.50	3.04
2.7	1.01	9.7	1.96	24.00	3.05
2.9	1.04	9.9	2.03	24.50	3.03
3.1	1.08	10.1	1.99	25.00	3.11
3.3	1.14	10.30	2.02	25.50	3.10
3.5	1.17	10.50	2.02	26.00	3.17
3.7	1.21	10.70	2.02	26.50	3.11
3.9	1.24	10.90	2.08	27.00	3.16
4.1	1.26	11.10	2.02	28.00	3.19
4.3	1.26	11.30	2.09	29.00	3.19
4.5	1.29	11.50	2.05	30.00	3.30
4.7	1.34	11.70	2.11	31.00	3.31
4.9	1.34	11.90	2.11	32.00	3.35
5.1	1.40	12.10	2.12	33.00	3.46
5.3	1.43	12.40	2.17	34.00	3.45
5.5	1.45	13.00	2.29	35.00	3.49
5.7	1.47	13.50	2.31	36.00	3.54
5.9	1.40	14.00	2.43	37.00	3.62
6.1	1.53	14.50	2.43	39.00	3.69
6.3	1.55	15.00	2.46	40.00	3.75

Cable loss
Cable coaxial, 40GHz, 1.5 m, green, Rhophase Microwave Limited, model: KPS-1503A-1500-KPS, HL 2400

Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB
0.03	0.06	6.5	1.46	15.50	2.34
0.05	0.08	6.7	1.49	16.00	2.34
0.1	0.15	6.9	1.50	16.50	2.40
0.2	0.23	7.1	1.51	17.00	2.46
0.3	0.29	7.3	1.55	17.50	2.54
0.5	0.37	7.5	1.56	18.00	2.61
0.7	0.46	7.7	1.58	18.50	2.59
0.9	0.53	7.9	1.60	19.00	2.59
1.1	0.58	8.1	1.61	19.50	2.67
1.3	0.65	8.3	1.68	20.00	2.62
1.5	0.66	8.5	1.68	20.50	2.73
1.7	0.72	8.7	1.75	21.00	2.71
1.9	0.76	8.9	1.74	21.50	2.78
2.1	0.79	9.1	1.81	22.00	2.83
2.3	0.85	9.3	1.79	22.50	2.81
2.5	0.90	9.5	1.86	23.50	2.91
2.7	0.91	9.7	1.85	24.00	2.97
2.9	0.97	9.9	1.87	24.50	2.98
3.1	0.97	10.1	1.88	25.00	2.97
3.3	1.03	10.30	1.82	25.50	3.03
3.5	1.06	10.50	1.92	26.00	3.04
3.7	1.10	10.70	1.86	26.50	3.11
3.9	1.13	10.90	1.96	27.00	2.97
4.1	1.16	11.10	1.90	28.00	3.15
4.3	1.18	11.30	1.99	29.00	3.07
4.5	1.21	11.50	1.95	30.00	3.13
4.7	1.23	11.70	2.00	31.00	3.13
4.9	1.26	11.90	2.01	32.00	3.18
5.1	1.28	12.10	1.99	33.00	3.31
5.3	1.31	12.40	2.06	34.00	3.32
5.5	1.32	13.00	2.11	35.00	3.37
5.7	1.36	13.50	2.17	36.00	3.36
5.9	1.37	14.00	2.36	37.00	3.46
6.1	1.38	14.50	2.32	39.00	3.49
6.3	1.44	15.00	2.30	40.00	3.52