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Auftraggeber:		GoerTek Electronics Corporation					
<i>Client:</i>		7F.-8, No.51, Taoyuan City, Taoyuan Country 330 Taiwan					
Gegenstand der Prüfung:		Bluetooth Audio Dongle					
<i>Test item:</i>							
Bezeichnung:		I110	FCC ID:		SZG-I110		
<i>Identification:</i>			<i>FCC ID</i>				
Wareneingangs-Nr.:		173027204	Eingangsdatum:		14.12.2006		
<i>Receipt No.:</i>			<i>Date of receipt:</i>				
Prüfart:		TÜV Rheinland (Guangdong) Ltd. EMC Laboratory			Listed test laboratory according to FCC rules section 2.948 for measuring devices under Parts 15		
<i>Testing location:</i>		Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou 510650, P. R. China					
Prüfgrundlage:		ANSI C63.4: 2003					
<i>Test specification:</i>		FCC Part 15 subpart B section 15.109 FCC Part 15 subpart C section 15.207 FCC Part 15 Subpart C section 15.209 and 15.247					
Prüfergebnis:		Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).					
<i>Test Result:</i>		<i>The test item passed the test specification(s).</i>					
Prüflaboratorium:		TÜV Rheinland (Guangdong) Ltd.					
<i>Testing Laboratory:</i>							
geprüft/ tested by:		kontrolliert/ reviewed by:					
08 Feb 2007		Ricky Liu Project Engineer		15. Feb. 2007 Dave Xie Project Manager			
<i>Datum</i>	<i>Name/Stellung</i>	<i>Unterschrift</i>	<i>Datum</i>	<i>Name/Stellung</i>	<i>Unterschrift</i>		
<i>Date</i>	<i>Name/Position</i>	<i>Signature</i>	<i>Date</i>	<i>Name/Position</i>	<i>Signature</i>		
Sonstiges/ Other Aspects:							
Remark: The application model name is I110, the model name in appendix and measurement is i110, which is identical to model I110 except model name.							
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> Abkürzungen: P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet </td> <td style="width: 50%; vertical-align: top;"> Abbreviations: P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested </td> </tr> </table>						Abkürzungen: P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet	Abbreviations: P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested
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Test Summary

FCC Rules	Test items	Result
Part 15 Per Section 15.207(a)	Conducted Emission on AC mains	Pass
Part 15 Per Section 15.247(a), 15.209(A) and 15.33	Radiated Emission on receiving mode	Pass
Part 15 Per Section 15.109(a)	Radiated Emission on transmitting mode	Pass
Part 15 Per Section 15.203	Antenna requirement	Pass
Part 15 Per Section 15.247(b)(1)	Maximum Peak Output power	Pass
Part 15 Per Section 15.247(a)(1)	20dB Bandwidth	Pass
Part 15 Per Section 15.247(a)(1)	Hopping Channel Carrier Frequency Separation	Pass
Part 15 Per Section 15.247(a)(1)(iii)	Number of Hopping Frequency Used	Pass
Part 15 Per Section 15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Pass
Part 15 Per Section 15.247(d)	100 kHz Bandwidth of Band Edges Emission Measurement	Pass
Part 15 Per Section 15.247(d)	Out-Of-Band Conducted Emission measurement	Pass
Part 15 Per Section 15.247(e)	Peak Power Spectral Density Measurement	Pass

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: Test result

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Guangdong) Ltd. EMC Laboratory

Guangzhou Auto Market, Yuan Gang Section of Guangshan Road
Guangzhou 510650

P. R. China

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2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Type	Manufacturer	S/N	Calibrated until
EMI Test Receiver	ESCI-3	Rohde & Schwarz	100216	13.01.2007
Bi-log Antenna	VULB9168	Schwarzbeck	210	13.01.2007
Double-Ridged Waveguide Horn Antenna	HF 906	Rohde & Schwarz	100385	09.07.2007
Horn Antenna	3160-09	EMCO	21642	20.09.2007
Notch Filter	BRM50702	Micro-Tronics	023	13.01.2007
Dipole Antenna	VHAP	Schwarzbeck	1180+1109	28.11.2006
Dipole Antenna	UHAP	Schwarzbeck	1091+1092	28.11.2006
3m Semi-anechoic chamber	---	Albatross Projects	---	16.04.2007
EMI Test Receiver	ESCS30	Rohde & Schwarz	100316	07.06.2007
Spectrum Analyzer	FSP30	Rohde & Schwarz	100286	04.09.2007

2.3 Trace ability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

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2.5 Measurement Uncertainty

The estimated combined standard uncertainty for conducted emissions measurements is ± 3 dB.
The estimated combined standard uncertainty for radiated emissions measurements is ± 3 dB.

2.6 Location of original data

The original copies of all test data taken during actual testing were attached at Appendix 1 of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Guangdong) file for certification follow-up purposes.

2.7 Status of facility used for testing

TÜV Rheinland (Guangdong) Ltd. EMC Laboratory; Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou 510650, P. R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements, the register no. 833845

3 General Product Information

3.1 Product Function and Intended Use

Brief description of the test sample:

I110 Bluetooth Dongle has two operating modes TX and RX. It has a mode selection switch for shifting modes and a pairing button for operating pairing.

TX is transmitting mode. By Bluetooth, it can transmit the analog audio signals from acoustic mainframe to other Bluetooth receiving devices (e.g. Bluetooth stereo headset).

RX is receiving mode. It can receive stereo music from Bluetooth devices, which support A2DP profile (e. g. PC or Mobile phone supporting Bluetooth). Meanwhile, it can amplify and output the music through acoustic mainframe.

For details, refer to technical document and the user manual.

3.2 Ratings and System Details

Frequency range	:	2402.0MHz – 2480.0MHz (unlicensed ISM band)
Number of employed channels	:	79 channels
Total Number of channels	:	79 channels
Modulation Type	:	Frequency Hopping Spread Spectrum
Compatible Bluetooth specification	:	V1.2
Type of antenna	:	Integral antenna
FCC ID	:	SZG-I110
Trade name	:	iLuv
Output power:		0.667mW
Support profile:		A2DP, AVRCP
Power supply	:	+5VDC
Ports	:	One 10 pin connect port
Protection Class	:	III

Refer to the technical document for further information

3.3 Independent Operation Modes

The basic operation modes are:

Operating: Transmitting and receiving

For further information refer to User Manual

3.4 Submitted Documents

Block Diagram
Schematics
Operation Description
Components List
FCC label and location
User Manual
Internal Photos
External Photos
Application form

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4 Test Set-up and Operation Mode

4.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Refer to Test set-up in chapter 5.

4.3 Special Accessories and Auxiliary Equipment

The products have been tested together with the following device:

Device	Manufacture	Model	Serial no.
MP3	Apple	iPod	YM54316RTJT
Power amplifier	GoerTek electronics.	iLuv	---
Laptop notebook	IBM T30	2366	99-BLMAW
Bluetooth test Software	CSR	BlueCore	---

4.4 Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the technical document. No additional measures were employed to achieve compliance.

4.5 Test set-up

Diagram 1 of Configuration for Testing Conducted Emission

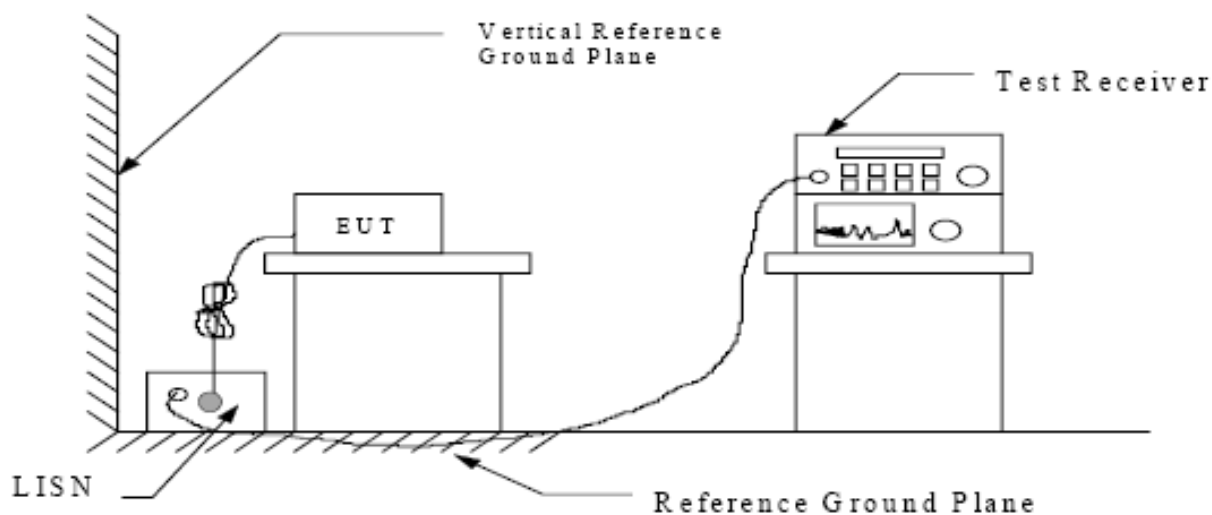


Diagram 2 of Configuration for Testing hopping channel Separation, channel bandwidth, number of hopping frequency used, output power measurement, out-of-band conducted emission measurement and peak power spectral density measurement

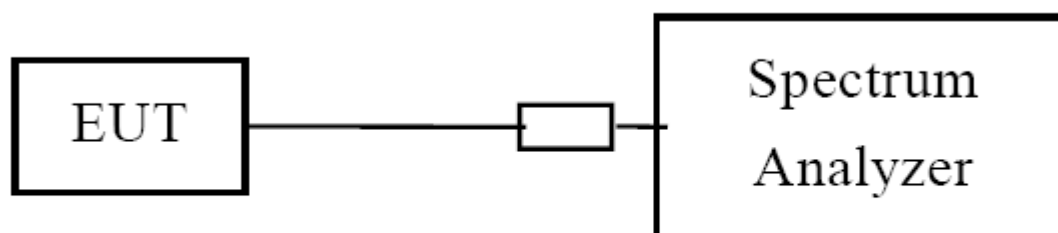


Diagram 3 of Configuration for Testing Radiated Emission below 1 GHz

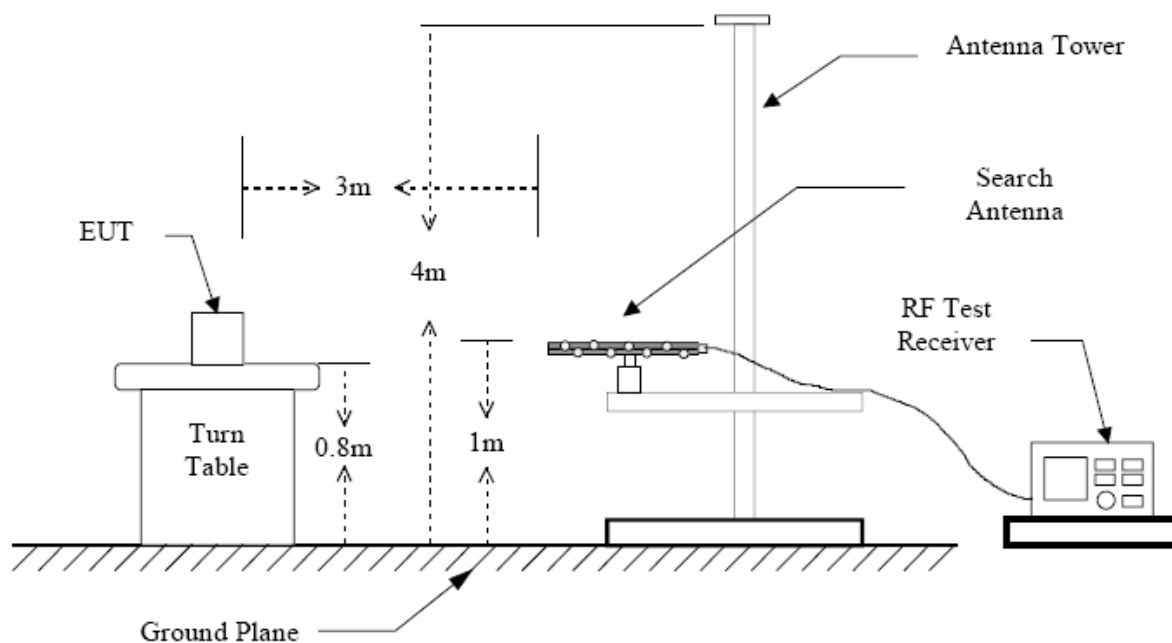
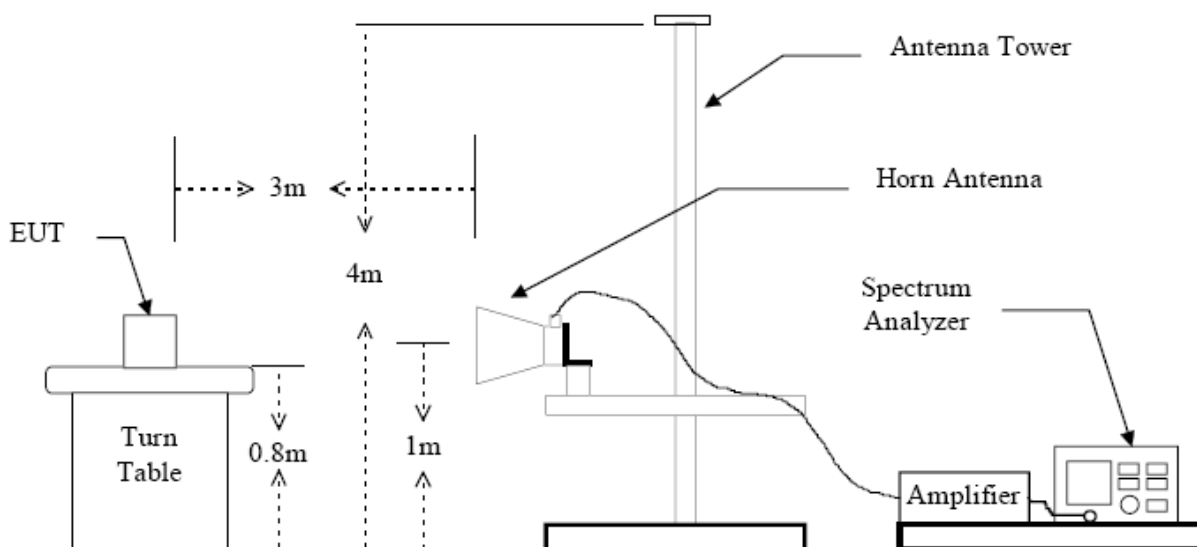


Diagram 4 of Configuration for Testing Radiated Emission above 1 GHz



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5 Test Results EMISSION

5.1 Conducted Emission on AC mains

RESULT:

Pass

Date of testing	:	24.01.2007
Test specification	:	FCC Part 15 Per Section 15.207(a)
Limits	:	FCC Part 15 Per Section 15.207(a)
Deviations from Standard Test procedures	:	None
Test procedure	:	Procedure specified in ANSI C63.4 were followed
Kind of test site	:	Shielded room
Operation mode	:	Operating
Power supply	:	120VAC/60Hz
Temperature	:	22°C
Humidity	:	52%

If the result of the measurement with the Quasi Peak detector is below the Average limit, the measurement with Average Detector has been omitted.
Disturbances other than those mentioned are small or not detectable.

The spectral diagrams in appendix 1 display the measurement of un-weighted peak values.

Table 2: Disturbance Voltage on AC Mains

Frequency [MHz]	Line	QP [dBμV]	AV [dBμV]	Quasi Peak Limit [dBμV]	Average Limit [dBμV]
0.15	L	43.5	*	66	56
0.15	N	43.3	*	66	56

*) The disturbance measured is far below the limit and therefore, no final measurement was performed.

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5.2 Radiated Emission on receiving mode

RESULT:

Pass

Date of testing : 14-15.02.2007
 Test specification : FCC Part 15 Per Section 15.109(a)
 Limit : FCC Part 15 Per Section 15.109(a)
 Operation mode: Receiving
 (channel low, mid, and high)
 Deviations from Standard Test procedures : None
 Test procedure : Procedure specified in ANSI C63.4 were followed
 Kind of test site : 3m Semi-anechoic chamber
 Temperature : 20°C
 Humidity : 50%

The final measurement for frequencies below 1000MHz is performed with Quasi Peak detector; the final measurement for frequencies above 1000MHz is performed with Average detector.

Disturbances other than those mentioned are small or not detectable.

The spectral diagrams in appendix 1 display the measurement of un-weighted peak values.

Table 3: Radiated Emission (receiving at channel low, mid and high)

Channel	Frequency [MHz]	QP [dB μ V/m]	AV [dB μ V/m]	Polarity (H/V)	Limit [dB μ V/m]
--			--		40
--			--		40

-- means the disturbance measured is far below the limit and therefore, no final measurement was performed.

Table 4: Radiated Emission in Restricted Bands 2310-2390MHz and 2483.5-2500MHz

Restricted band	Frequency [MHz]	PK [dB μ V/m]	AV [dB μ V/m]	Polarity (H/V)	PK limit [dB μ V/m]	AV limit [dB μ V/m]
Low band	2313.5	54.329	42.458	H	74	54
Low band	2313.5	54.110	42.431	V	74	54
High band	2483.5	53.894	42.285	H	74	54
High band	2483.5	54.117	42.569	V	74	54

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5.3 Radiated Emission on transmitting mode

RESULT:

Pass

Date of testing : 25.01.2007/ 15.02.2007
 Test specification : FCC Part 15 Per Section 15.247(a)
 Limits : FCC Part 15 Per Section 15.209(a)
 Deviations from Standard Test procedures : None
 Test procedure : Procedure specified in ANSI C63.4 were followed
 Kind of test site : 3m Semi-anechoic chamber
 Operation mode : Transmitting
 (channel low, mid, high)
 Power supply : 120VAC/60Hz
 Temperature : 19°C
 Humidity : 50%

The final measurement for frequencies below 1000MHz is performed with Quasi Peak detector; the final measurement for frequencies above 1000MHz is performed with Average detector.

Disturbances other than those mentioned are small or not detectable.

Table 5: Radiated Emission (Transmitting at channel low)

Frequency [MHz]	QP [dB μ V/m]	AV [dB μ V/m]	Polarity (H/V)	Limit [dB μ V/m]
300	23.4	--	H	46
400	29.9	--	H	46
43.69	23.6	---	V	40
195.75	36.1	---	V	43.5
456.8	33.9	---	V	46

Frequency [MHz]	PK [dB μ V/m]	AV [dB μ V/m]	Polarity (H/V)	PK Limit [dB μ V/m]	AV limit [dB μ V/m]
4804.0	50.778	48.449	H	74	54
4804.0	49.590	47.345	V	74	54
7206.0	--				
9608.0	--				
12010.0	--				
14412.0	--				
16814.0	--				
19216.0	--				
21618.0	--				
24020.0	--				

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Table 6: Radiated Emission (Transmitting at channel mid)

Frequency [MHz]	QP [dB μ V/m]	AV [dB μ V/m]	Polarity (H/V)	Limit [dB μ V/m]
174.90	27.8	--	H	43.5
400.30	31.2	--	H	46
44.30	33.1	---	V	40
49.90	21.4	---	V	40
100.10	18.9	---	V	43.5
175.40	26.3	---	V	43.5
799.55	26.3	---	V	46

Frequency [MHz]	PK [dB μ V/m]	AV [dB μ V/m]	Polarity (H/V)	PK Limit [dB μ V/m]	AV limit [dB μ V/m]
4882.0	53.963	52.724	H	74	54
4882.0	54.163	52.671	V	74	54
7323.0	--				
9764.0	--				
12205.0	--				
14646.0	--				
17087.0	--				
19528.0	--				
21969.0	--				
24410.0	--				

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Table 7: Radiated Emission (Transmitting at channel high)

Frequency [MHz]	QP [dB μ V/m]	AV [dB μ V/m]	Polarity (H/V)	Limit [dB μ V/m]
130.50	26.1	--	H	43.5
144.35	22.1	--	H	43.5
182.30	25.3	---	H	43.5
456.8	27.5	---	H	46
44.55	23.5	---	V	46
99.95	27.1	---	V	43.5
214.65	31.0	---	V	43.5
799.55	35.1	---	V	46

Frequency [MHz]	PK [dB μ V/m]	AV [dB μ V/m]	Polarity (H/V)	PK Limit [dB μ V/m]	AV limit [dB μ V/m]
4960.0	51.811	49.814	H	74	54
4960.0	53.394	51.939	V	74	54
7440.0	--				
9920.0	--				
12400.0	--				
14880.0	--				
17360.0	--				
19840.0	--				
22320.0	--				
24800.0	--				

Table 8: Radiated Emission in Restricted Bands 2310-2390MHz and 2483.5-2500MHz

Restricted band	Frequency [MHz]	PK [dB μ V/m]	AV [dB μ V/m]	Polarity (H/V)	PK limit [dB μ V/m]	AV limit [dB μ V/m]
Low band	2313.5	54.329	42.458	H	74	54
Low band	2313.5	54.110	42.431	V	74	54
High band	2483.5	53.894	42.285	H	74	54
High band	2483.5	54.117	42.569	V	74	54

-- means the disturbance measured is far below the limit and therefore, no final measurement was performed.

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5.4 Antenna requirement

RESULT:

Pass

Date of testing : ---

Test specification : FCC Part 15 Per Section 15.203

For intentional device, according to 15.203, and intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

As the antenna is permanently mounted on RF Board, there is no consideration of replacement.

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5.5 Maximum Peak Output power

RESULT:

Pass

Date of testing : 26.01.2007
Test specification : FCC Part 15 Per Section 15.247(b)(1)

Limits : FCC Part 15 Per Section 15.247(b)(1)

For frequency hopping systems operating in 2400-2483.5MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5MHz band: 0.125 watts.

Deviations from Standard Test procedures :

None

Test procedure : Procedure specified in ANSI C63.4 were followed

Kind of test site : Shielded room

Operation mode : Transmitting

Power supply : 120VAC/60Hz

Temperature : 20°C

Humidity : 50%

Table 9: Peak Conducted Power

Channel	Frequency (MHz)	Output power (dBm)	Output power (mW)	Limit (W)
Low	2402.0	-2.31	0.5875	1
Mid	2441.0	-2.76	0.5297	1
High	2480.0	-1.76	0.6668	1

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5.6 20dB Bandwidth

RESULT:

Pass

Date of testing : 26.01.2007
Test specification : FCC Part 15 Per Section 15.247(a)(1)
Deviations from Standard Test procedures : None
Kind of test site : Shielded room
Operation mode : Transmitting with maximum data rate
Power supply : 120VAC/60Hz
Temperature : 19°C
Humidity : 50%

The test was measured with a spectrum analyzer. Use marker function to find the 20dB bandwidth, which are the space of the 20dB frequency point below the peak of the emission.

Table 10: 20dB Bandwidth

Channel	Frequency (GHz)	Test Result (kHz)
Low	2402.0	800
Mid	2441.0	796
High	2480.0	796

Please refer to appendix 1 for measurement.

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5.7 Hopping Channel Carrier Frequency Separation

RESULT:

Pass

Date of testing : 26.01.2007
Test specification : FCC Part 15 Per Section 15.247(a)(1)
Limits : FCC Part 15 Per Section 15.247(a)(1)

Frequency hopping system shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater

Deviations from Standard Test procedures

: None
Kind of test site : Shielded room
Operation mode : Transmitting with hopping function enabled
Power supply : 120VAC/60Hz
Temperature : 20°C
Humidity : 50%

Table 11: Hopping Channel Carrier Frequency Separation

Channel	Adjacent Hopping channel separation (kHz)	Limit
Low	1004	At least 25kHz or tow-thirds of the 20dB bandwidth of the hopping channel, whichever is greater. Note: refer to table 8 for the value of 20dB bandwidth
Mid	1000	
High	1004	

The carrier frequency separation was measured with a spectrum analyzer.

Please refer to appendix 1 for measurement.

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5.8 Number of Hopping Frequency Used

RESULT:

Pass

Date of testing : 26.01.2007
Test specification : FCC Part 15 Per Section 15.247(a)(1)(iii)
Limits : FCC Part 15 Per Section 15.247(a)(1)(iii)

Frequency hopping system in the 2400-2483.5 MHz
band shall use at least 15 non-overlapping channels

Deviations from Standard Test
procedures : None
Kind of test site : Shielded room
Operation mode : Transmitting with hopping function enabled
Power supply : 120VAC/60Hz
Temperature : 19°C
Humidity : 50%

The number of hopping frequency was measured with spectrum analyzer.

Table 12: Number of hopping frequency

Number of hopping frequency:	79
Limit:	At least 15 non-overlapping channels

Please refer to appendix 1 for measurement.

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5.9 Time of Occupancy (Dwell Time)

RESULT:

Pass

Date of testing : 13.02.2007
Test specification : FCC Part 15 Per Section 15.247(a)(1)(iii)
Limits : FCC Part 15 Per Section 15.247(a)(1)(iii)

For frequency hopping system operating in the 2400-2483.5MHz band, the average time of occupancy on any channel shall not be greater than 0.4 seconds multiplied by the number of hopping channels employed.

Deviations from Standard Test procedures

: None
Kind of test site : Shielded room
Operation mode : Transmitting with hopping function enabled
Power supply : 120VAC/60Hz
Temperature : 19°C
Humidity : 50%

The dwell time was measured with a spectrum analyzer.

Period = 0.4 (seconds) x 79 (channels) = 31.6 seconds

Table 13: Dwell Time on DH1 mode

channel	Frequency (GHz)	Dwell time of one-slot transmission (ms)	Dwell Time in one period (ms)	Limit (ms)
Low	2.402	0.590	$(0.590 \times 320.1) = 188.859$	≤ 400
Mid	2.441	0.540	$(0.540 \times 320.1) = 172.854$	≤ 400
High	2.480	0.550	$(0.550 \times 320.1) = 176.055$	≤ 400

Note:

The Bluetooth system hops at a rate of 1600 times per second. This means there are 1600 timeslots in one second. The DH1 data rate operates on a one-slot transmission and one-slot receiving basis. Thus there are $1600/(1+1) = 800$ transmission per second. In one period for each particular channel there are $(800/79) \times 31.6 = 320.1$ times of transmission.

Dwell Time in one period(ms) = Dwell time of one-slot transmission(ms) multiplexes 320.1

Table 14: Dwell Time on DH2 mode

channel	Frequency (GHz)	Dwell time of one signal Burst (ms)	Total Dwell Time (ms)	Limit (ms)
Low	2.402	1.910	$(1.910 \times 159.9) = 305.409$	≤ 400
Mid	2.441	1.890	$(1.890 \times 159.9) = 302.211$	≤ 400
High	2.480	1.870	$(1.870 \times 159.9) = 299.013$	≤ 400

Note:

The Bluetooth system hops at a rate of 1600 times per second. This means there are 1600 timeslots in one second. The DH3 data rate operates on a one-slot transmission and one-slot receiving basis. Thus there are $1600/(3+1) = 400$ transmission per second. In one period for each particular channel there are $(400/79) \times 31.6 = 159.9$ times of transmission.

Dwell Time in one period(ms) = Dwell time of one-slot transmission(ms) multiplexes 159.9

Table 15: Dwell Time on DH3 mode

channel	Frequency (GHz)	Dwell time of one signal Burst (ms)	Total Dwell Time (ms)	Limit (ms)
Low	2.402	3.190	$(3.190 \times 106.81) = 340.724$	≤ 400
Mid	2.441	3.230	$(3.230 \times 106.81) = 344.996$	≤ 400
High	2.480	3.190	$(3.190 \times 106.81) = 340.724$	≤ 400

Note:

The Bluetooth system hops at a rate of 1600 times per second. This means there are 1600 timeslots in one second. The DH1 data rate operates on a one-slot transmission and one-slot receiving basis. Thus there are $1600/(5+1) = 266.7$ transmission per second. In one period for each particular channel there are $(266.7/79) \times 31.6 = 106.81$ times of transmission.

Dwell Time in one period(ms) = Dwell time of one-slot transmission(ms) multiplexes 106.81

Please refer to appendix 1 for measurement.

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5.10 100 kHz Bandwidth of Band Edges Emission Measurement

RESULT:

Pass

Date of testing : 26.01.2007
Test specification : FCC Part 15 Per Section 15.247(d)
Limits : FCC Part 15 Per Section 15.247(d)

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

In addition, radiated emission which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a).

Deviations from Standard Test procedures : None
Kind of test site : Shielded room
Operation mode : Transmitting
Power supply : 120VAC/60Hz
Temperature : 19°C
Humidity : 50%

Table 16: 100 kHz Bandwidth of Band Edges Emission

Emission	Attenuation (dB)	Limit (dB)
Lower Band Edge	All emission in this 100kHz bandwidth are attenuated more than 20dB from the carrier	≥ 20
Upper Band Edge	All emission in this 100kHz bandwidth are attenuated more than 20dB from the carrier	≥ 20

*) The disturbance measured is far below the limit and therefore, no final measurement was performed.

Please refer to appendix 1 for measurement.

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5.11 Out-Of-Band Conducted Emission measurement

RESULT:

Pass

Date of testing : 26.01.2007
Test specification : FCC Part 15 Per Section 15.247(d)
Limits : FCC Part 15 Per Section 15.247(d)

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

In addition, radiated emission which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a).

Deviations from Standard Test procedures : None
Kind of test site : Shielded room
Operation mode : Transmitting
Power supply : 120VAC/60Hz
Temperature : 19°C
Humidity : 50%

Table 17: Out-Of-Band Conducted Emission measurement

Emission (Carrier operating at Channel low, mid and high)	Attenuation	Limit (dB)
1GHz to 25GHz	All emission in this 100kHz bandwidth are attenuated more than 20dB from the carrier	≥ 20

Please refer to appendix 1 for measurement.

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5.12 Peak Power Spectral Density Measurement

RESULT:

Pass

Date of testing : 26.01.2007
Test specification : FCC Part 15 Per Section 15.247(e)
Limits : FCC Part 15 Per Section 15.247(e)

For digitally modulated systems, the power spectral density conducted from intentional radiator to the antenna shall not be greater than 8 dBm in any 3kHz band during any time interval of continuous transmission.

Deviations from Standard Test procedures : None
Kind of test site : Shielded room
Operation mode : Transmitting
Power supply : 120VAC/60Hz
Temperature : 19°C
Humidity : 50%

Table 18: Peak Power Spectral Density Measurement

Channel	Result (Maximum Power Density of 3kHz Bandwidth)	Limit (Peak Power Spectral Density in any 3kHz band)
Low	-13.18dBm	8dBm
Mid	-13.90dBm	8dBm
High	-13.11dBm	8dBm

Please refer to appendix 1 for measurement.

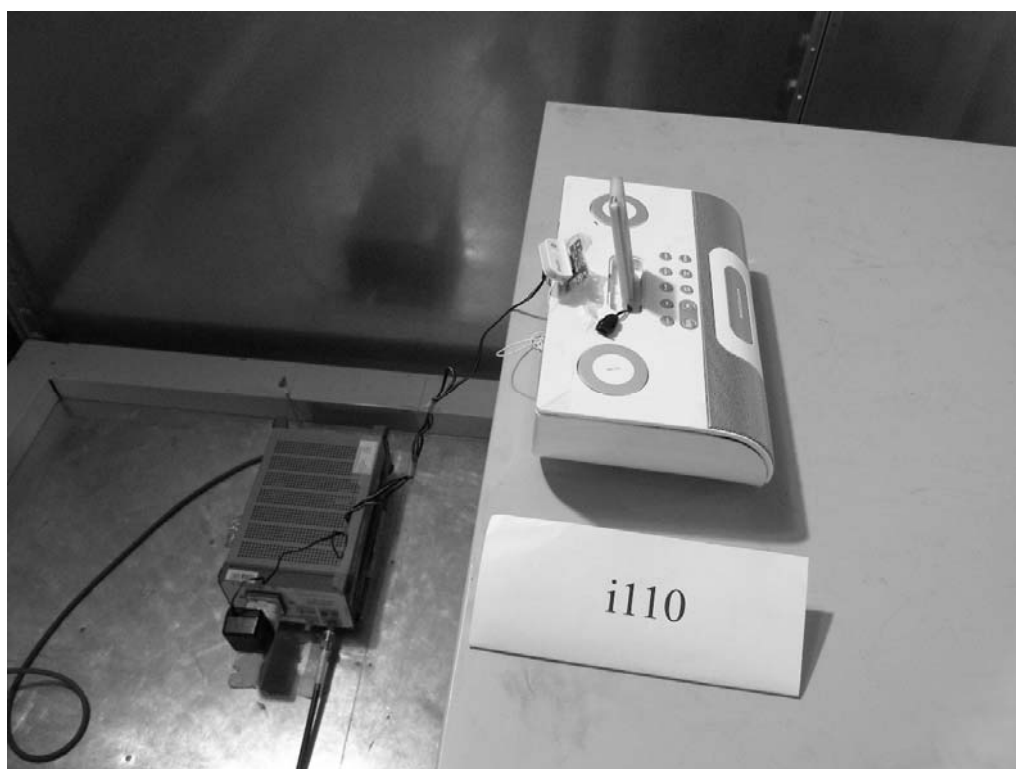
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6 Photographs of the Test Set-Up

Photograph 1: Set-up for Conducted Emission on AC Mains

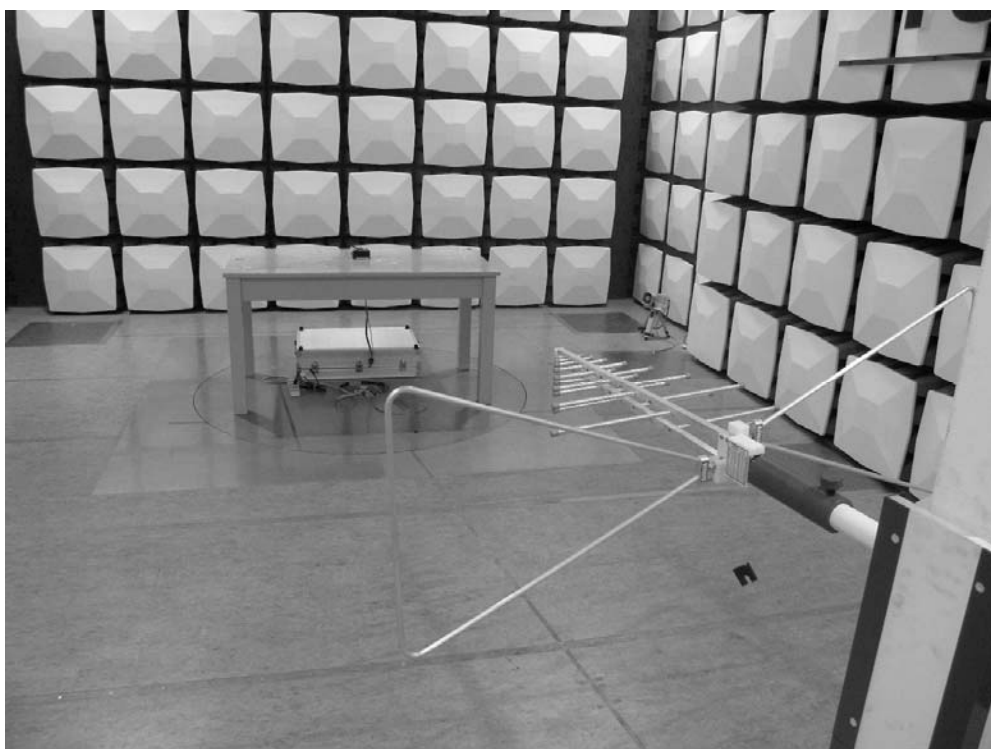
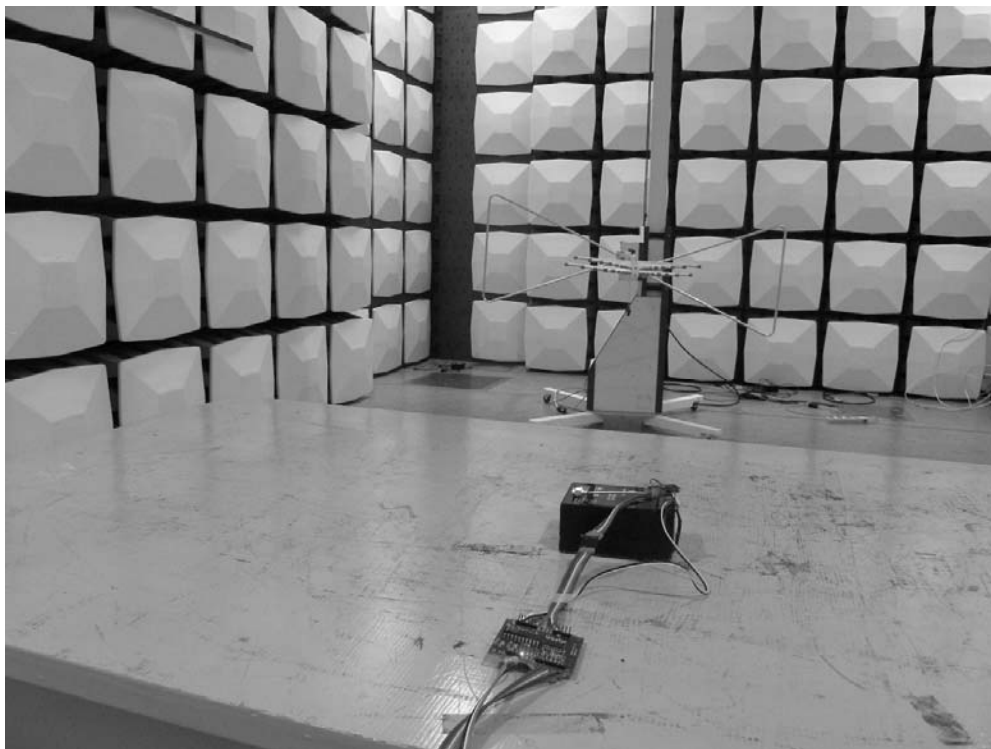


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Photograph 2: Set-up for Radiation Measurement below 1GHz

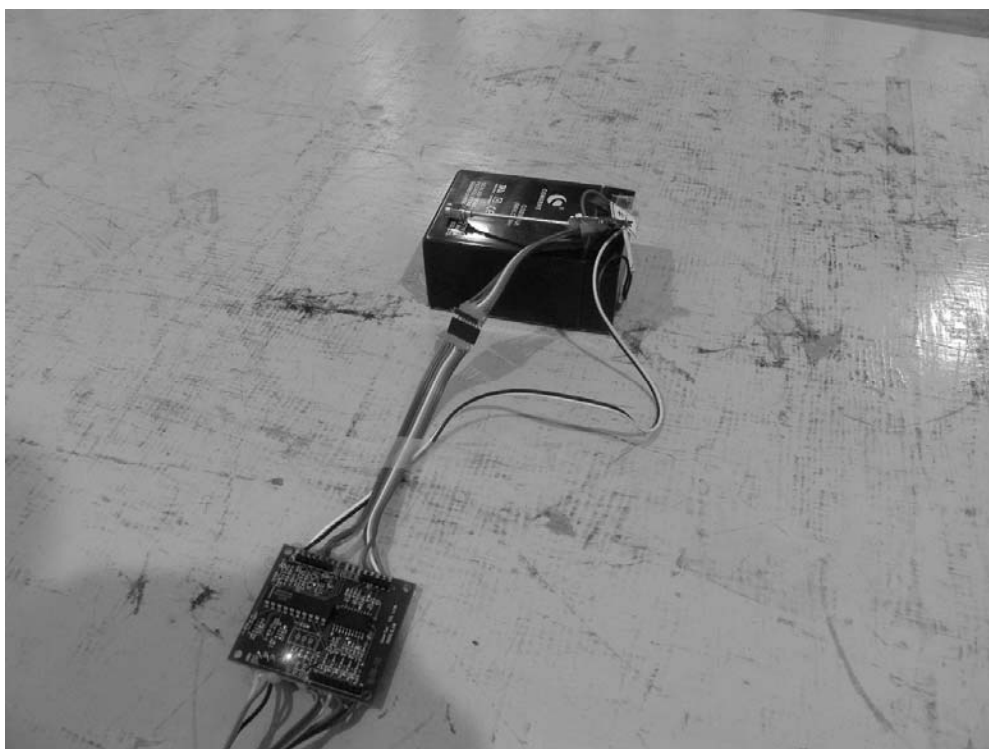
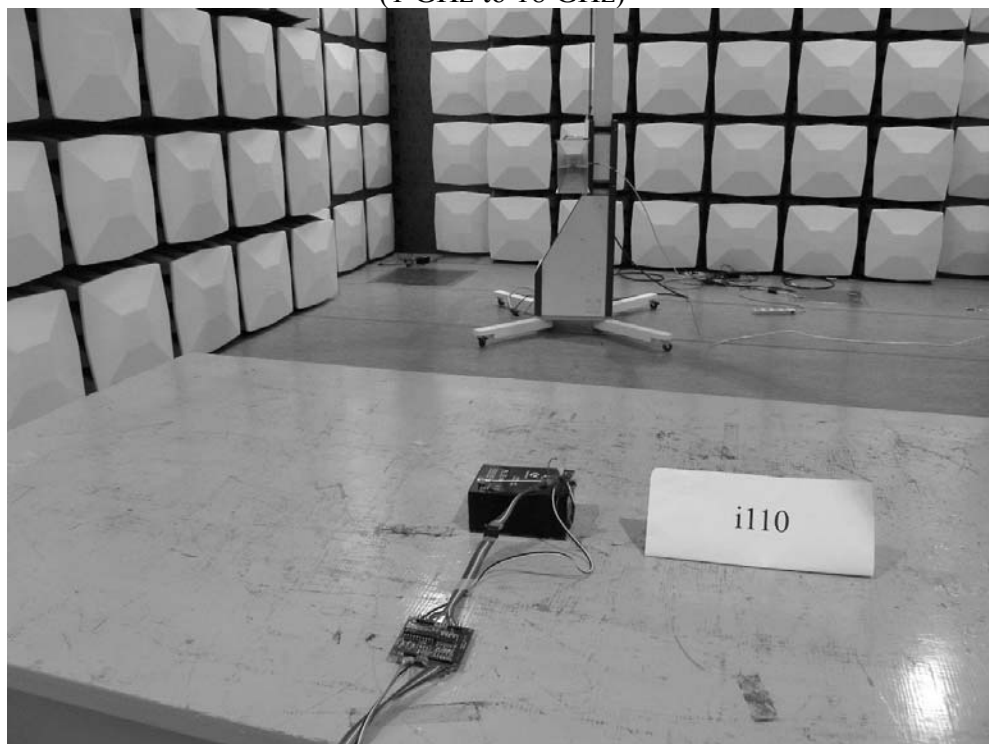


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Photograph 3: Set-up for Radiation Measurement above 1GHz
(1 GHz to 18 GHz)

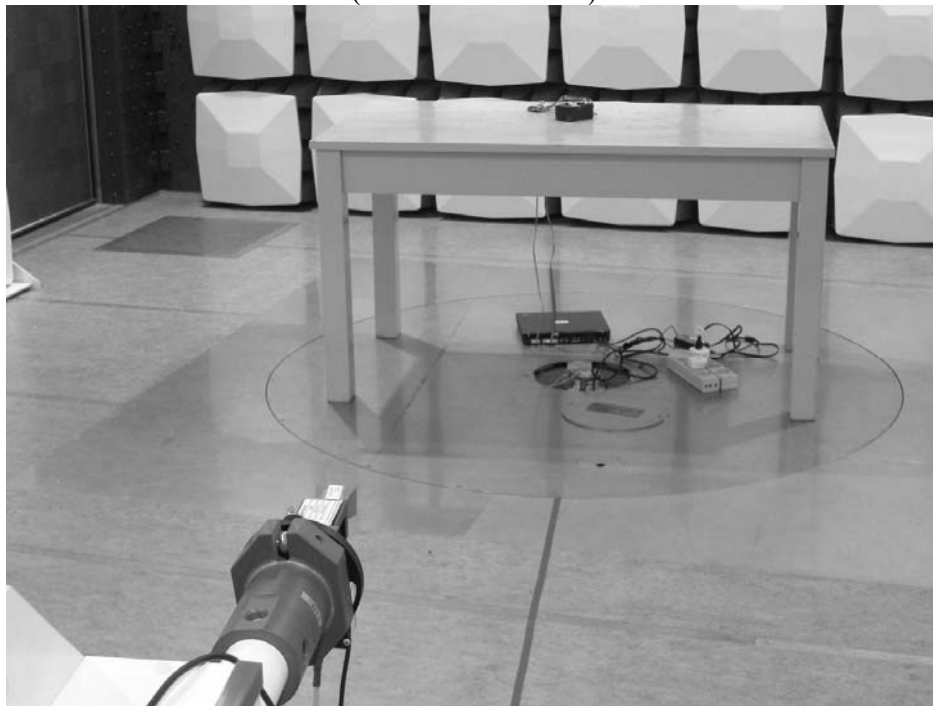


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(18GHz to 26GHz)



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Remark:

The application model name is I110, all the tests are performed on model i110, which is identical to model I110 except model name.

Conducted Emission on AC mains

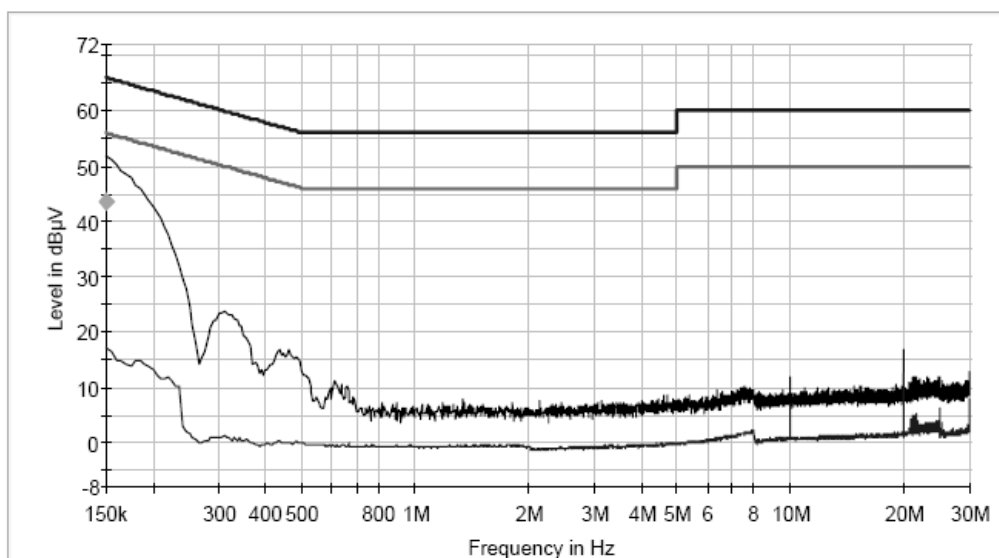
EMC32 Report

Test Information

EUT Name: Bluetooth adapter
Model/Type: i110
Operating Conditions: operating
Operator Name: KK
Comment: AC 110V 50Hz, live line

Hardware Setup: 1phase LISN ESH3-Z5 to ESCS30
Level Unit: dB μ V

Subrange	Detectors	IF Bandwidth	Step size	Meas. Time	Receive
150kHz - 30MHz	Peak; Average	9kHz	4.5kHz	10ms	Receiver



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Line
0.150000	43.5	1000.000	9.000	L1

(continuation of the "Final Measurement Detector 1" table from column 6 ...)

Frequency (MHz)	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.150000	0.1	22.5	66.0	

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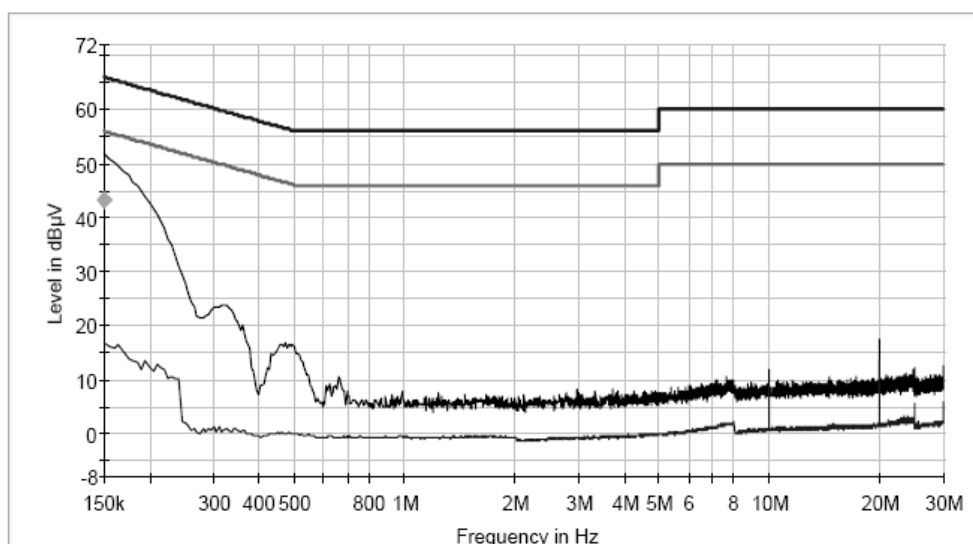
EMC32 Report

Test Information

EUT Name: Bluetooth adapter
Model/Type: i110
Operating Conditions: operating
Operator Name: KK
Comment: AC 110V 50Hz, Neutral line

Hardware Setup: 1phase LISN ESH3-Z5 to ESCS30
Level Unit: dB μ V

Subrange	Detectors	IF Bandwidth	Step size	Meas. Time	Receive
150kHz - 30MHz	Peak; Average	9kHz	4.5kHz	10ms	Receive



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time (ms)	Bandwidth (kHz)	Line
0.150000	43.3	1000.000	9.000	N

(continuation of the "Final Measurement Detector 1" table from column 6 ...)

Frequency (MHz)	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.150000	0.1	22.7	66.0	

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Radiated Emission on receiving mode

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Test Information

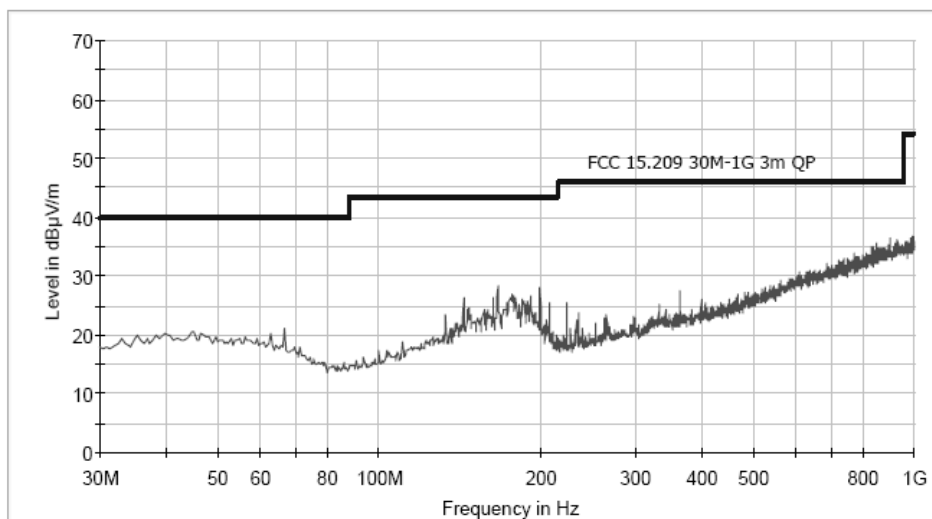
Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel low, horizontal

Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1

Frequency Range: 25MHz - 1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

Pre TUV 30M to 1G UVLB9168



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Test Information

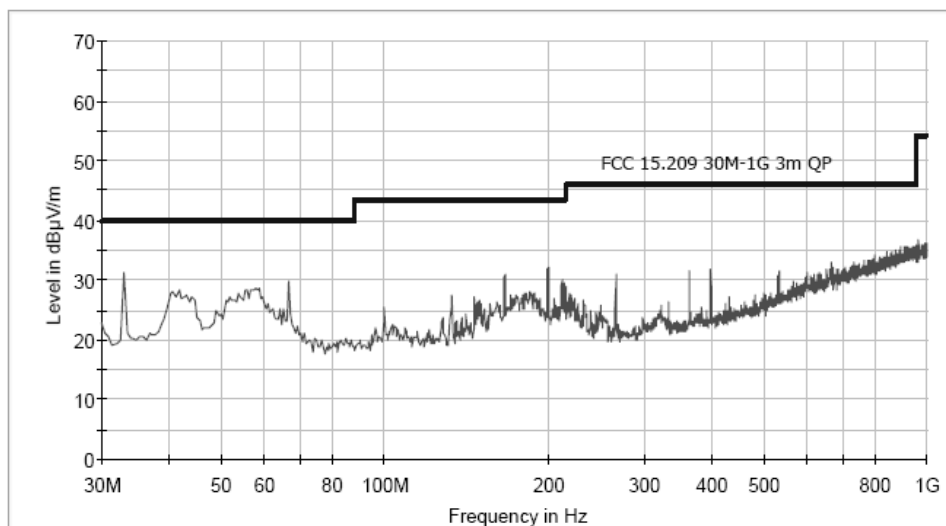
Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel low, vertical

Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1

Frequency Range: 25MHz - 1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

Pre TUV 30M to 1G UVLB9168



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Test Information

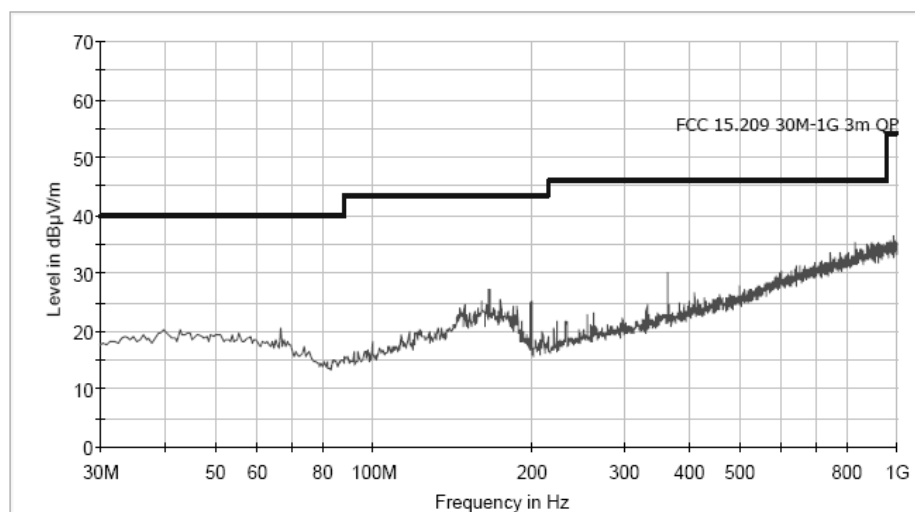
Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel middle, horizontal

Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1

Frequency Range: 25MHz - 1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

Pre TUV 30M to 1G UVLB9168



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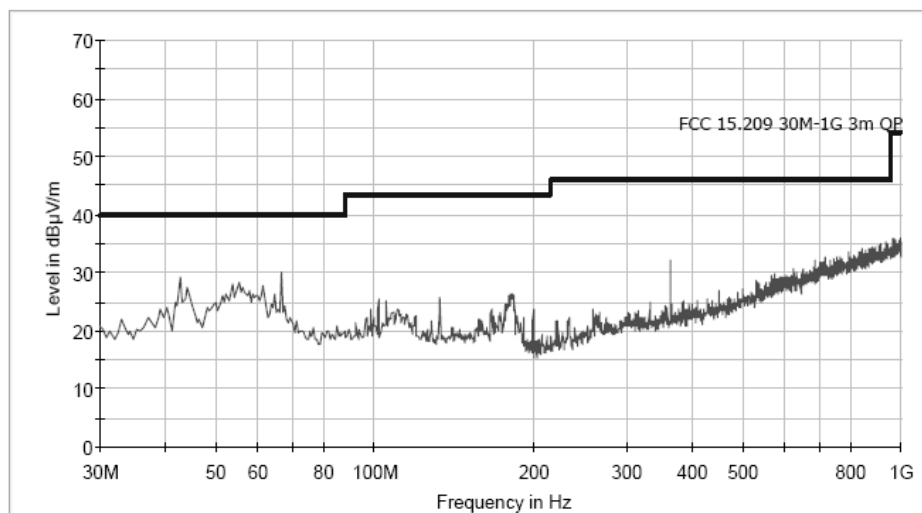
Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel middle, vertical

Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1
Frequency Range: 25MHz - 1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

Pre TUV 30M to 1G UVLB9168



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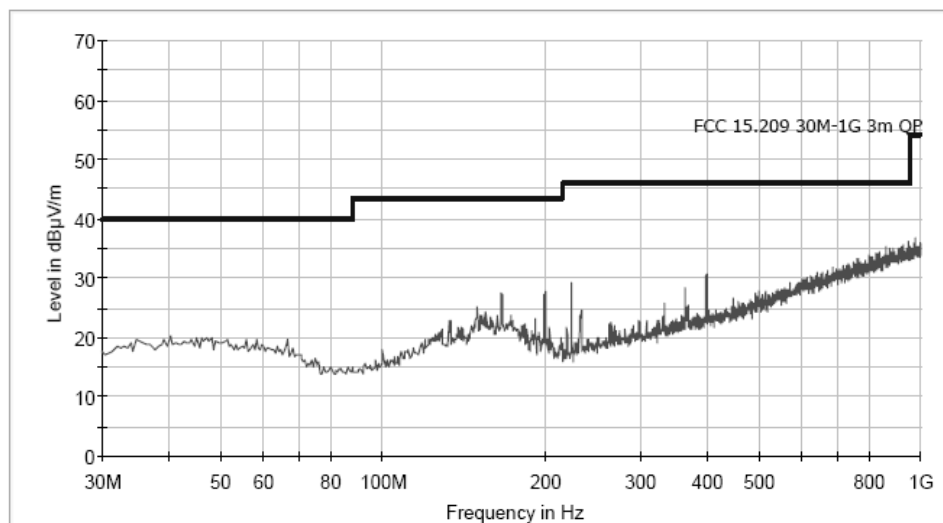
Test Information

Manufacturer Name:	bluetooth dongle
Model Number:	i110
Operating Conditions:	RX
Operator Name:	KK
Comment:	channel high, horizontal

Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1	
Frequency Range:	25MHz - 1GHz
Receiver:	TUV ESCI 3
Transducer:	TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

Pre TUV 30M to 1G UVLB9168



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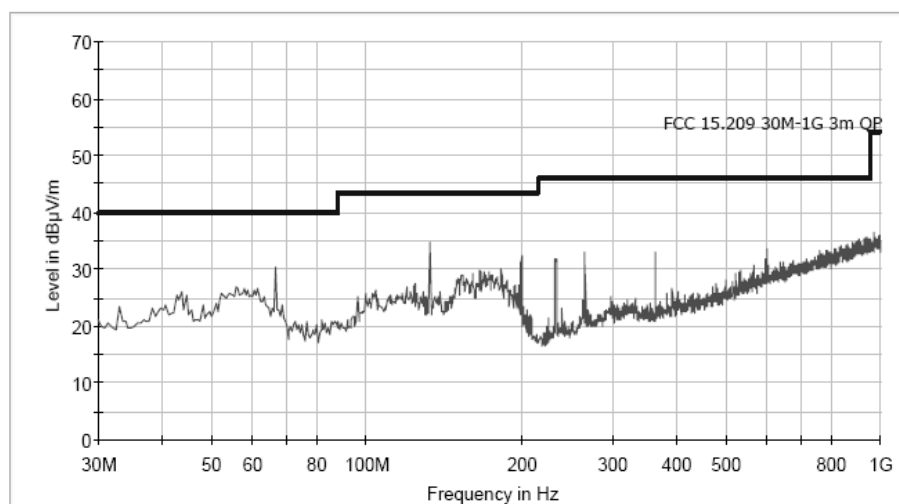
Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel high, vertical

Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1
Frequency Range: 25MHz - 1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

Pre TUV 30M to 1G UVLB9168



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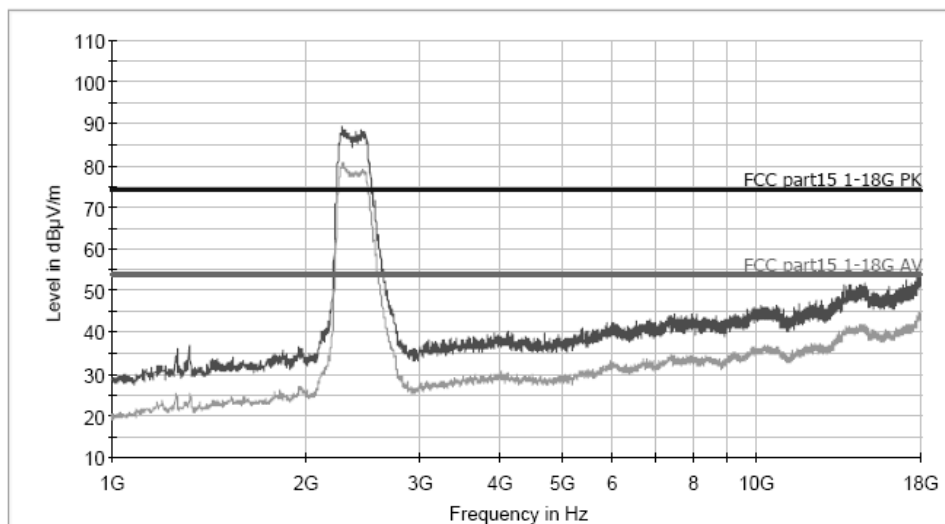
EMC32 Report

Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel low, Horizontal

Subrange 1

Frequency Range: 1GHz - 18GHz
Receiver: TUV FSP 30
Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



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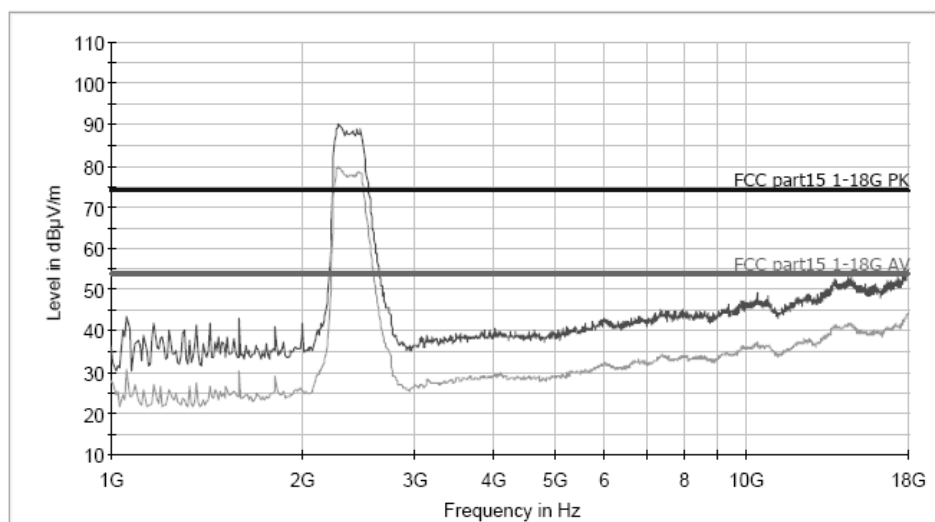
EMC32 Report

Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel low, vertical

Subrange 1

Frequency Range: 1GHz - 18GHz
Receiver: TUV FSP 30
Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



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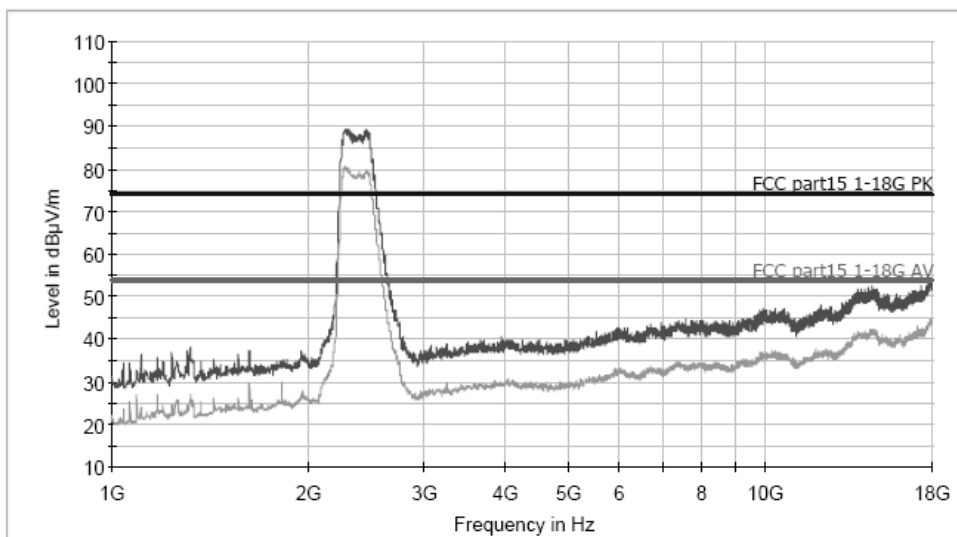
EMC32 Report

Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel middle, Horizontal

Subrange 1

Frequency Range: 1GHz - 18GHz
Receiver: TUV FSP 30
Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



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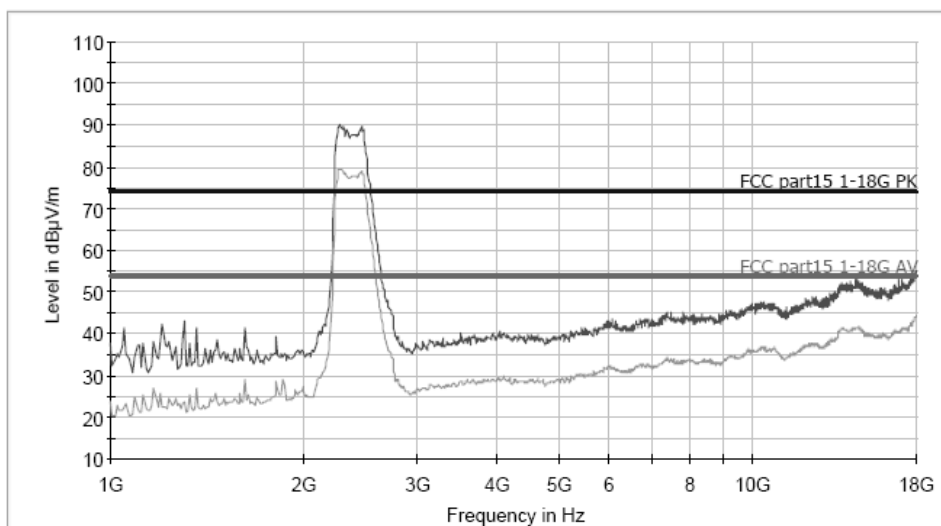
EMC32 Report

Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel middle, vertical

Subrange 1

Frequency Range: 1GHz - 18GHz
Receiver: TUV FSP 30
Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



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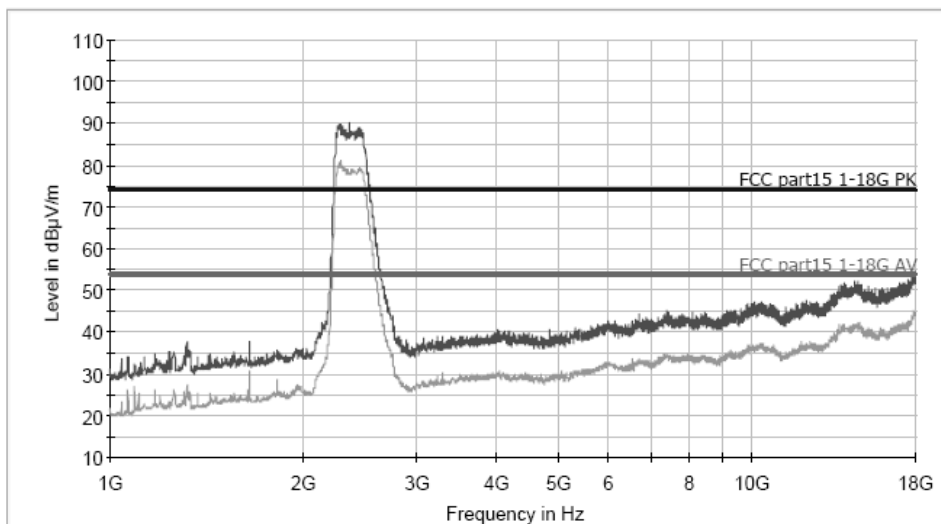
EMC32 Report

Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel hi, Horizontal

Subrange 1

Frequency Range: 1GHz - 18GHz
Receiver: TUV FSP 30
Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



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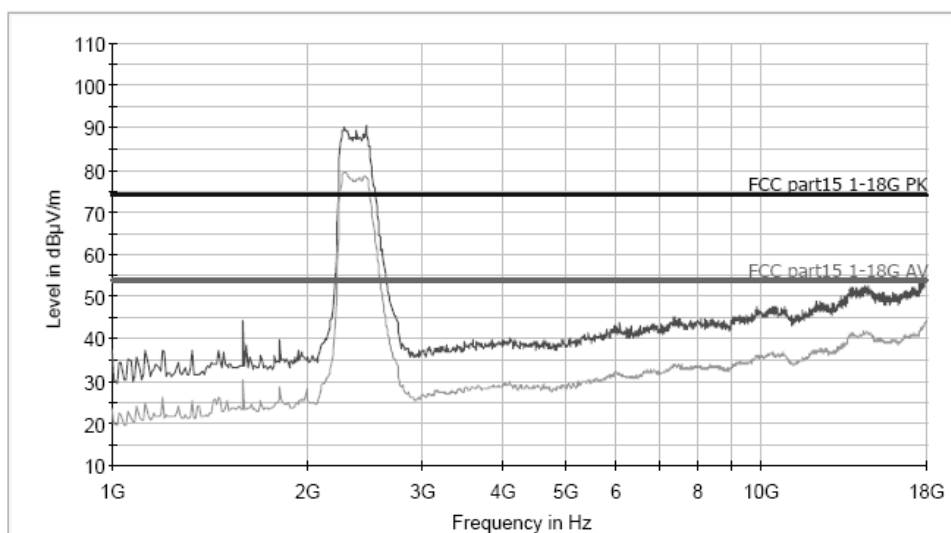
EMC32 Report

Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel high, vertical

Subrange 1

Frequency Range: 1GHz - 18GHz
Receiver: TUV FSP 30
Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



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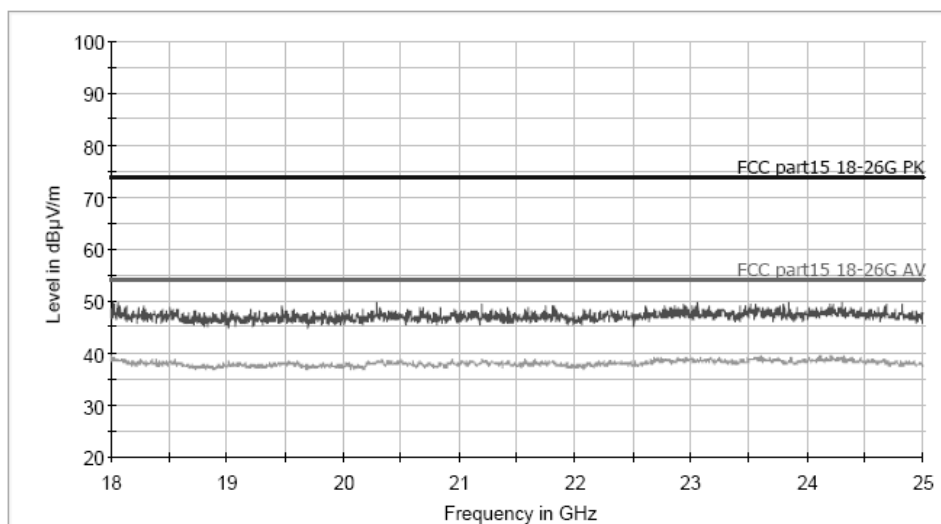
Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel low, horizontal

Hardware Setup: TUV SAC 18G to 26G 3160-09 - [EMI radiated]

Subrange 1
Frequency Range: 18GHz - 26GHz
Receiver: TUV FSP 30
Transducer: TUV SAC 3160-09 / TUV FSP 30-TUV SAC 3160-09

Pre TUV 18 to 26.5 3160-09



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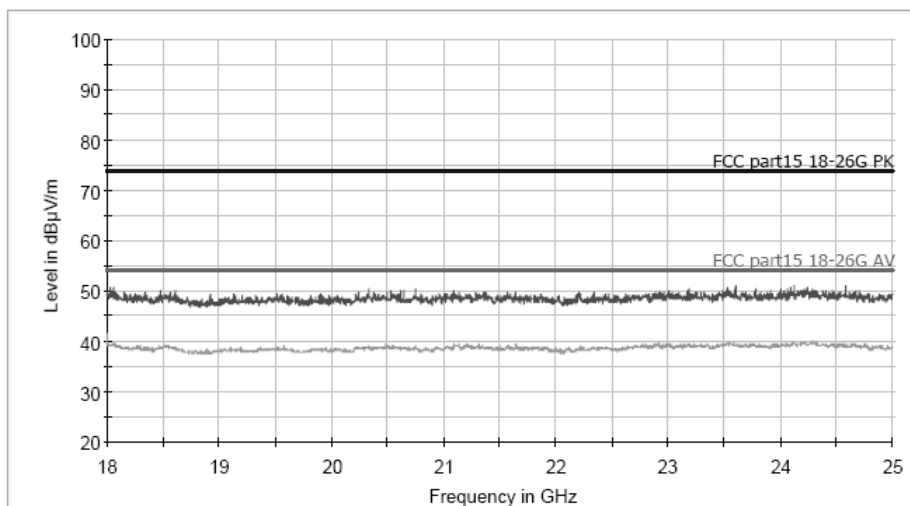
Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel lo, vertical

Hardware Setup: TUV SAC 18G to 26G 3160-09 - [EMI radiated]

Subrange 1
Frequency Range: 18GHz - 26GHz
Receiver: TUV FSP 30
Transducer: TUV SAC 3160-09 / TUV FSP 30-TUV SAC 3160-09

Pre TUV 18 to 26.5 3160-09



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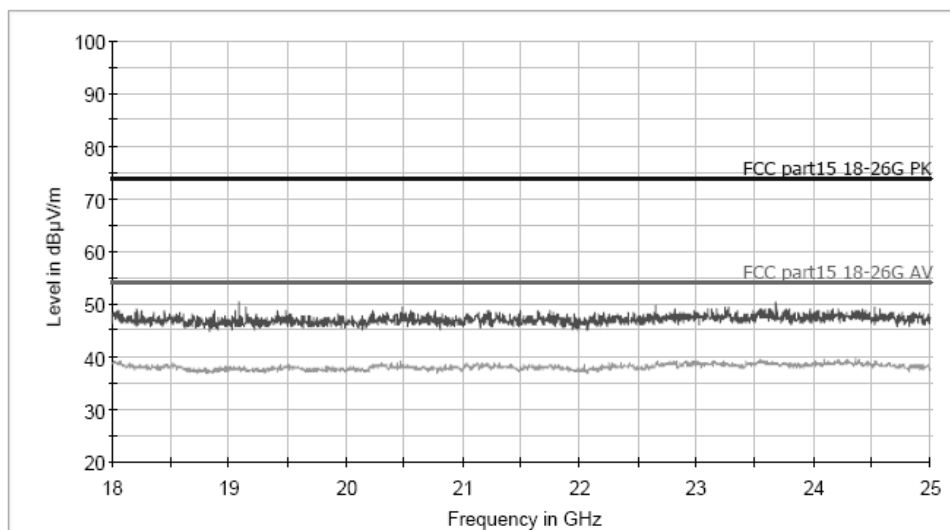
Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel middle, horizontal

Hardware Setup: TUV SAC 18G to 26G 3160-09 - [EMI radiated]

Subrange 1
Frequency Range: 18GHz - 26GHz
Receiver: TUV FSP 30
Transducer: TUV SAC 3160-09 / TUV FSP 30-TUV SAC 3160-09

Pre TUV 18 to 26.5 3160-09



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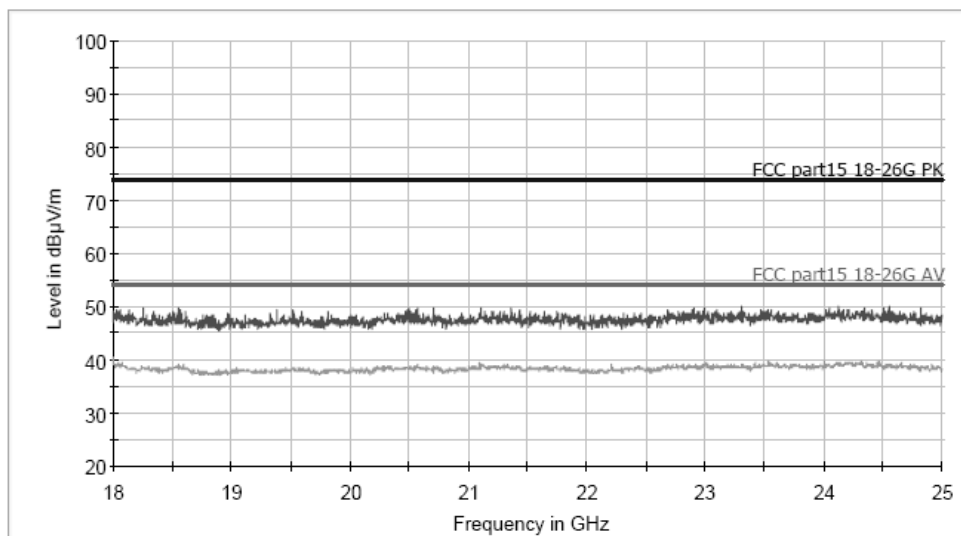
Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel middle, vertical

Hardware Setup: TUV SAC 18G to 26G 3160-09 - [EMI radiated]

Subrange 1
Frequency Range: 18GHz - 26GHz
Receiver: TUV FSP 30
Transducer: TUV SAC 3160-09 / TUV FSP 30-TUV SAC 3160-09

Pre TUV 18 to 26.5 3160-09



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Test Information

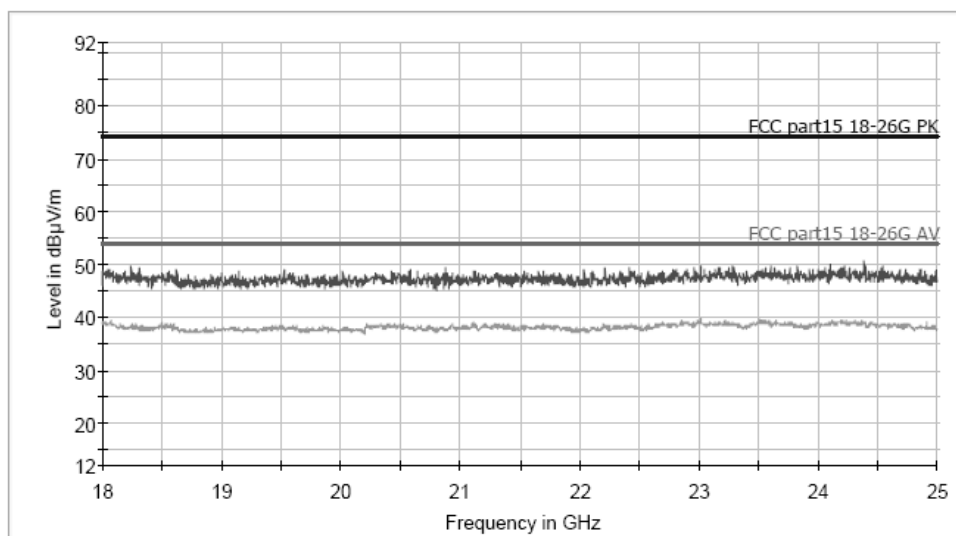
Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel high, horizontal

Hardware Setup: TUV SAC 18G to 26G 3160-09 - [EMI radiated]

Subrange 1

Frequency Range: 18GHz - 26GHz
Receiver: TUV FSP 30
Transducer: TUV SAC 3160-09 / TUV FSP 30-TUV SAC 3160-09

Pre TUV 18 to 26.5 3160-09



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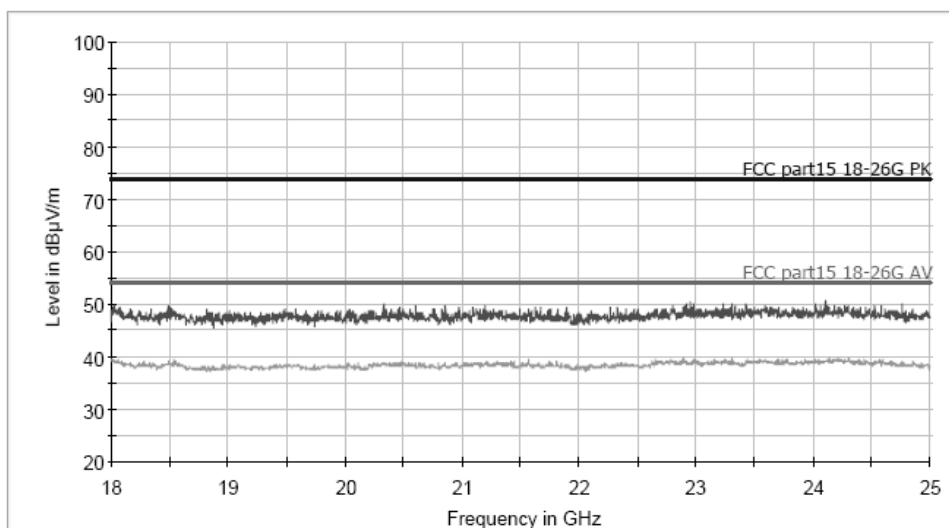
Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: RX
Operator Name: KK
Comment: channel high, vertical

Hardware Setup: TUV SAC 18G to 26G 3160-09 - [EMI radiated]

Subrange 1
Frequency Range: 18GHz - 26GHz
Receiver: TUV FSP 30
Transducer: TUV SAC 3160-09 / TUV FSP 30-TUV SAC 3160-09

Pre TUV 18 to 26.5 3160-09



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Radiated Emission on transmitting mode

EMC32 Report

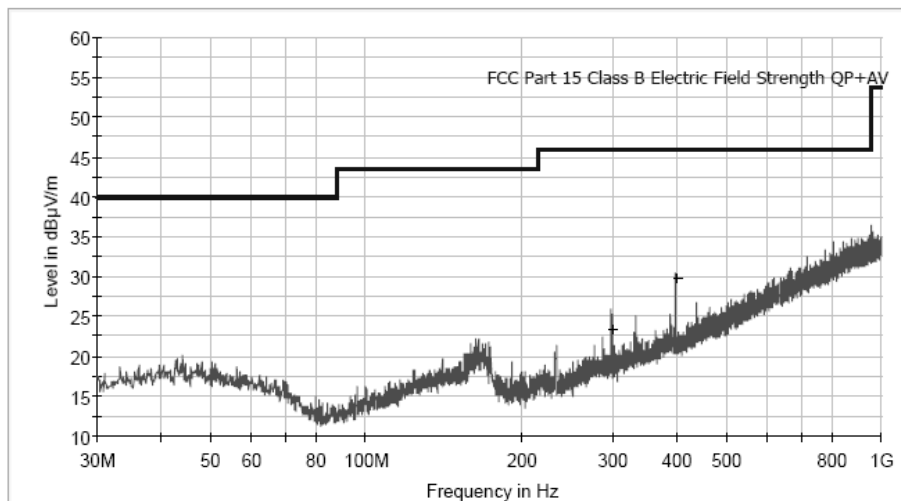
Test Information

EUT Name: Bluetooth audio dongle
Model Number: i110
Operating Conditions: Transmitting (channel low)
Operator Name: DW
Comment: Horizontal

Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1
Frequency Range: 25MHz - 1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

pre 30M to 1G UVLB9168 FCC



Result Table_Single

Frequency (MHz)	QuasiPeak (dB µ V/m)	Average (dB µ V/m)	RMS (dB µ V/m)	MaxPeak (dB µ V/m)	MinPeak (dB µ V/m)
300.000000	23.4	---	---	---	---
400.000000	29.9	---	---	---	---

(continuation of the "Result Table_Single" table from column 6 ...)

Frequency (MHz)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)
300.000000	1000.000	120.000	192.0	H	150.0
400.000000	1000.000	120.000	200.0	H	0.0

(continuation of the "Result Table_Single" table from column 11 ...)

Frequency (MHz)	Corr. (dB)	Comment
300.000000	16.0	
400.000000	19.0	

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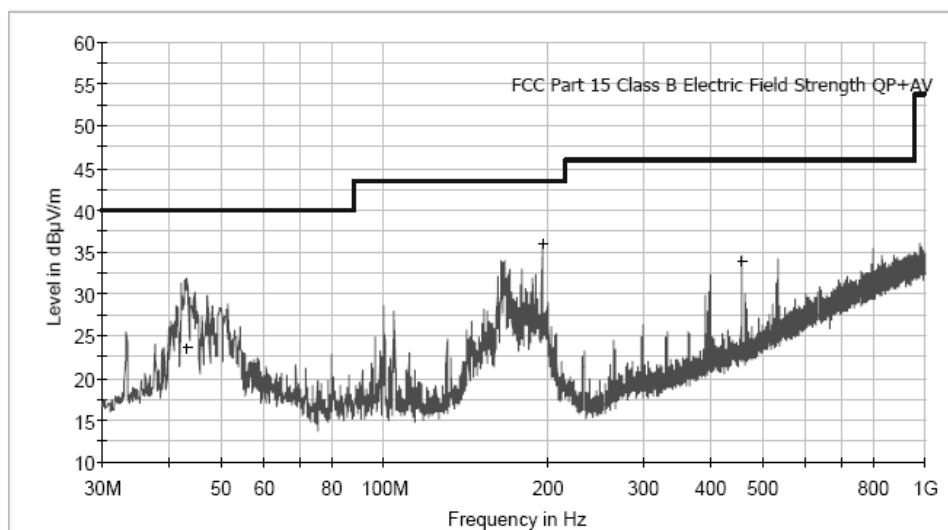
Test Information

EUT Name: Bluetooth audio dongle
Model Number: i110
Operating Conditions: Transmitting (channel low)
Operator Name: DW
Comment: Vertical

Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1
Frequency Range: 25MHz - 1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

pre 30M to 1G UVLB9168 FCC



Result Table Single

Frequency (MHz)	QuasiPeak (dB µ V/m)	Average (dB µ V/m)	RMS (dB µ V/m)	MaxPeak (dB µ V/m)	MinPeak (dB µ V/m)
195.750000	36.1	---	---	---	---
456.800000	33.9	---	---	---	---
43.100000	23.6	---	---	---	---

(continuation of the "Result Table Single" table from column 6 ...)

Frequency (MHz)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)
195.750000	1000.000	120.000	100.0	V	180.0
456.800000	1000.000	120.000	100.0	V	180.0
43.100000	1000.000	120.000	100.0	V	0.0

(continuation of the "Result Table Single" table from column 11 ...)

Frequency (MHz)	Corr. (dB)	Comment
195.750000	12.1	
456.800000	20.4	
43.100000	14.4	

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Test Information

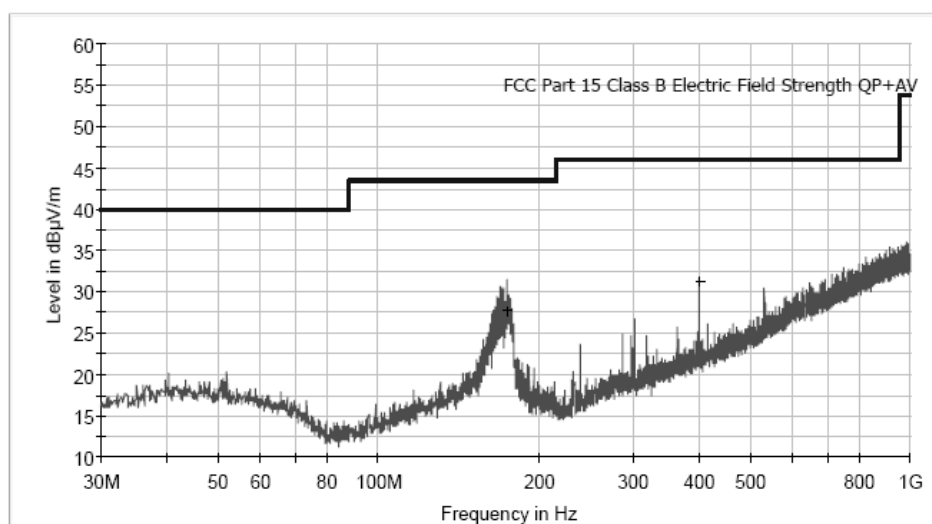
EUT Name: Bluetooth audio dongle
Model Number: i110
Operating Conditions: Transmitting (channel Mid)
Operator Name: DW
Comment: Horizontal

Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1

Frequency Range: 25MHz - 1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

pre 30M to 1G UVLB9168 FCC



Result Table_Single

Frequency (MHz)	QuasiPeak (dB µ V/m)	Average (dB µ V/m)	RMS (dB µ V/m)	MaxPeak (dB µ V/m)	MinPeak (dB µ V/m)
174.900000	27.8	---	---	---	---
400.300000	31.2	---	---	---	---

(continuation of the "Result Table_Single" table from column 6 ...)

Frequency (MHz)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)
174.900000	1000.000	120.000	256.0	H	0.0
400.300000	1000.000	120.000	100.0	H	180.0

(continuation of the "Result Table_Single" table from column 11 ...)

Frequency (MHz)	Corr. (dB)	Comment
174.900000	13.5	
400.300000	19.0	

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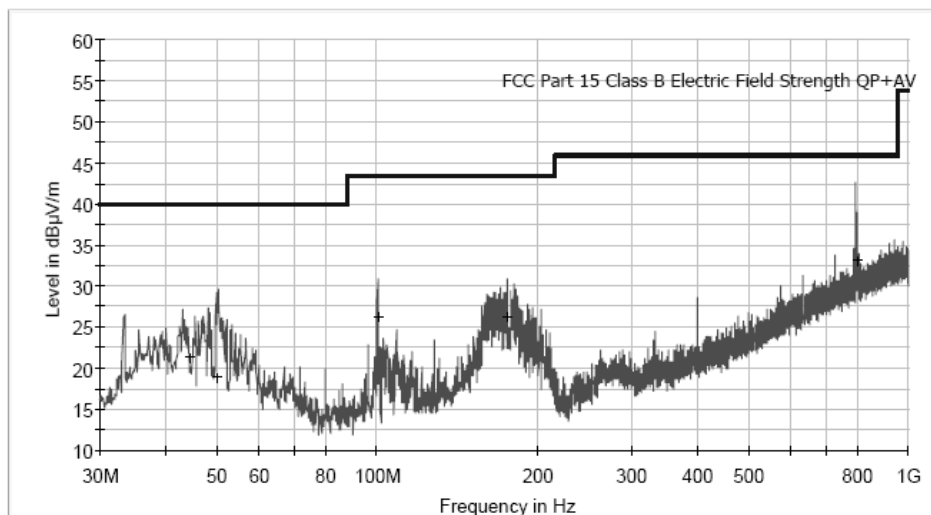
Test Information

EUT Name: Bluetooth audio dongle
Model Number: i110
Operating Conditions: Transmitting (channel Mid)
Operator Name: DW
Comment: Vertical

Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1
Frequency Range: 25MHz - 1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

pre 30M to 1G UVLB9168 FCC



Result Table_Single

Frequency (MHz)	QuasiPeak (dB µ V/m)	Average (dB µ V/m)	RMS (dB µ V/m)	MaxPeak (dB µ V/m)	MinPeak (dB µ V/m)
799.550000	33.1	---	---	---	---
44.300000	21.4	---	---	---	---
49.900000	18.9	---	---	---	---
100.100000	26.3	---	---	---	---
175.400000	26.3	---	---	---	---

(continuation of the "Result Table_Single" table from column 6 ...)

Frequency (MHz)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)
799.550000	1000.000	120.000	100.0	V	0.0	27.7
44.300000	1000.000	120.000	100.0	V	0.0	14.4
49.900000	1000.000	120.000	100.0	V	0.0	14.2
100.100000	1000.000	120.000	100.0	V	0.0	10.8
175.400000	1000.000	120.000	100.0	V	0.0	13.5

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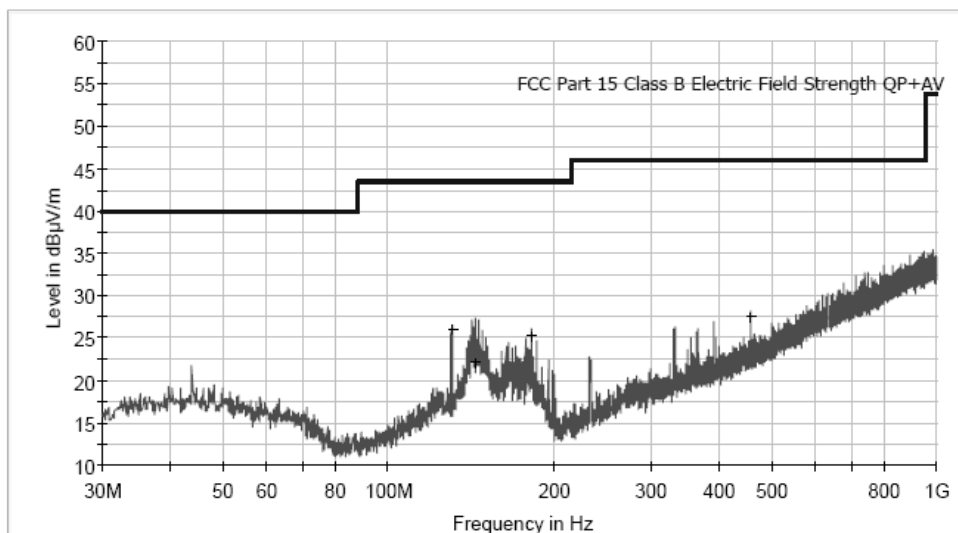
Test Information

EUT Name: Bluetooth audio dongle
Model Number: i110
Operating Conditions: Transmitting (channel high)
Operator Name: DW
Comment: Horizontal

Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1
Frequency Range: 25MHz - 1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

pre 30M to 1G UVLB9168 FCC



Result Table_Single

Frequency (MHz)	QuasiPeak (dB µ V/m)	Average (dB µ V/m)	RMS (dB µ V/m)	MaxPeak (dB µ V/m)	MinPeak (dB µ V/m)
130.500000	26.1	---	---	---	---
144.350000	22.1	---	---	---	---
182.300000	25.3	---	---	---	---
456.800000	27.5	---	---	---	---

(continuation of the "Result Table_Single" table from column 6 ...)

Frequency (MHz)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)
130.500000	1000.000	120.000	100.0	H	0.0	13.7
144.350000	1000.000	120.000	100.0	H	0.0	14.5
182.300000	1000.000	120.000	100.0	H	0.0	12.9
456.800000	1000.000	120.000	100.0	H	0.0	20.4

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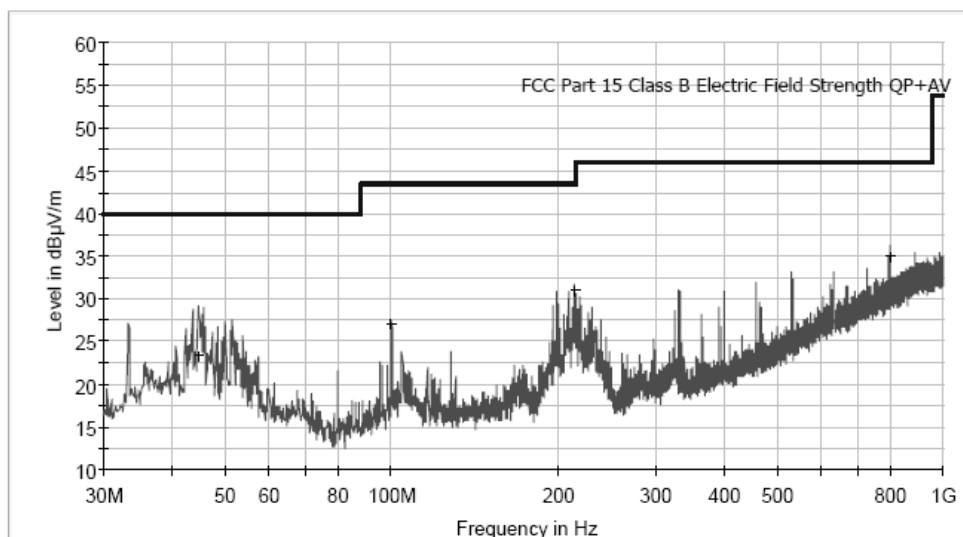
Test Information

EUT Name: Bluetooth audio dongle
Model Number: i110
Operating Conditions: Transmitting (channel high)
Operator Name: DW
Comment: Vertical

Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1
Frequency Range: 25MHz - 1GHz
Receiver: TUV ESCI 3
Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

pre 30M to 1G UVLB9168 FCC



Result Table_Single

Frequency (MHz)	QuasiPeak (dB µ V/m)	Average (dB µ V/m)	RMS (dB µ V/m)	MaxPeak (dB µ V/m)	MinPeak (dB µ V/m)
44.550000	23.5	---	---	---	---
99.950000	27.1	---	---	---	---
214.650000	31.0	---	---	---	---
799.550000	35.1	---	---	---	---

(continuation of the "Result Table_Single" table from column 6 ...)

Frequency (MHz)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)
44.550000	1000.000	120.000	100.0	V	180.0	14.4
99.950000	1000.000	120.000	100.0	V	180.0	10.8
214.650000	1000.000	120.000	100.0	V	180.0	12.5
799.550000	1000.000	120.000	100.0	V	180.0	27.7

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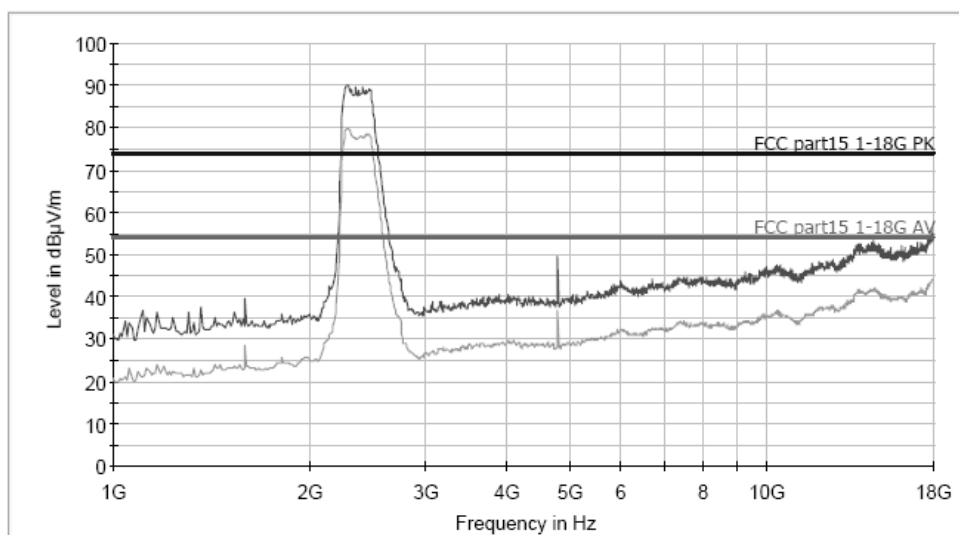
EMC32 Report

Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: TX
Operator Name: KK
Comment: channel low, horizontal

Subrange 1

Frequency Range: 1GHz - 18GHz
Receiver: TUV FSP 30
Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



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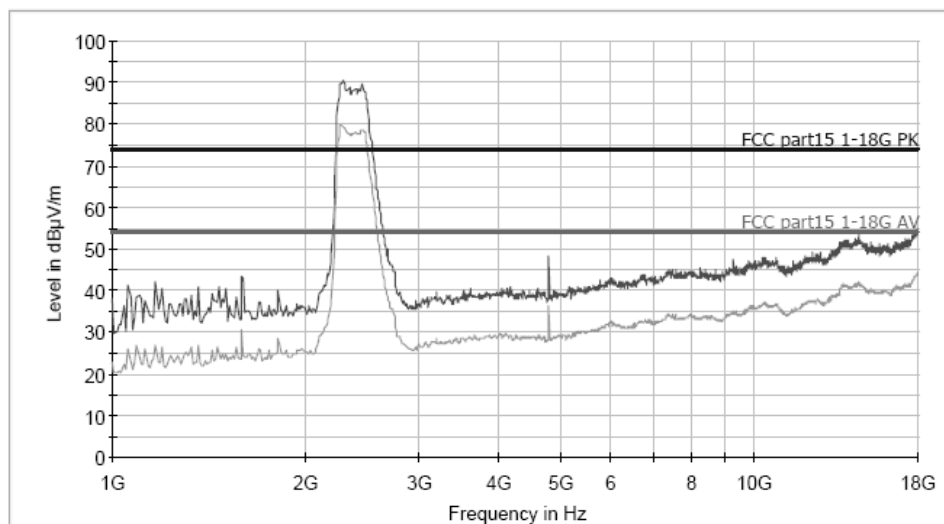
EMC32 Report

Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: TX
Operator Name: KK
Comment: channel low, vertical

Subrange 1

Frequency Range: 1GHz - 18GHz
Receiver: TUV FSP 30
Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



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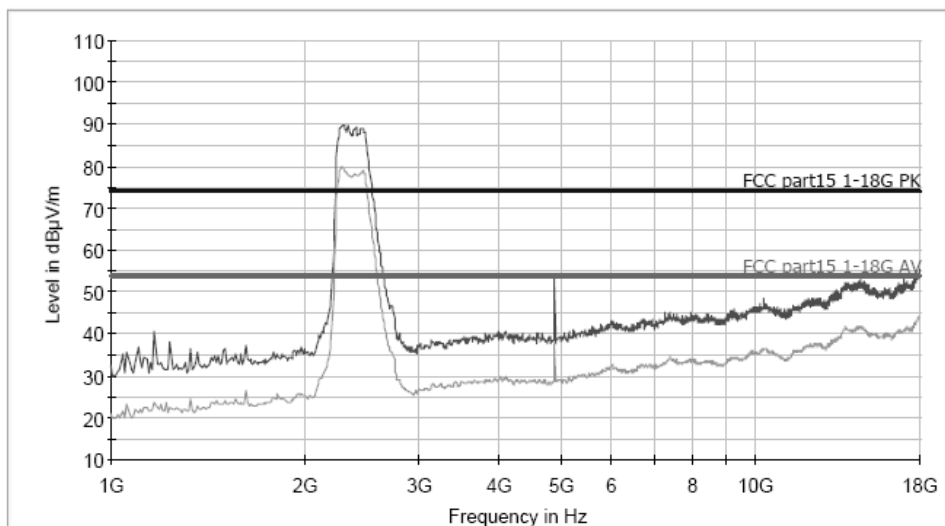
EMC32 Report

Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: TX
Operator Name: KK
Comment: channel middle, horizontal

Subrange 1

Frequency Range: 1GHz - 18GHz
Receiver: TUV FSP 30
Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



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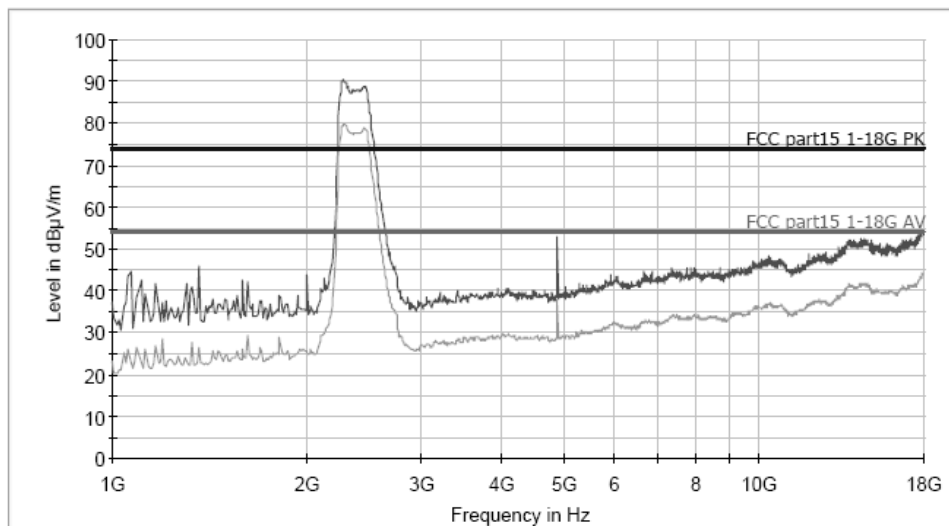
EMC32 Report

Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: TX
Operator Name: KK
Comment: channel middle, vertical

Subrange 1

Frequency Range: 1GHz - 18GHz
Receiver: TUV FSP 30
Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



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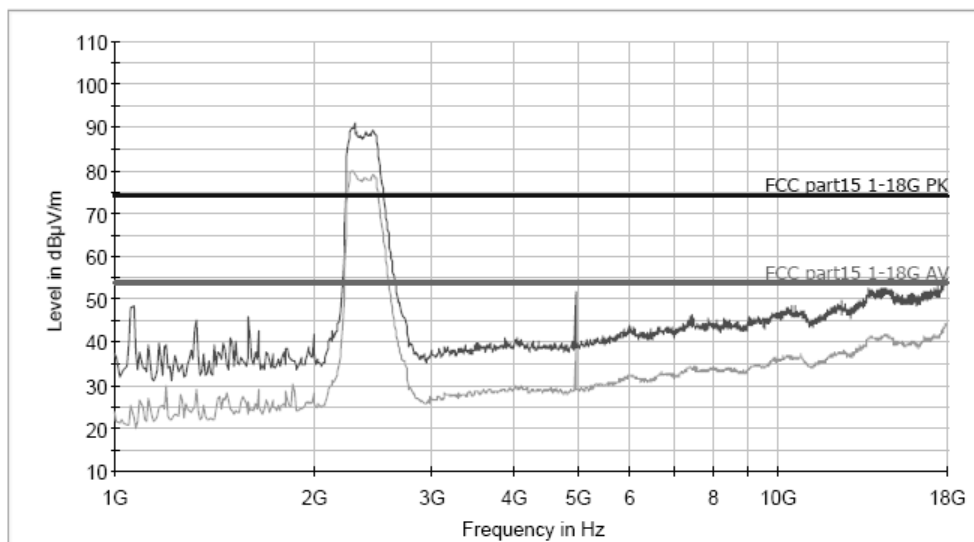
EMC32 Report

Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: TX
Operator Name: KK
Comment: channel high, vertical

Subrange 1

Frequency Range: 1GHz - 18GHz
Receiver: TUV FSP 30
Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



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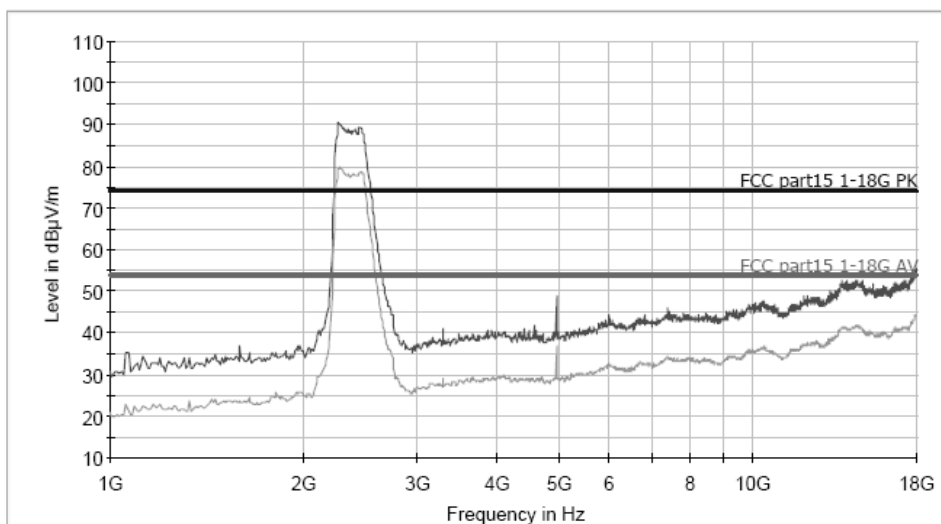
EMC32 Report

Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: TX
Operator Name: KK
Comment: channel high, horizontal

Subrange 1

Frequency Range: 1GHz - 18GHz
Receiver: TUV FSP 30
Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906



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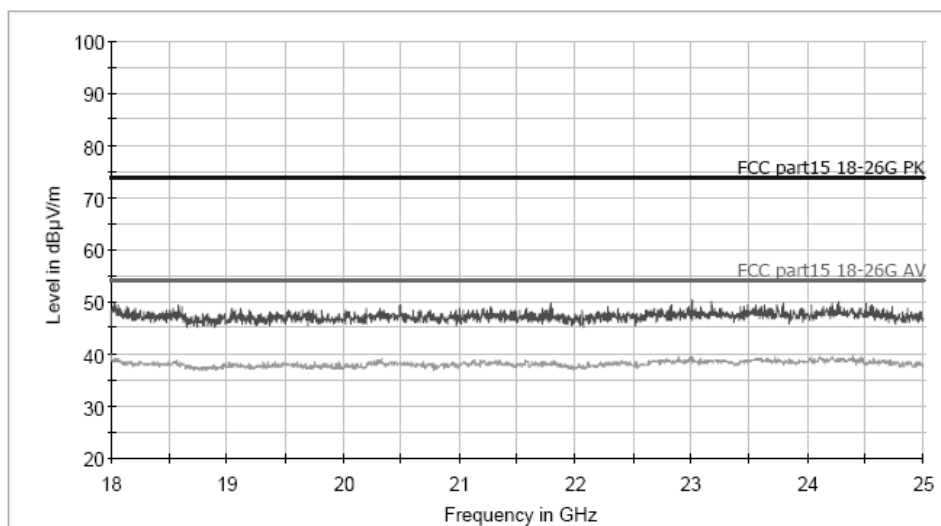
Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: TX
Operator Name: KK
Comment: channel low, horizontal

Hardware Setup: TUV SAC 18G to 26G 3160-09 - [EMI radiated]

Subrange 1
Frequency Range: 18GHz - 26GHz
Receiver: TUV FSP 30
Transducer: TUV SAC 3160-09 / TUV FSP 30-TUV SAC 3160-09

Pre TUV 18 to 26.5 3160-09



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Test Information

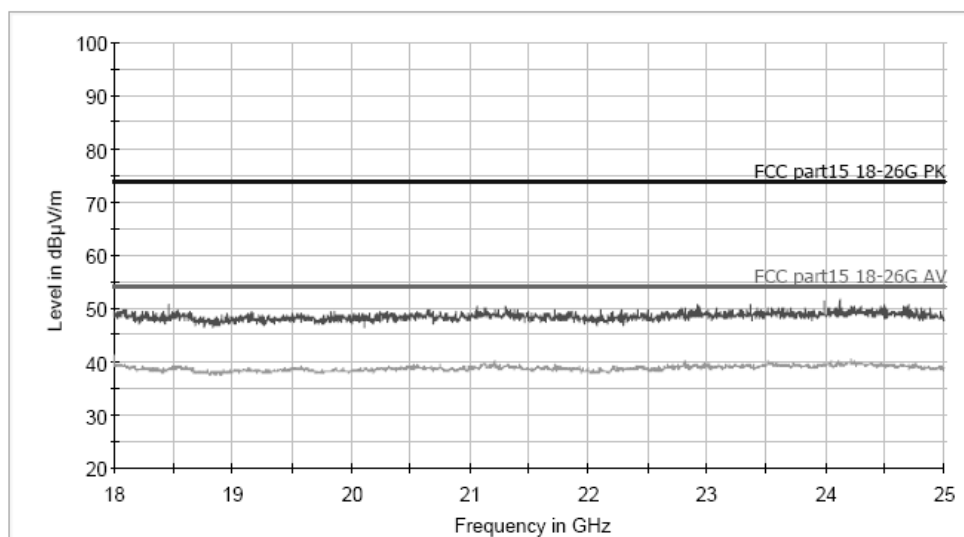
Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: TX
Operator Name: KK
Comment: channel lo, vertical

Hardware Setup: TUV SAC 18G to 26G 3160-09 - [EMI radiated]

Subrange 1

Frequency Range: 18GHz - 26GHz
Receiver: TUV FSP 30
Transducer: TUV SAC 3160-09 / TUV FSP 30-TUV SAC 3160-09

Pre TUV 18 to 26.5 3160-09



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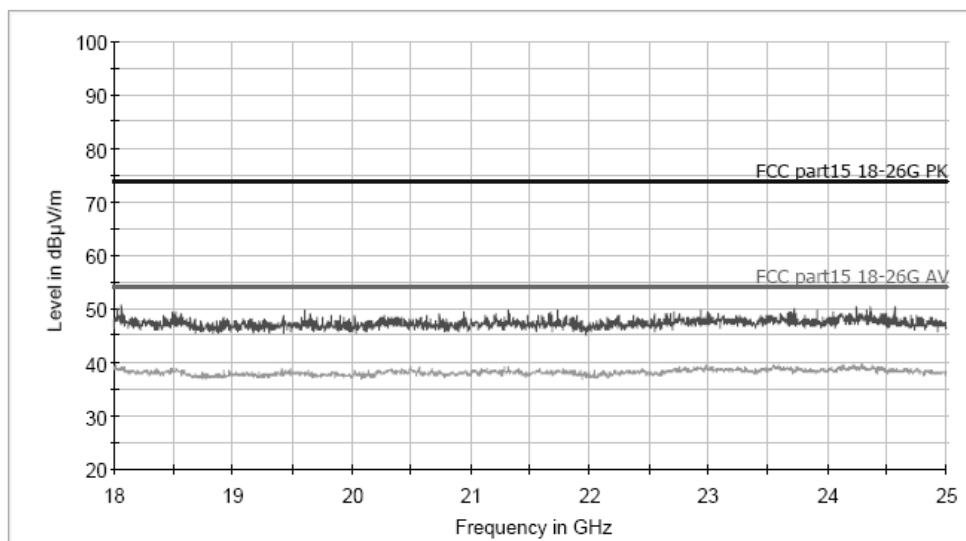
Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: TX
Operator Name: KK
Comment: channel middle, horizontal

Hardware Setup: TUV SAC 18G to 26G 3160-09 - [EMI radiated]

Subrange 1
Frequency Range: 18GHz - 26GHz
Receiver: TUV FSP 30
Transducer: TUV SAC 3160-09 / TUV FSP 30-TUV SAC 3160-09

Pre TUV 18 to 26.5 3160-09



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Test Information

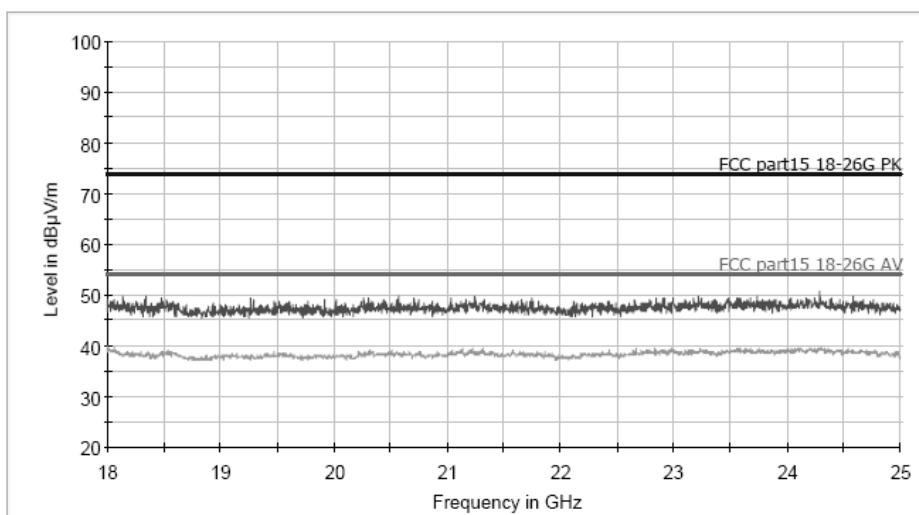
Manufacturer Name:	bluetooth dongle
Model Number:	i110
Operating Conditions:	TX
Operator Name:	KK
Comment:	channel middle, vertical

Hardware Setup: TUV SAC 18G to 26G 3160-09 - [EMI radiated]

Subrange 1

Frequency Range:	18GHz - 26GHz
Receiver:	TUV FSP 30
Transducer:	TUV SAC 3160-09 / TUV FSP 30-TUV SAC 3160-09

Pre TUV 18 to 26.5 3160-09



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Test Information

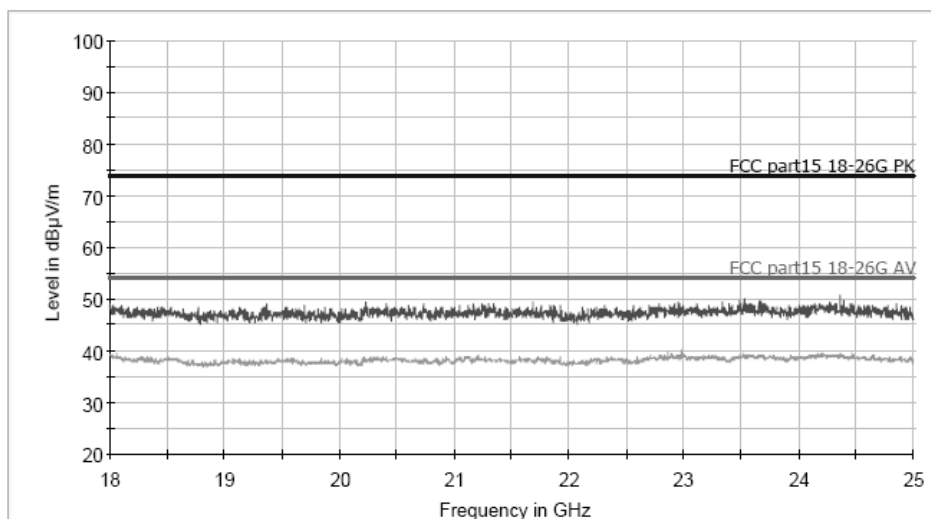
Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: TX
Operator Name: KK
Comment: channel high, horizontal

Hardware Setup: TUV SAC 18G to 26G 3160-09 - [EMI radiated]

Subrange 1

Frequency Range: 18GHz - 26GHz
Receiver: TUV FSP 30
Transducer: TUV SAC 3160-09 / TUV FSP 30-TUV SAC 3160-09

Pre TUV 18 to 26.5 3160-09



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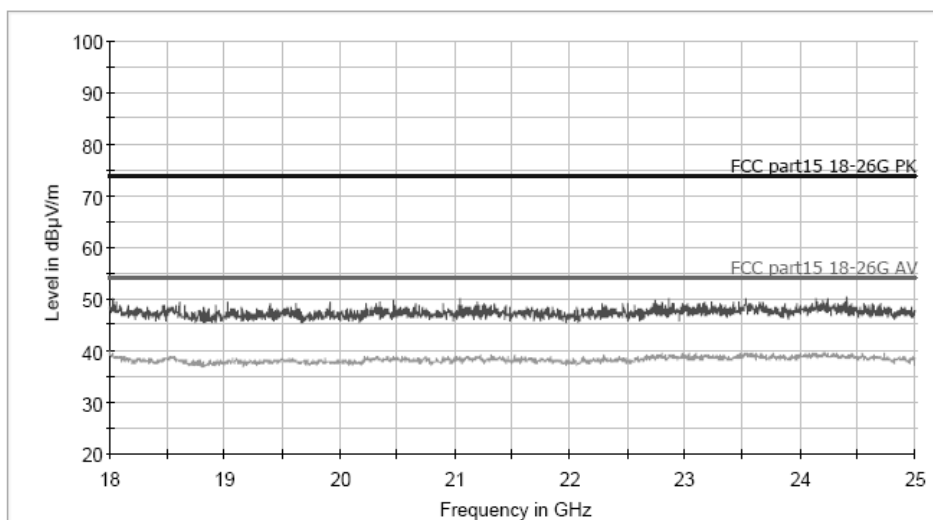
Test Information

Manufacturer Name: bluetooth dongle
Model Number: i110
Operating Conditions: TX
Operator Name: KK
Comment: channel high, vertical

Hardware Setup: TUV SAC 18G to 26G 3160-09 - [EMI radiated]

Subrange 1
Frequency Range: 18GHz - 26GHz
Receiver: TUV FSP 30
Transducer: TUV SAC 3160-09 / TUV FSP 30-TUV SAC 3160-09

Pre TUV 18 to 26.5 3160-09



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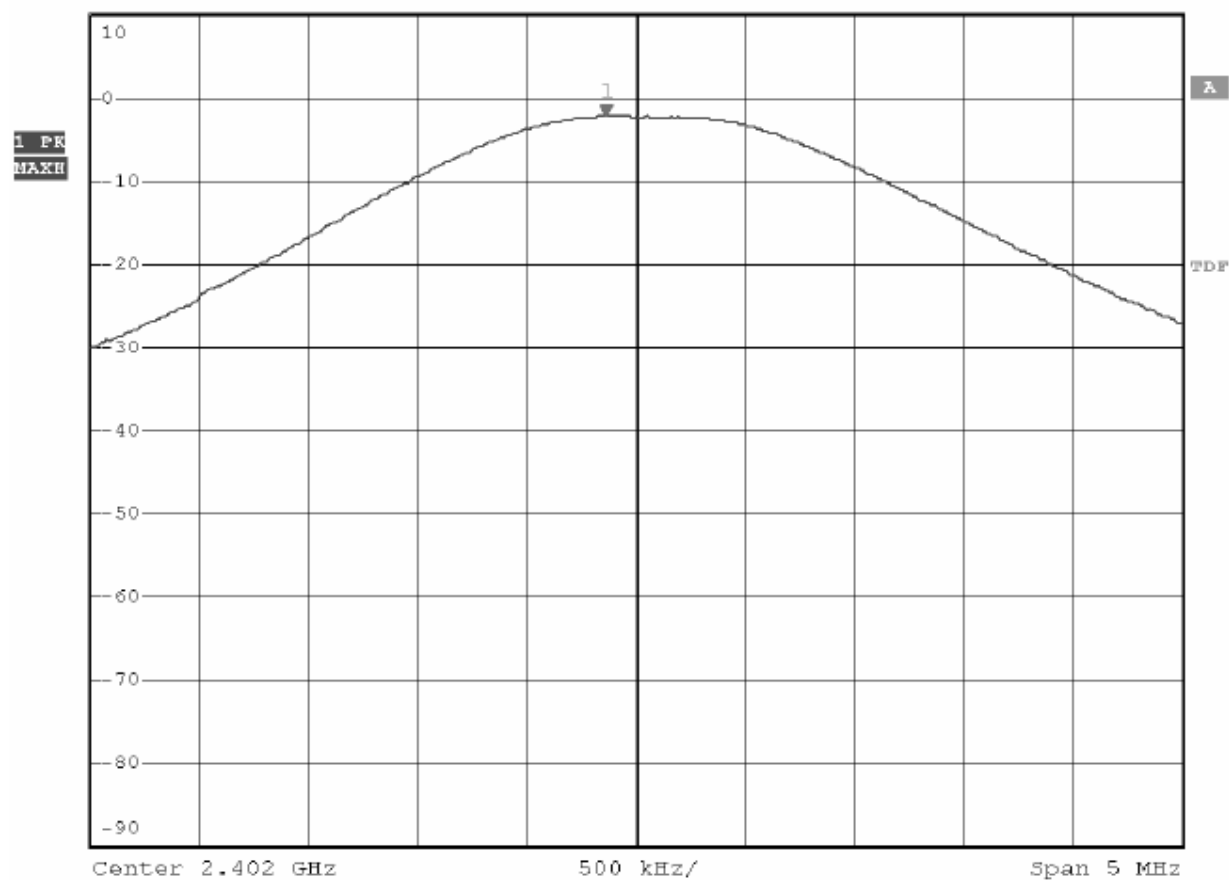
Maximum Peak Output power

Output peak power – lo



*RBW 1 MHz Marker 1 [T1]
VBW 3 MHz -2.31 dBm

Ref 10 dBm Att 40 dB SWT 2.5 ms 2.401860000 GHz



down 3dB

Date: 26.JAN.2007 16:02:48

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Output peak power – mid



*RBW 1 MHz

Marker 1 [T1]

VBW 3 MHz

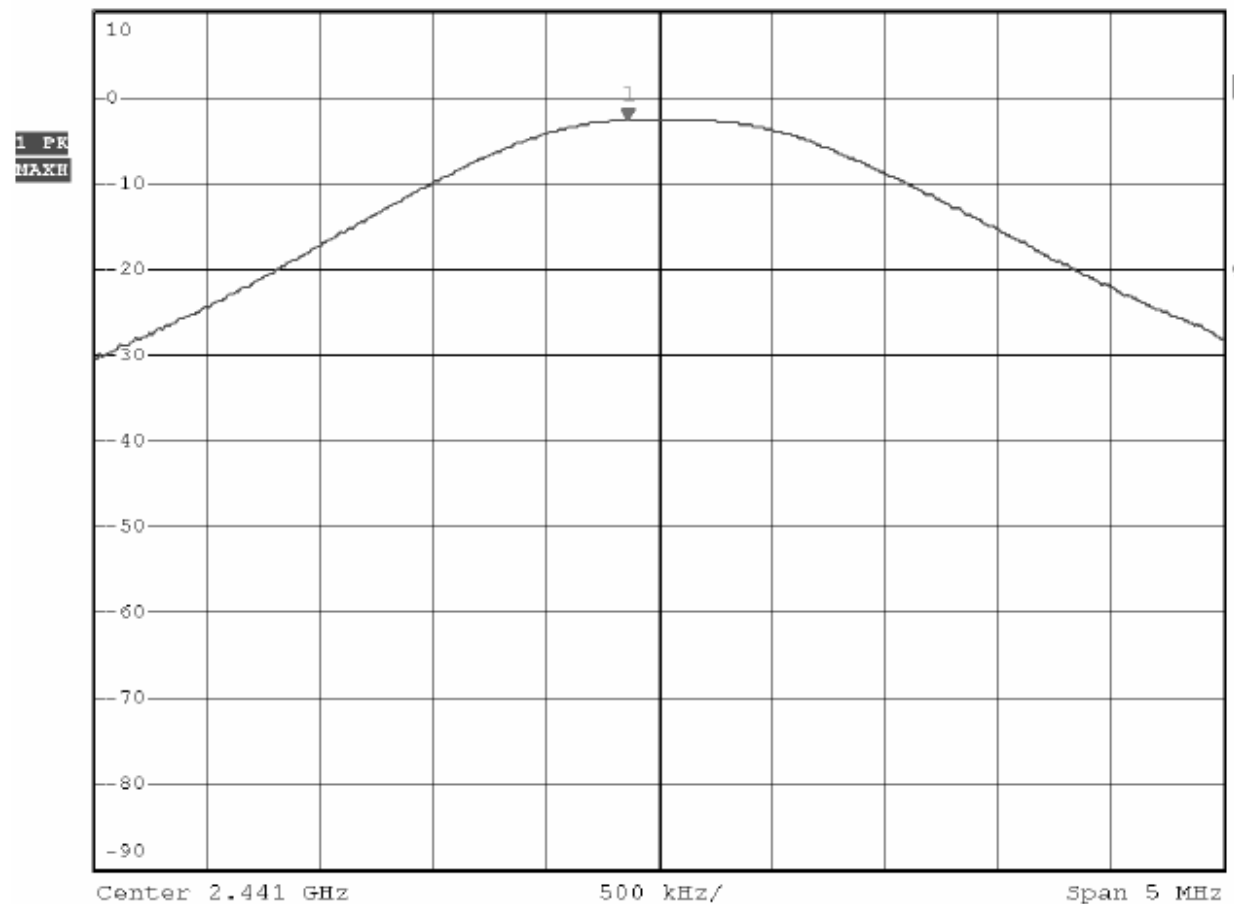
-2.76 dBm

SWT 2.5 ms

2.440860000 GHz

Ref 10 dBm

Att 40 dB



down 3dB

Date: 26.JAN.2007 16:00:50

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Output peak power – hi



*RBW 1 MHz

Marker 1 [T1]

VBW 3 MHz

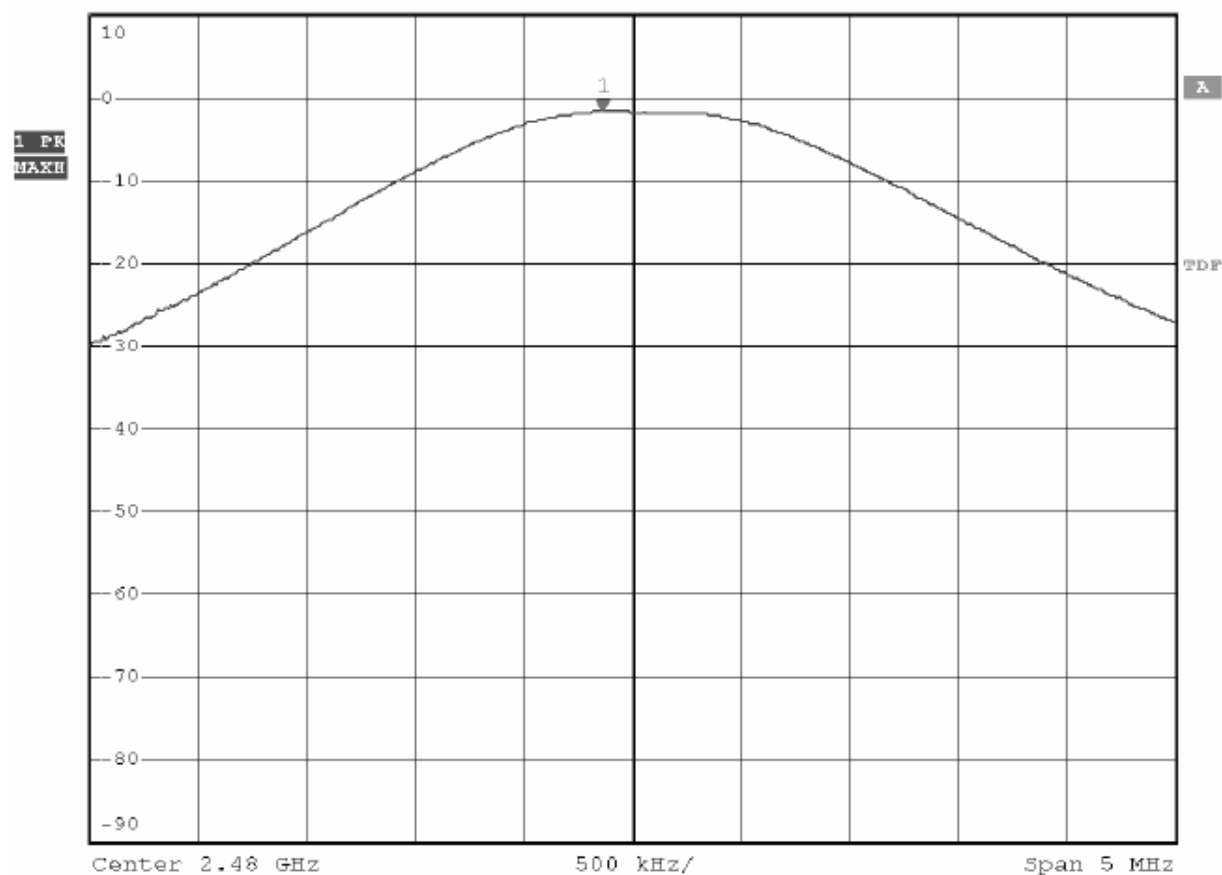
-1.76 dBm

SWT 2.5 ms

2.479860000 GHz

Ref 10 dBm

Att 40 dB



down 3dB

Date: 26.JAN.2007 15:59:30

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20dB Bandwidth

Channel BW – 10



*RBW 30 kHz Marker 1 [T1]
VBW 100 kHz -3.26 dBm
SWT 2.5 ms 2.402020000 GHz

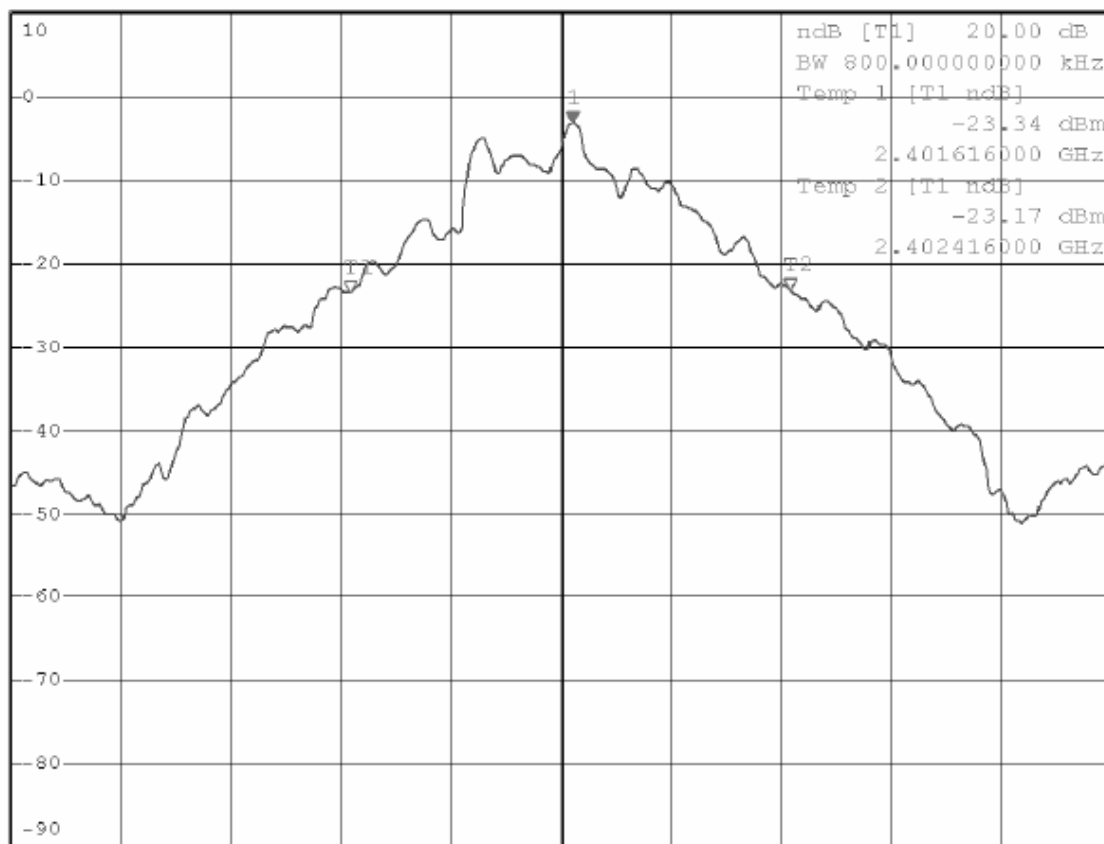
Ref 10 dBm

Att 40 dB

SWT 2.5 ms

2.402020000 GHz

1 PK
MAXH



Center 2.402 GHz

200 kHz/

Span 2 MHz

down 3dB

Date: 26.JAN.2007 15:35:36

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Channel BW – mid



*RBW 30 kHz Marker 1 [T1]
VBW 100 kHz -3.80 dBm
SWT 2.5 ms 2.441020000 GHz

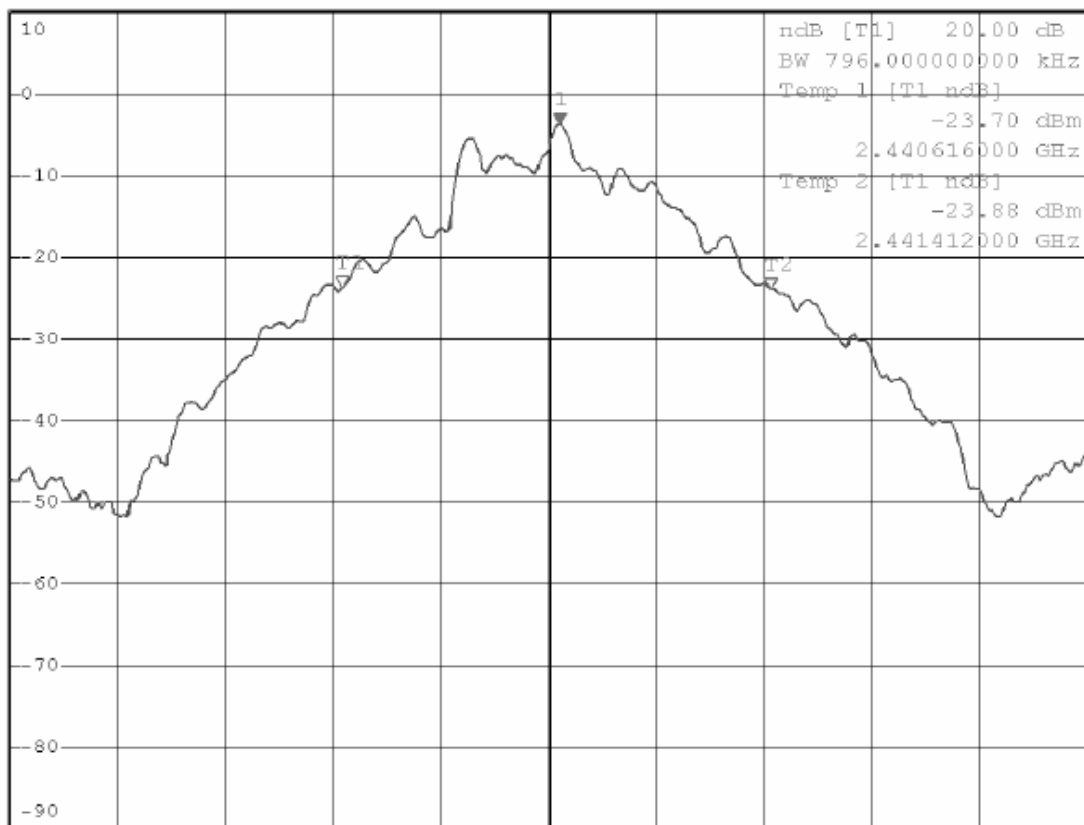
Ref 10 dBm

Att 40 dB

SWT 2.5 ms

2.441020000 GHz

1 PK
MAXH



Center 2.441 GHz

200 kHz/

Span 2 MHz

down 3dB

Date: 26.JAN.2007 15:36:46

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Channel BW – hi

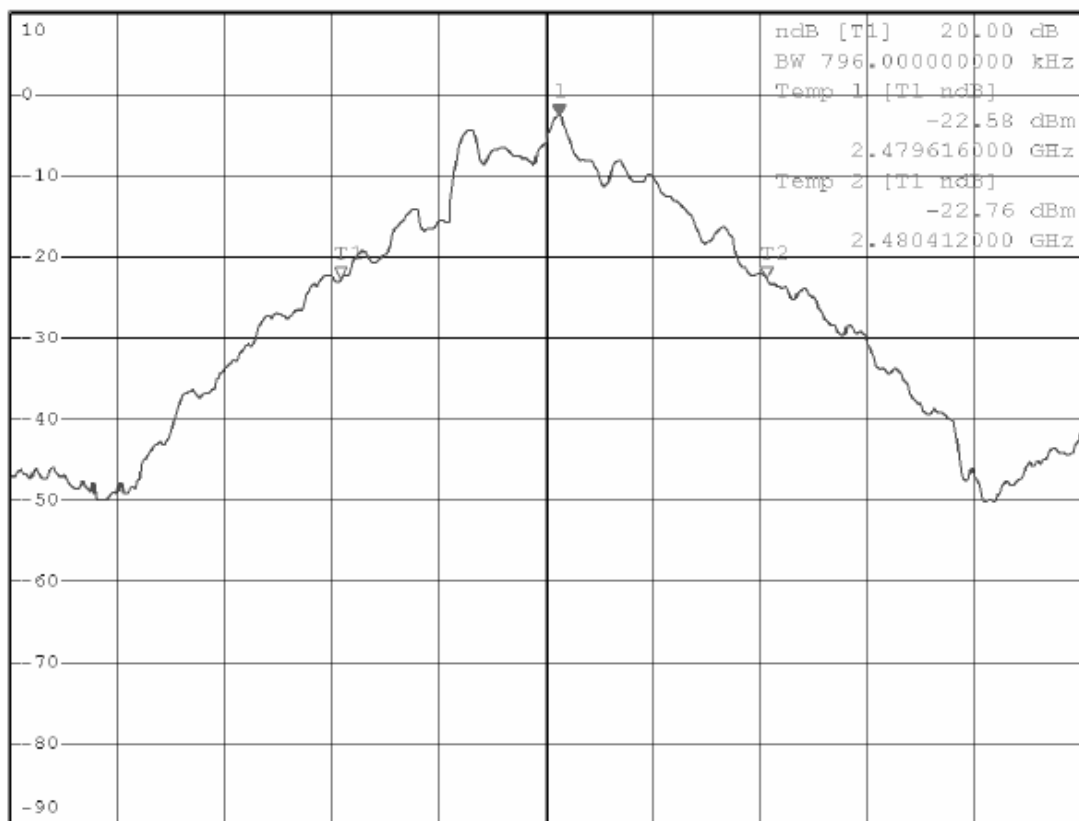


*RBW 30 kHz Marker 1 [T1]
VBW 100 kHz -2.76 dBm
SWT 2.5 ms 2.480024000 GHz

Ref 10 dBm

Att 40 dB

1 PK
MAXH



Center 2.48 GHz

200 kHz/

Span 2 MHz

down 3dB

Date: 26.JAN.2007 15:37:44

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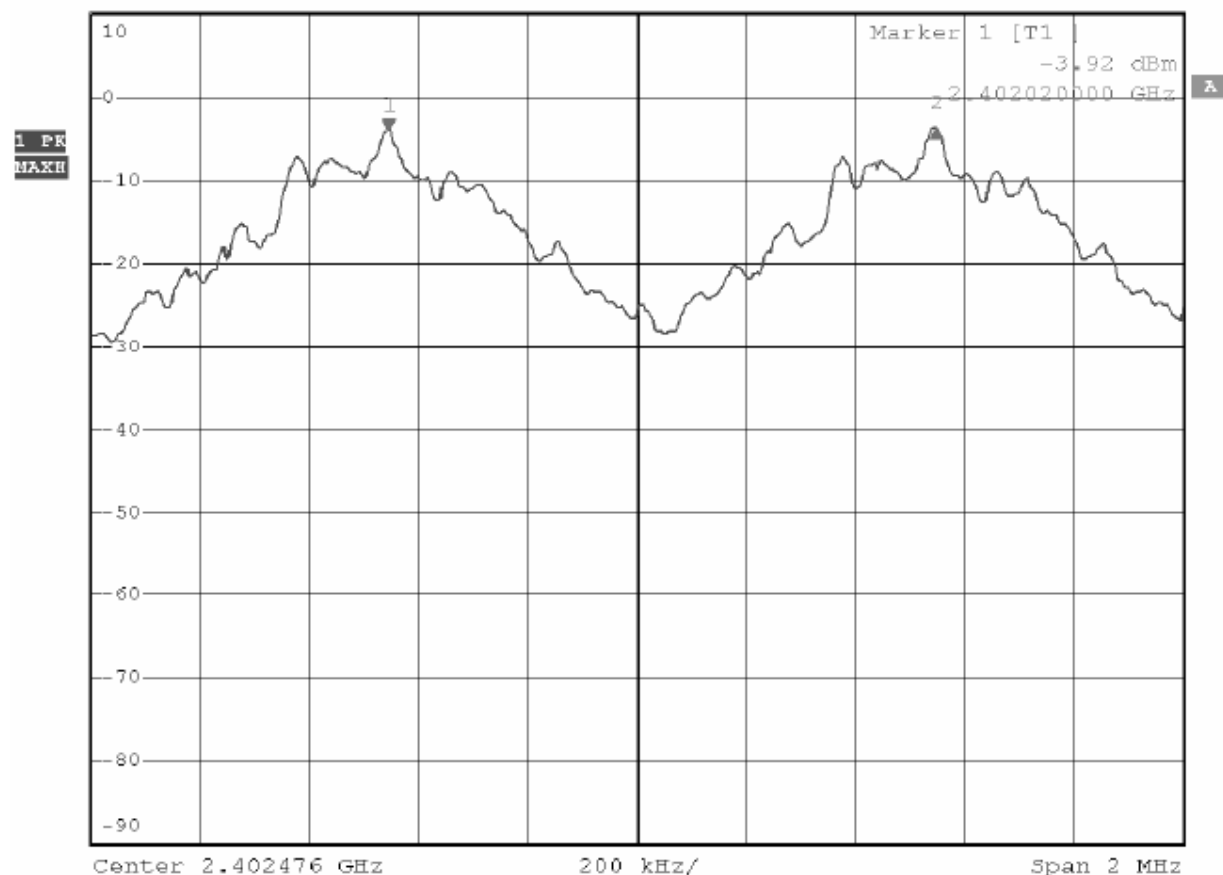
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Hopping Channel Carrier Frequency Separation

Hopping channel separation- Channel low



*RBW 30 kHz Delta 2 [T1]
VBW 100 kHz 0.18 dB
Ref 10 dBm Att 40 dB SWT 2.5 ms 1.004000000 MHz



down 3dB

Date: 26.JAN.2007 15:13:24

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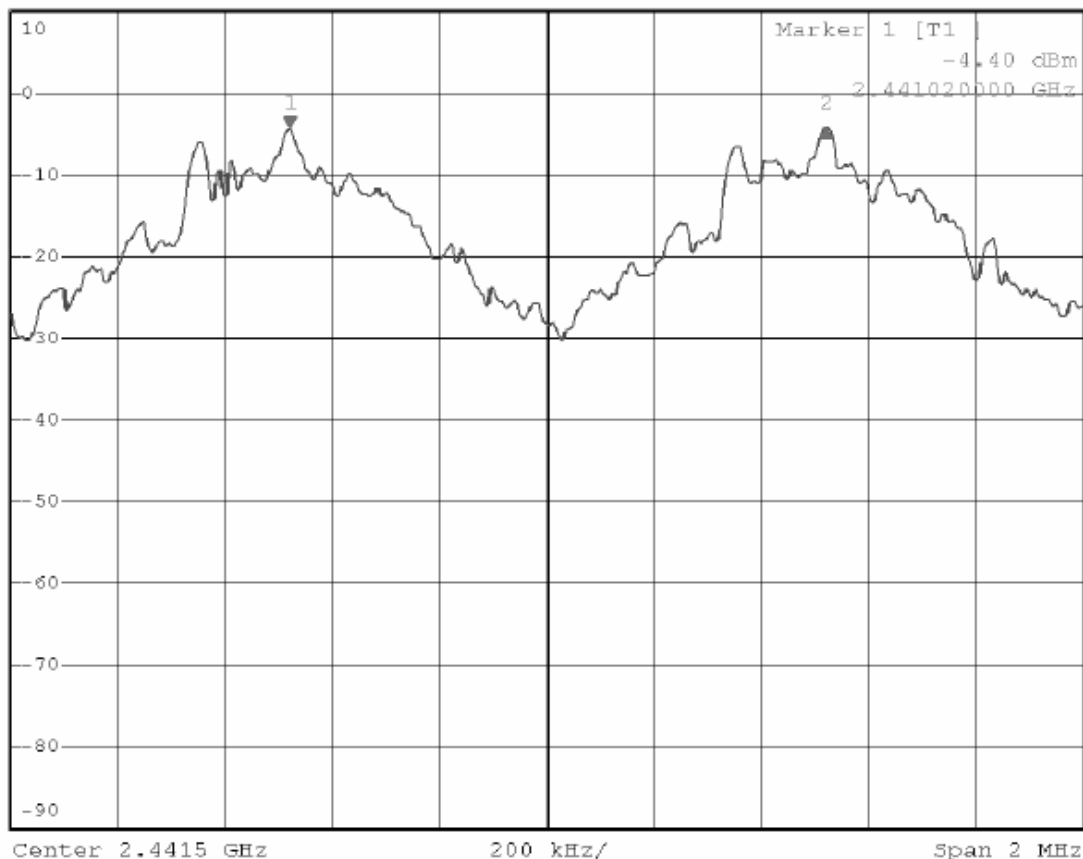
Hopping channel separation- Channel mid



*RBW 30 kHz Delta 2 [T1]
VBW 100 kHz 0.17 dB
SWT 2.5 ms 1.000000000 MHz

Ref 10 dBm

Att 40 dB



down 3dB

Date: 26.JAN.2007 15:17:18

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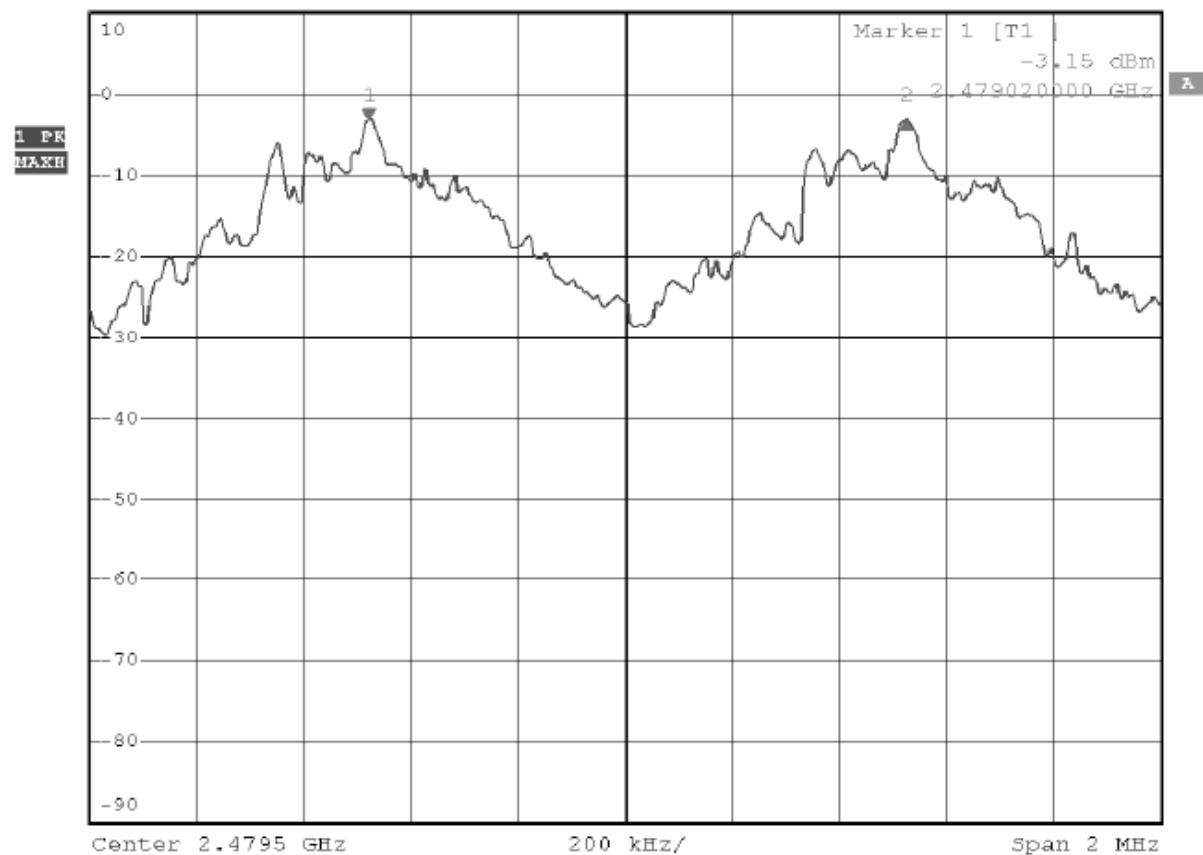
Hopping channel separation- Channel hi



*RBW 30 kHz Delta 2 [T1]
VBW 100 kHz -0.08 dB
SWT 2.5 ms 1.004000000 MHz

Ref 10 dBm

Att 40 dB



down 3dB

Date: 26.JAN.2007 15:19:26

Prüfbericht - Nr.:

16009099 001

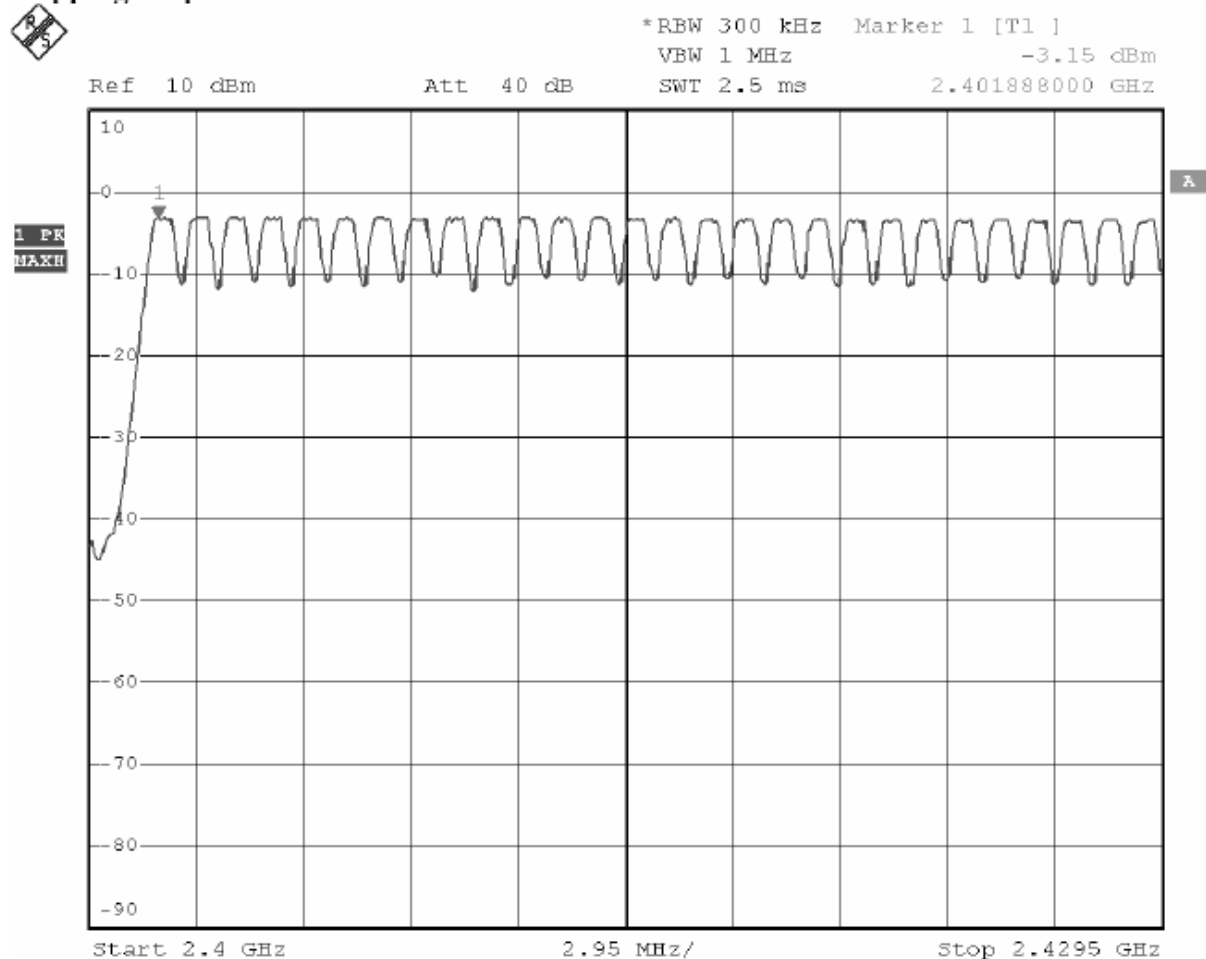
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Number of Hopping Frequency Used (totally 79 hopping frequency channels used)

Hopping frequencies – low



down 3dB

Date: 26.JAN.2007 15:21:51

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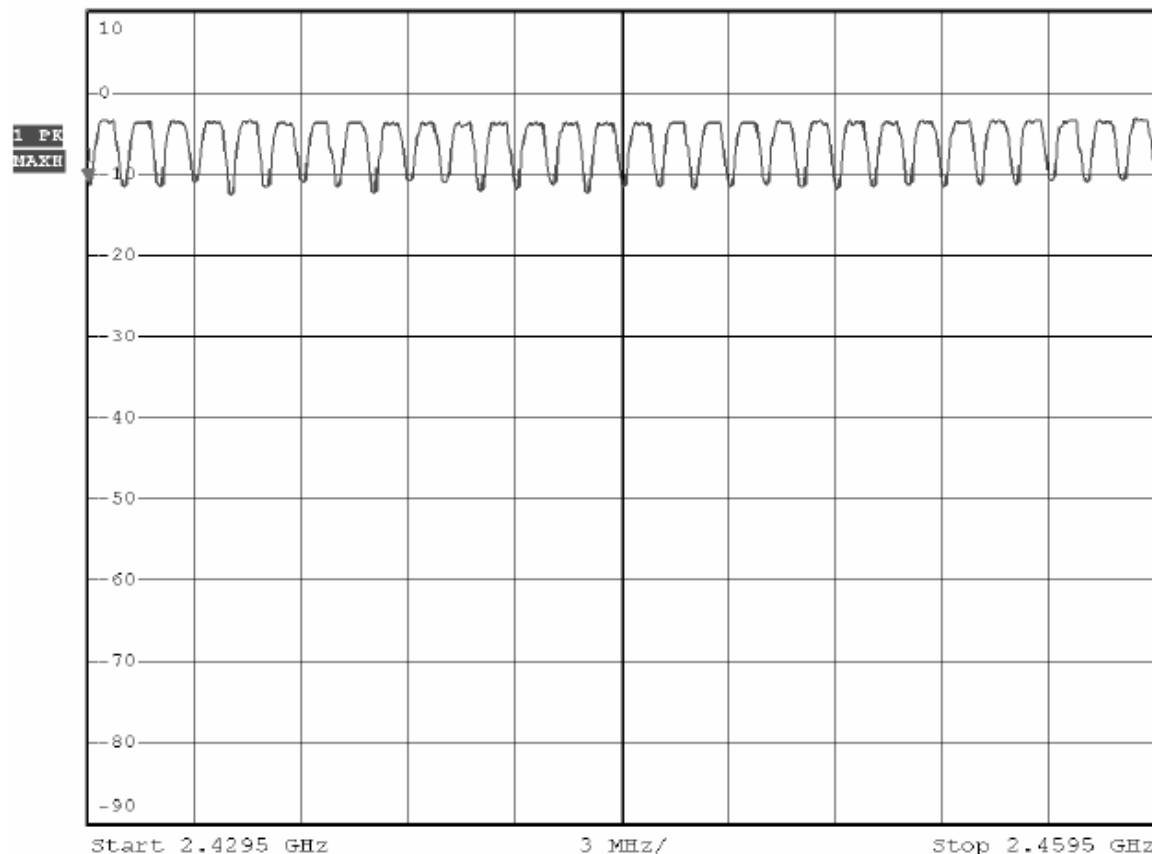
Hopping frequencies – mid



*RBW 300 kHz Marker 1 [T1]
VBW 1 MHz -10.87 dBm
SWT 2.5 ms 2.429500000 GHz

Ref 10 dBm

Att 40 dB



down 3dB

Date: 26.JAN.2007 15:23:37

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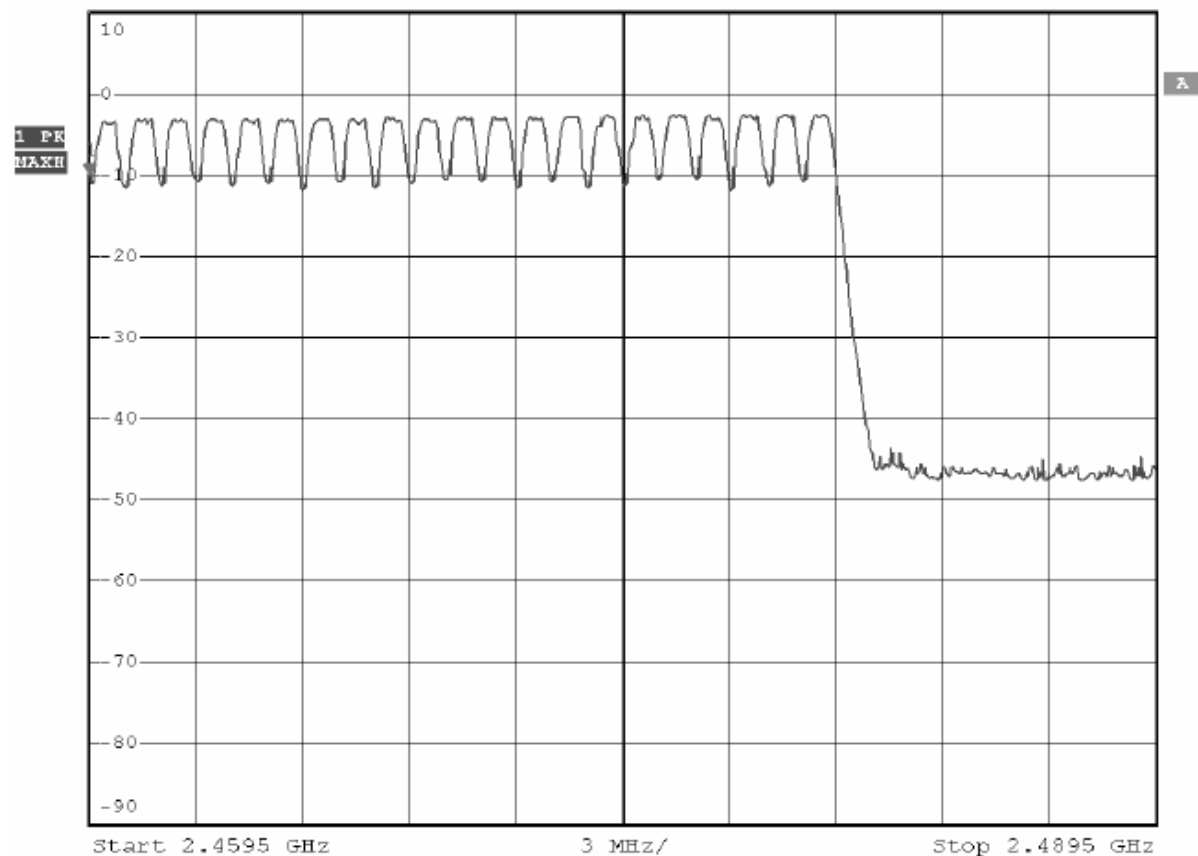
Hopping frequencies – hi



*RBW 300 kHz Marker 1 [T1]
VBW 1 MHz -10.15 dBm
SWT 2.5 ms 2.459500000 GHz

Ref 10 dBm

Att 40 dB



down 3dB

Date: 26.JAN.2007 15:25:08

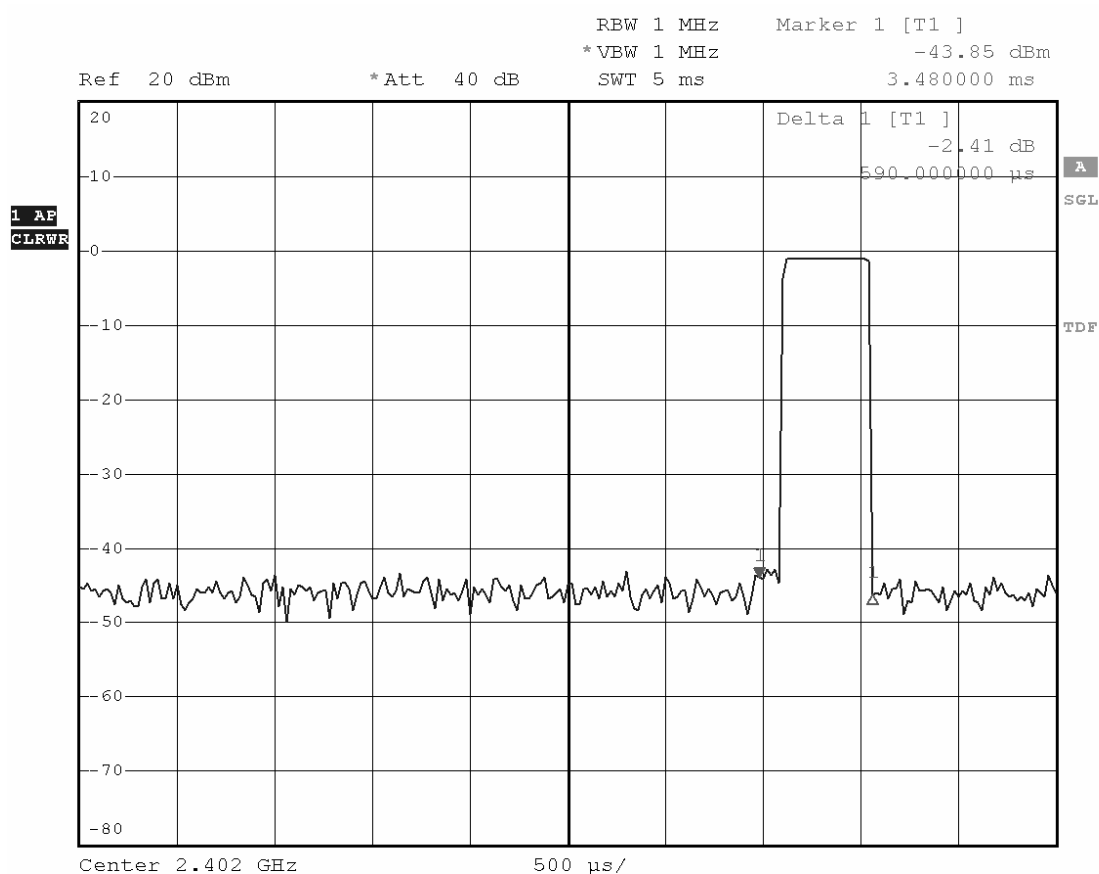
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Time of Occupancy (Dwell Time)

DH1 mode (channel low)



down 3dB

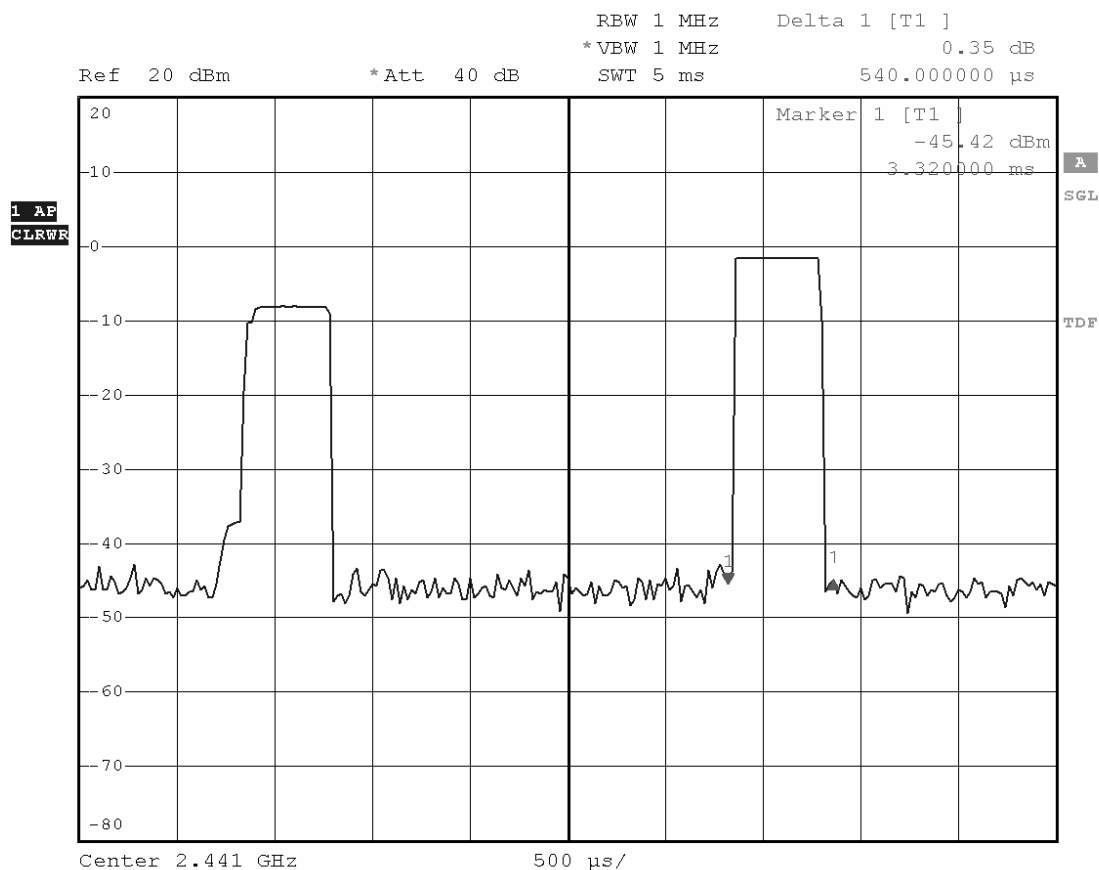
Date: 13.FEB.2007 16:03:35

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DH1 mode (channel mid)



down 3dB

Date: 13.FEB.2007 16:05:57

Prüfbericht - Nr.:

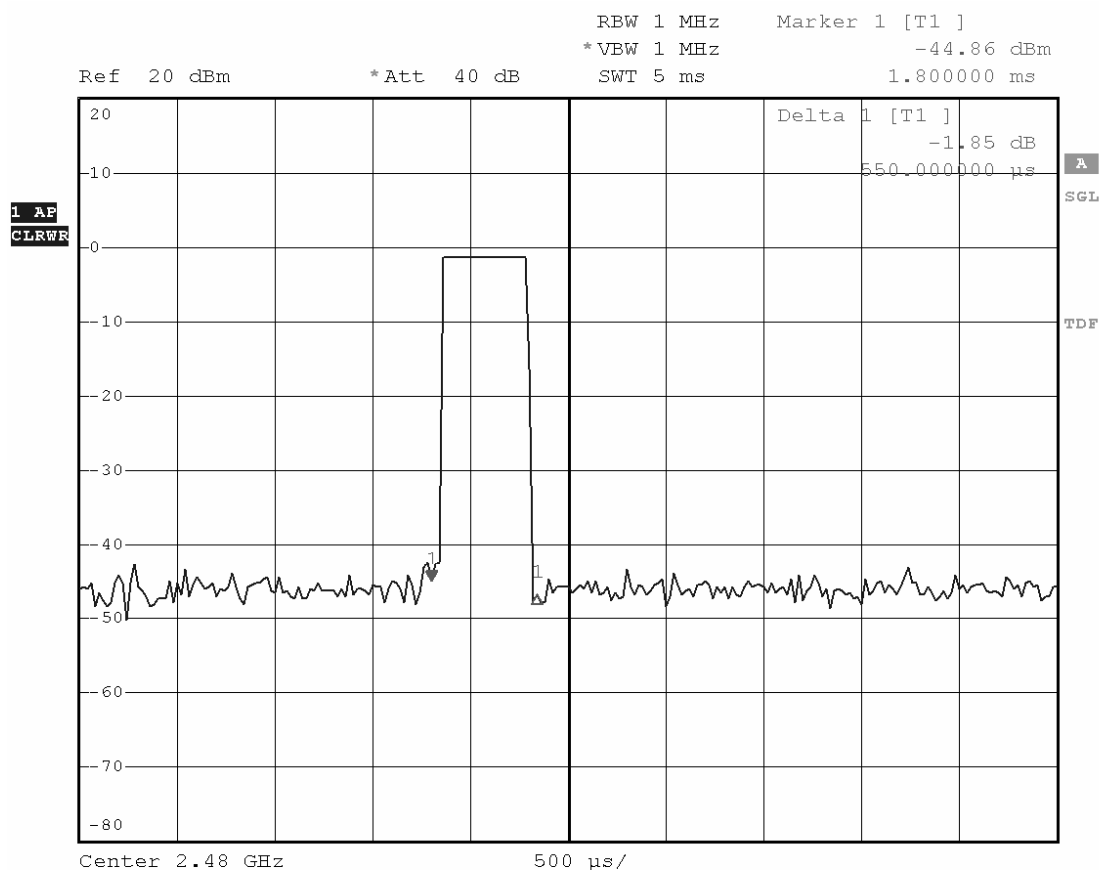
16009099 001

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DH1 mode (channel high)



down 3dB

Date: 13.FEB.2007 16:07:27

Prüfbericht - Nr.:

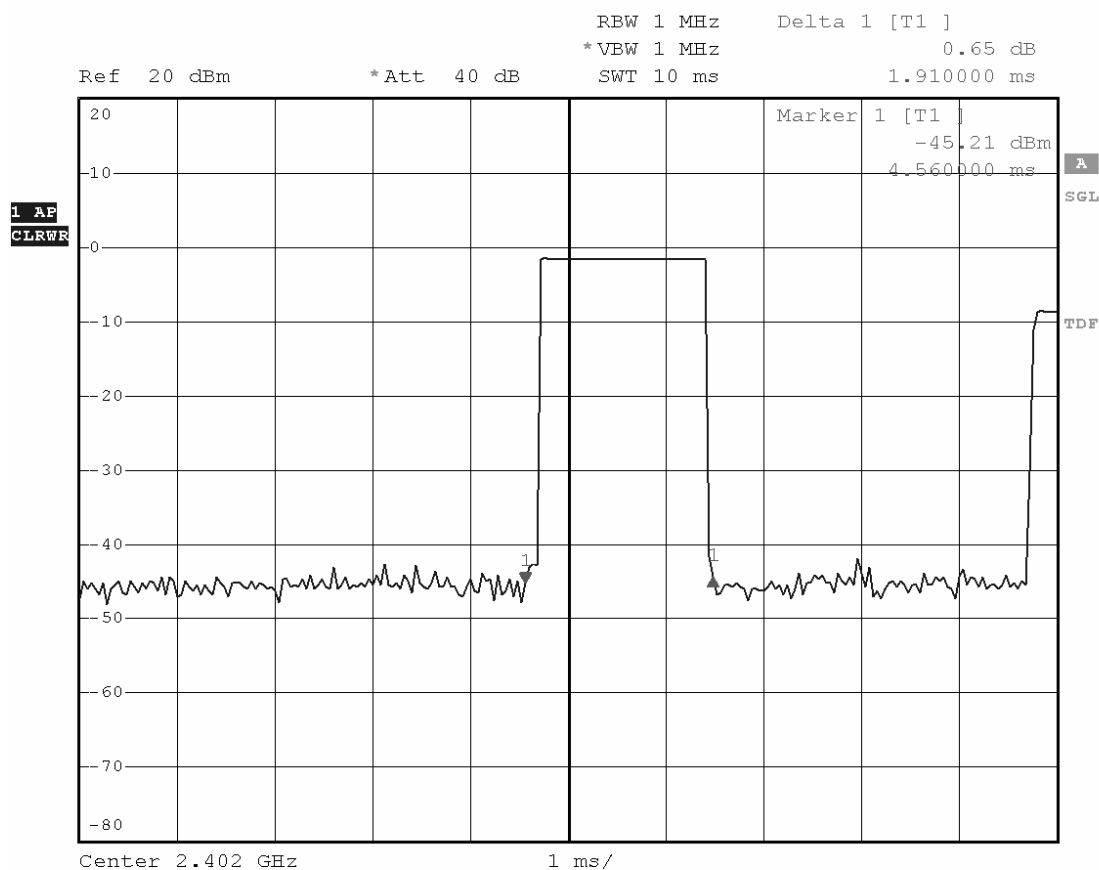
16009099 001

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DH3 mode (channel low)



down 3dB

Date: 13.FEB.2007 16:14:04

Prüfbericht - Nr.:

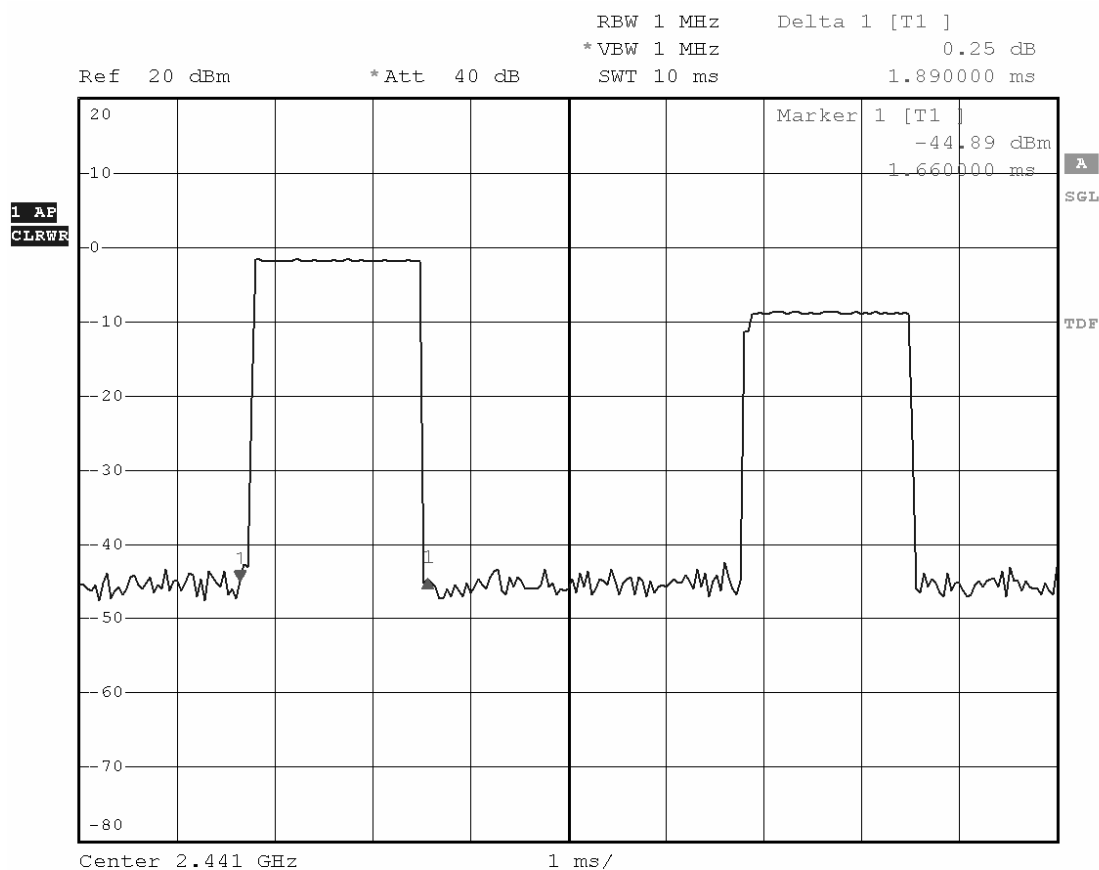
16009099 001

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DH3 mode (channel mid)



down 3dB

Date: 13.FEB.2007 16:11:18

Prüfbericht - Nr.:

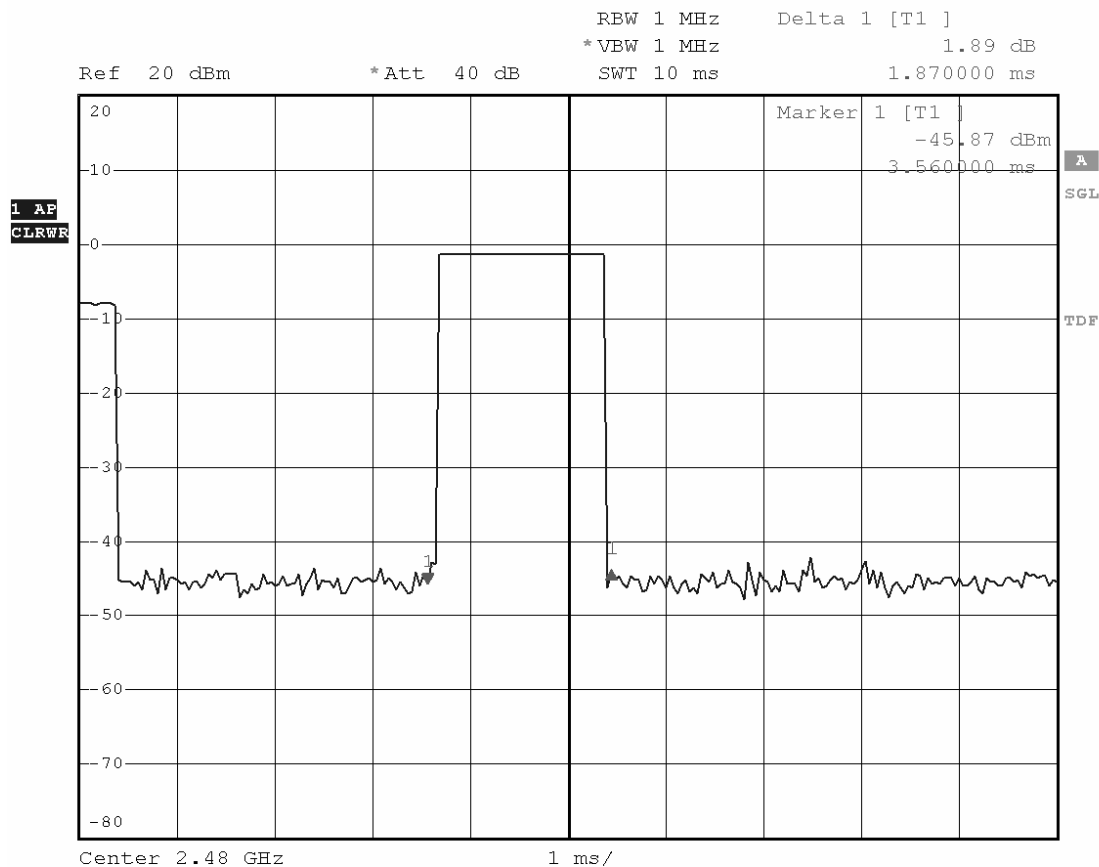
16009099 001

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DH3 mode (channel high)



down 3dB

Date: 13.FEB.2007 16:10:02

Prüfbericht - Nr.:

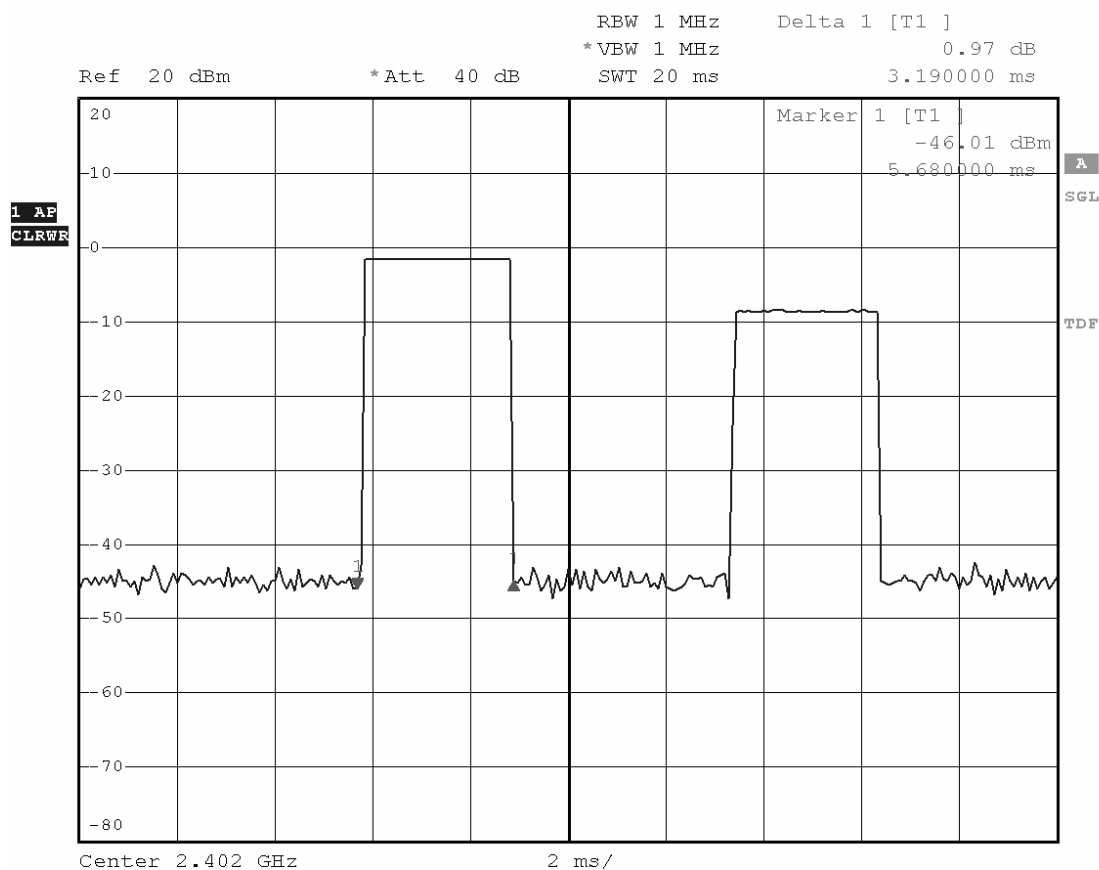
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DH5 mode (channel low)



down 3dB

Date: 13.FEB.2007 16:17:05

Prüfbericht - Nr.:

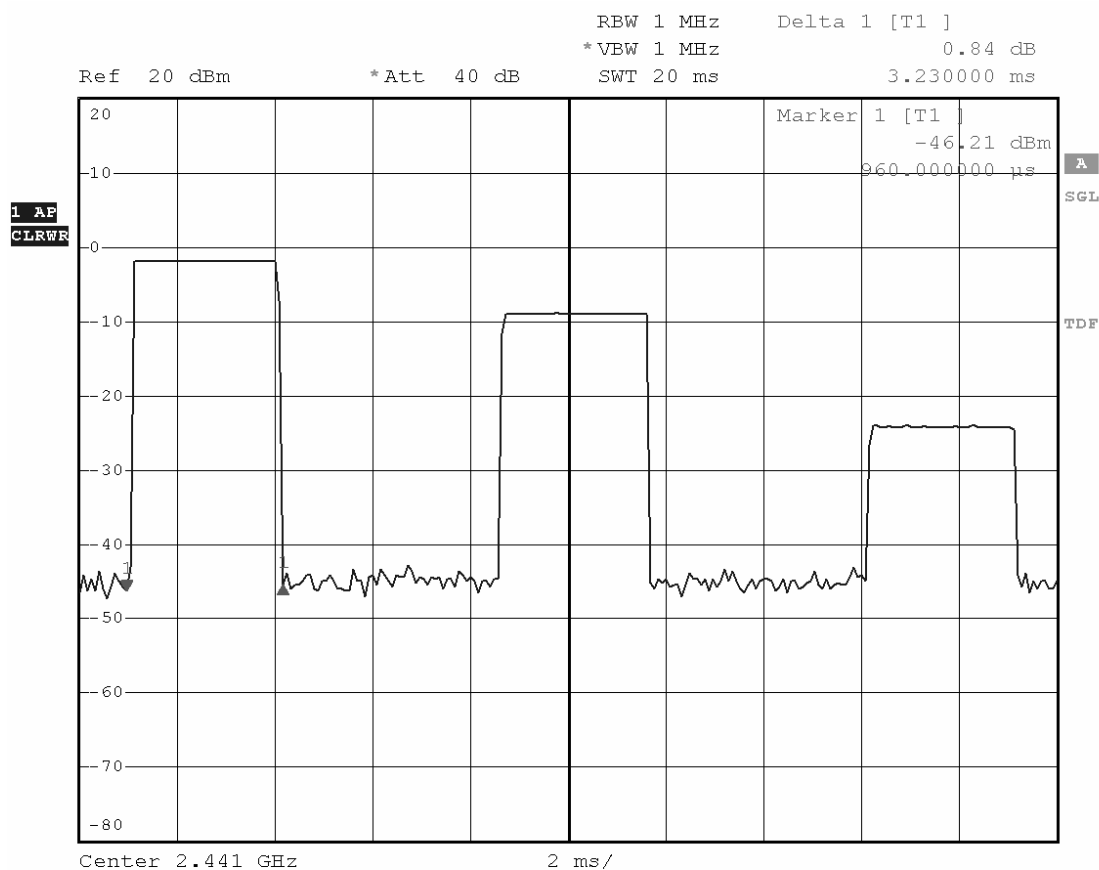
16009099 001

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DH5 mode (channel mid)



down 3dB

Date: 13.FEB.2007 16:19:18

Prüfbericht - Nr.:

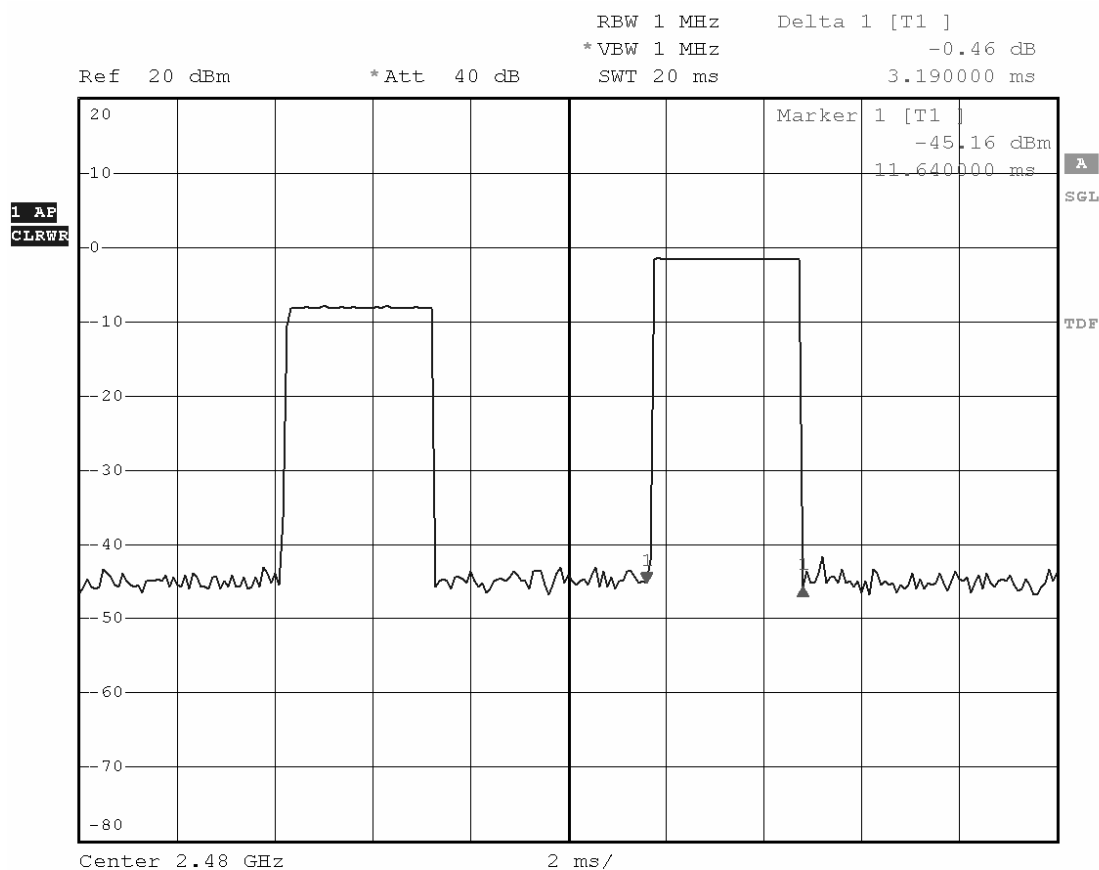
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DH5 mode (channel high)



down 3dB

Date: 13.FEB.2007 16:20:50

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100 kHz Bandwidth of Band Edges Emission Measurement

Band edge – lo

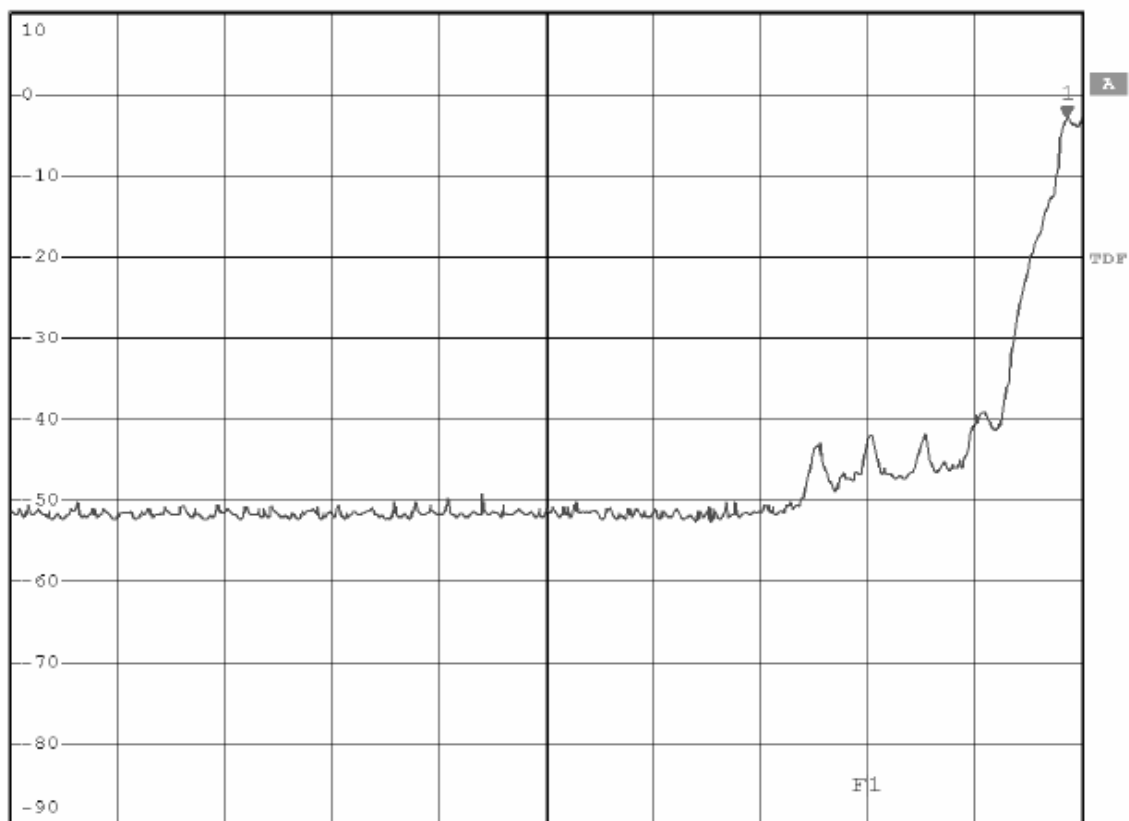


*RBW 100 kHz Marker 1 [T1]
VBW 300 kHz -3.00 dBm
SWT 2.5 ms 2.401860000 GHz

Ref 10 dBm

Att 40 dB

1 PR
MAXH



Center 2.397 GHz

1 MHz/

Span 10 MHz

down 3dB

Date: 26.JAN.2007 16:09:21

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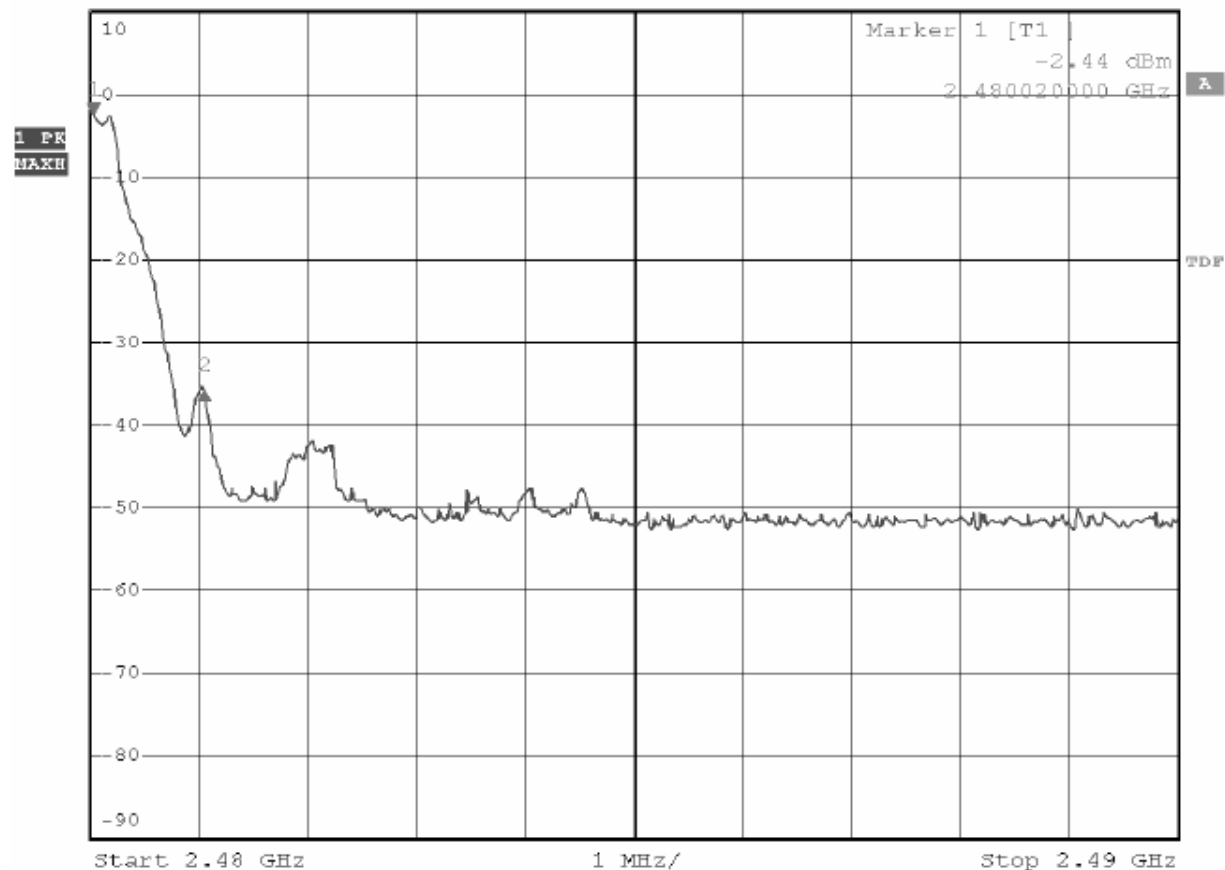
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Band edge – hi



*RBW 100 kHz Delta 2 [T1]
VBW 300 kHz -33.37 dB
Ref 10 dBm Att 40 dB SWT 2.5 ms 1.020000000 MHz



down 3dB

Date: 26.JAN.2007 16:15:27

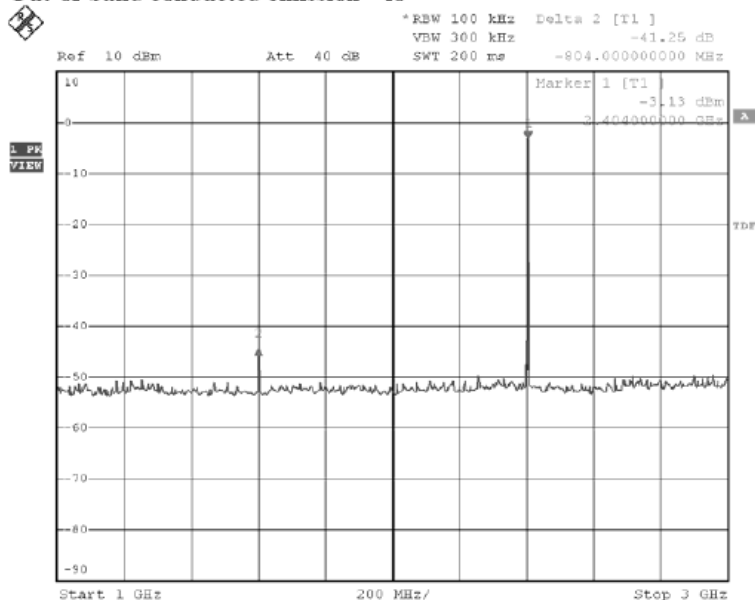
Prüfbericht - Nr.:
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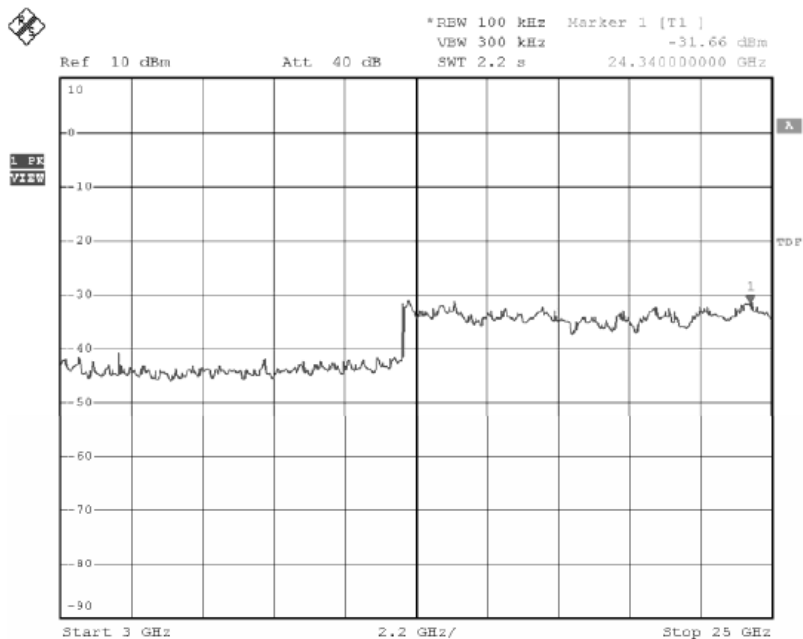
Out-Of-Band Conducted Emission measurement

Out-of-band conducted emission – lo



down 3dB

Date: 26.JAN.2007 16:28:42



down 3dB

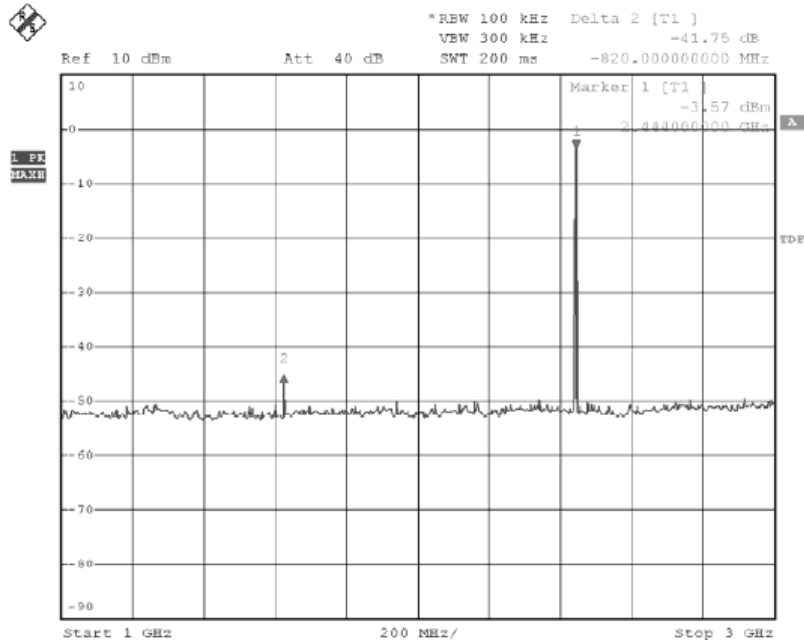
Date: 26.JAN.2007 16:29:45

Prüfbericht - Nr.:
Test Report No.:

16009099 001

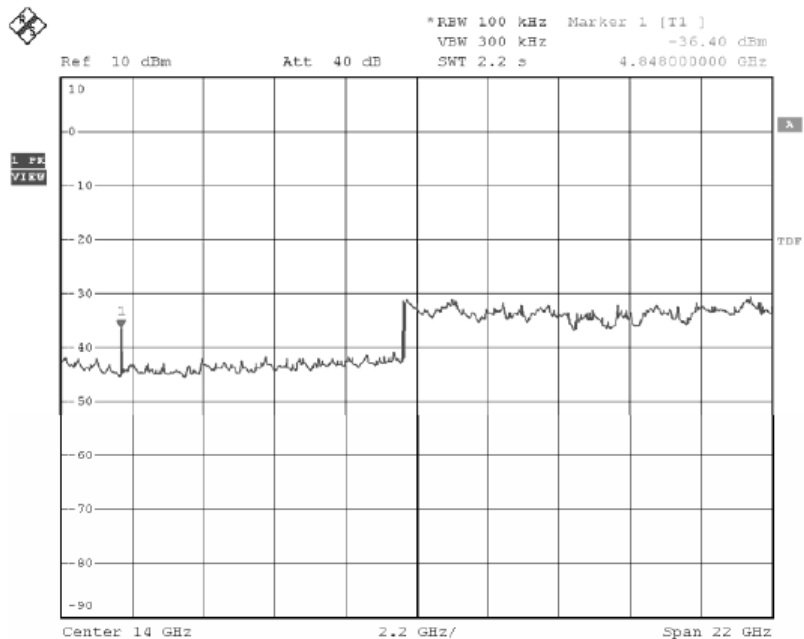
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Out-of-band conducted emission –mid



down 3dB

Date: 26.JAN.2007 16:27:26



down 3dB

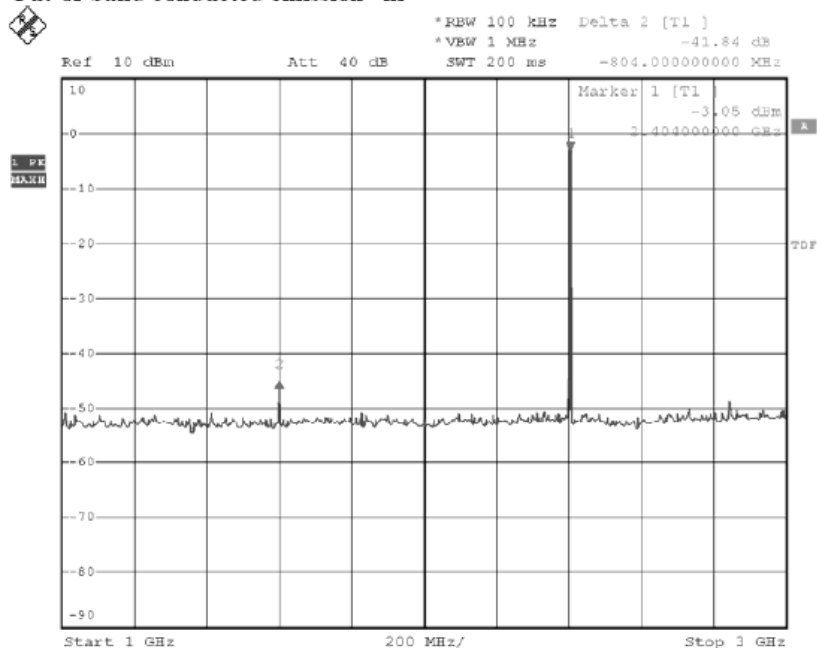
Date: 26.JAN.2007 16:26:08

Prüfbericht - Nr.:
Test Report No.:

16009099 001

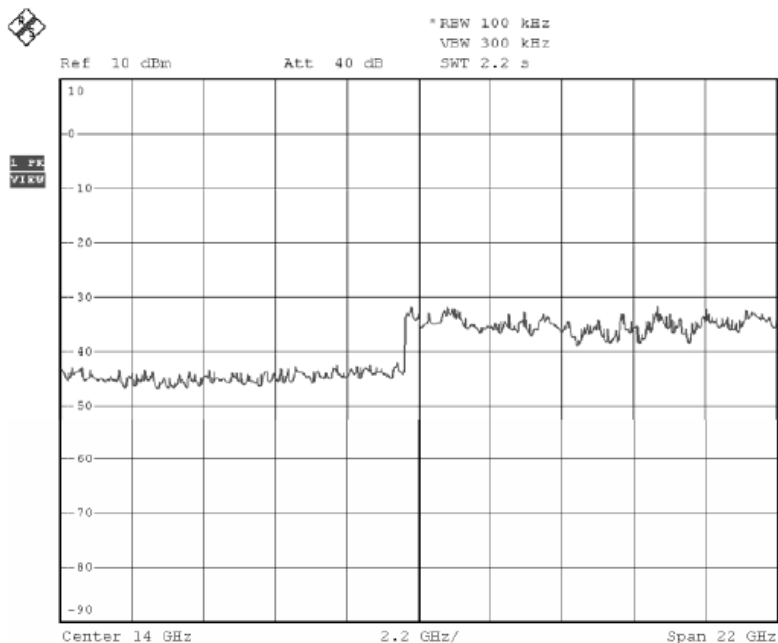
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Out-of-band conducted emission –hi



down 3dB

Date: 26.JAN.2007 16:19:30



down 3dB

Date: 26.JAN.2007 16:24:01

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Peak Power Spectral Density Measurement

Peak power spectral density – 10

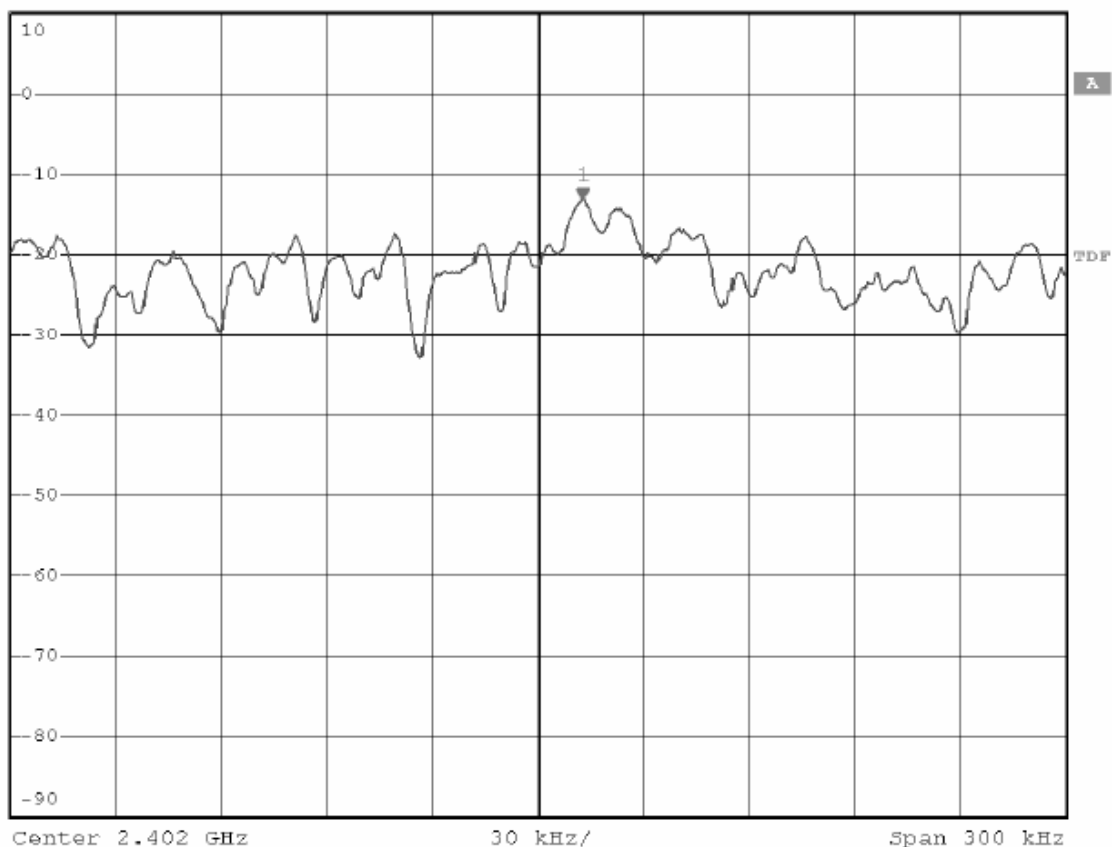


*RBW 3 kHz Marker 1 [T1]
VBW 10 kHz -13.18 dBm
*SWT 1 s 2.402012600 GHz

Ref 10 dBm

Att 40 dB

1 PR
VIEW



down 3dB

Date: 26.JAN.2007 16:34:59

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Peak power spectral density – mid

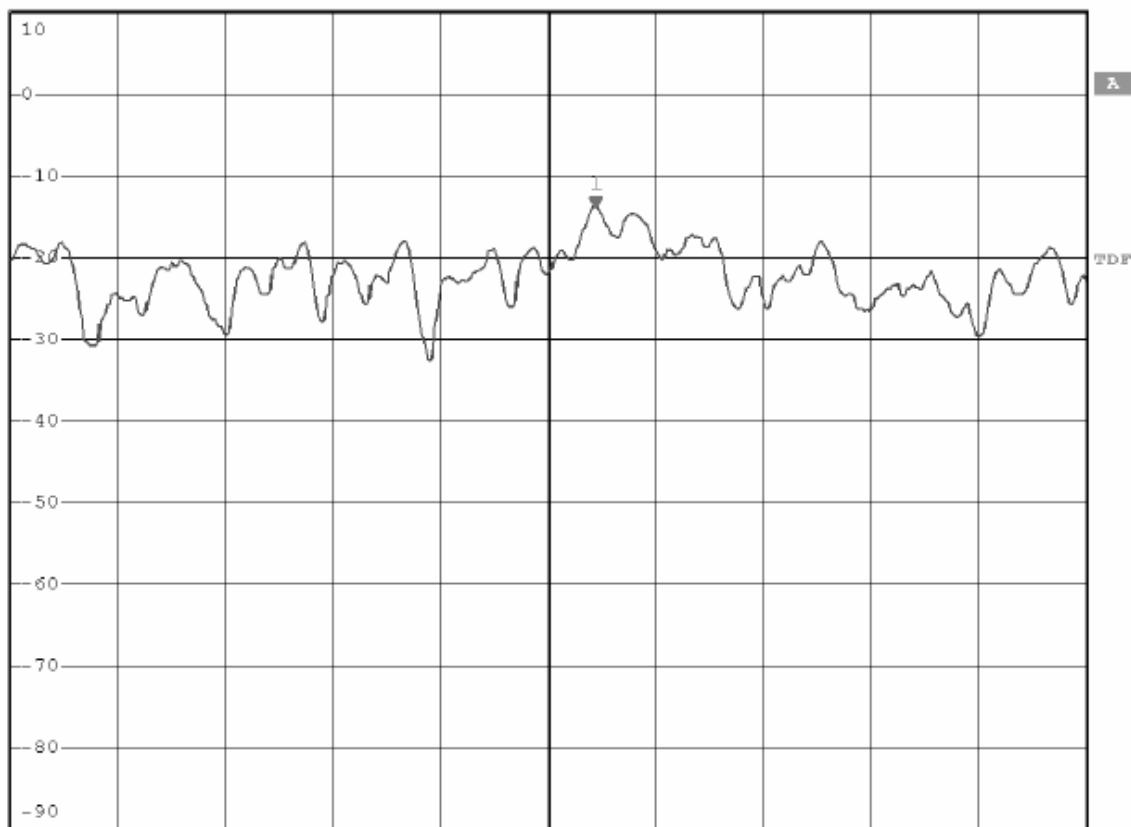


*RBW 3 kHz Marker 1 [T1]
VBW 10 kHz -13.90 dBm
*SWT 1 s 2.441013200 GHz

Ref 10 dBm

Att 40 dB

1 PR
MAXH



Center 2.441 GHz

30 kHz/

Span 300 kHz

down 3dB

Date: 26.JAN.2007 16:34:22

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Peak power spectral density – hi



*RBW 3 kHz

Marker 1 [T1]

VBW 10 kHz

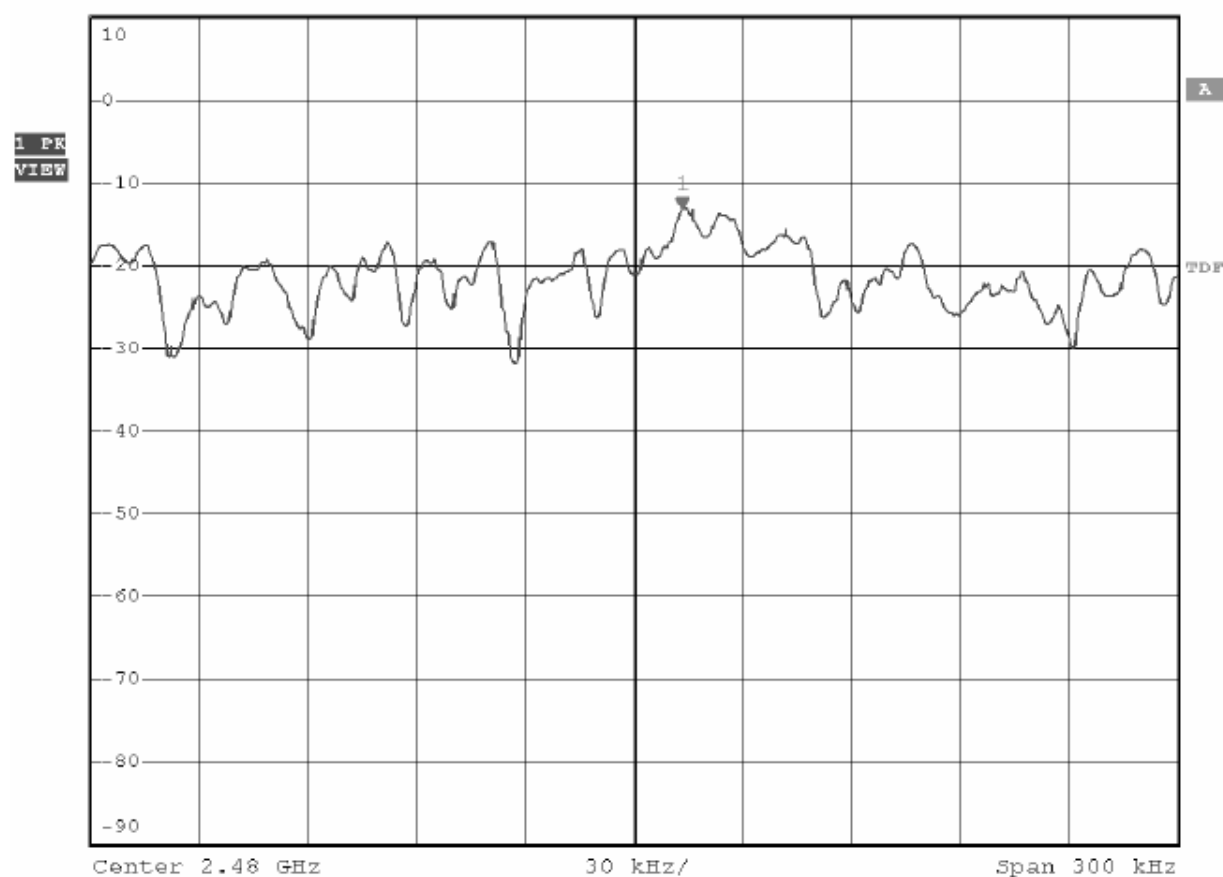
-13.11 dBm

Ref 10 dBm

Att 40 dB

*SWT 1 s

2.480013200 GHz



down 3dB

Date: 26.JAN.2007 16:36:05