FCC PART 15.247 & 15.407

EMI Measurement and TEST REPORT

For

AMBIT Microsystems Corporation

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FCC ID: MCLT60H67703

2004-01-09

This Report Concerns:	**Equipment Type:**
☒ Original Report	MiniPCI 802.11a/b/g Combo Module

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Report No.: R0401053

Test Date: 2003-05-13 / 2003-08-13 / 2003-08-15 / 2004-01-07

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TABLE OF CONTENTS

GENERAL INFORMATION **4**
- PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) 4
- OBJECTIVE 4
- RELATED SUBMITTAL(S)/GRANT(S) 4
- TEST METHODOLOGY 4
- TEST FACILITY 4
- SUPPORT EQUIPMENT LIST AND DETAILS 5
- EXTERNAL I/O CABLING LIST AND DETAILS 5
- POWER SUPPLY INFORMATION 5

SYSTEM TEST CONFIGURATION **6**
- JUSTIFICATION 6
- EUT EXERCISE SOFTWARE 6
- SPECIAL ACCESSORIES 6
- SCHEMATICS / BLOCK DIAGRAM 6
- EQUIPMENT MODIFICATIONS 6
- CONFIGURATION OF TEST SYSTEM 6
- TEST SETUP BLOCK DIAGRAM 7

SUMMARY OF TEST RESULTS **8**

§1.1307(B)(1) & §2.1093 - RF EXPOSURE **9**

§15.203 - ANTENNA REQUIREMENT **11**
- STANDARD APPLICABLE 11
- ANTENNA CONNECTED CONSTRUCTION 11

§15.205, §15.209(A), §15.407(B)(5), §15.407(B)(6) - SPURIOUS RADIATED EMISSION **12**
- MEASUREMENT UNCERTAINTY 12
- EUT SETUP 13
- SPECTRUM ANALYZER SETUP 13
- TEST EQUIPMENT LIST AND DETAILS 13
- TEST PROCEDURE 14
- CORRECTED AMPLITUDE & MARGIN CALCULATION 14
- SUMMARY OF TEST RESULTS 14

§15.207(A) - CONDUCTED EMISSIONS **26**
- MEASUREMENT UNCERTAINTY 26
- EUT SETUP 26
- SPECTRUM ANALYZER SETUP 26
- TEST EQUIPMENT LIST AND DETAILS 26
- TEST PROCEDURE 26
- SUMMARY OF TEST RESULTS 27
- CONDUCTED EMISSIONS TEST DATA 27
- PLOT OF CONDUCTED EMISSIONS TEST DATA 27

§15.209(A) - SPURIOUS EMISSION **30**
- STANDARD APPLICABLE 30
- MEASUREMENT PROCEDURE 30
- EQUIPMENT LISTS 30
- MEASUREMENT RESULT 31

§15.247(A)(2) & §15.407 – 6 DB BANDWIDTH AND 26 DB BANDWIDTH **41**
- STANDARD APPLICABLE 41
- MEASUREMENT PROCEDURE 41
- EQUIPMENT LISTS 41
- MEASUREMENT RESULT 41

§15.247(B)(3), §15.407(A)(2) - PEAK OUTPUT POWER MEASUREMENT **51**
- STANDARD APPLICABLE 51

MEASUREMENT PROCEDURE....51
EQUIPMENT LISTS....51
MEASUREMENT RESULT....51

§15.247(C) - 100 KHZ BANDWIDTH OF BAND EDGES....61

STANDARD APPLICABLE....61
MEASUREMENT PROCEDURE....61
EQUIPMENT LISTS....61
MEASURE RESULTS....61

§15.247(D) & §15.407(A)(2) - POWER SPECTRAL DENSITY....65

STANDARD APPLICABLE....65
MEASUREMENT PROCEDURE....65
EQUIPMENT LISTS....65
MEASUREMENT RESULTS....66

§15.407(A)(6) - PEAK EXCURSION TO AVERAGE RATIO....75

STANDARD APPLICABLE....75
TEST PROCEDURE....75
EQUIPMENT LISTS....75
TEST RESULT FOR....75

§15.407(B) - OUT OF BAND EMISSION....81

STANDARD APPLICABLE....81
TEST PROCEDURE....81
EQUIPMENT LISTS....81
TEST RESULT....81

15.407(C) - DISCONTINUE TRANSMITTING WITH ABSENCE OF DATA OR OPERATIONAL FAILURE85

§15.407(G) - FREQUENCY STABILITY....86

STANDARD APPLICABLE....86
MEASUREMENT RESULT....86

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *Ambit Microsystems Corporation's*, model: *T60H677.03,* or the "EUT" as referred to in this report is an MiniPCI 802.11a/b/g Module which measures approximately2.4"L x 1.7"W x 0.1"H. The EUT is a dual band WLAN device that allows for acces to both 2.4GHz and 5GHz WLAN technologies. THE EUT Will operate at a maximum data rate of 11Mbps with 802.11b (2.4GHz), 54Mbps with 802.11g (2.4GHz) wireless networks and a minimum data rate of 54Mbps with 802.11a (5GHz) wireless networks. The EUT will automatically detect and seamlessly roam between both 802.11b (2.4GHz), 802.11g (2.4GHz) and 802.11a (5GHz) wireless networks.

** The test data gathered are from production sample, serial number:0113, provided by the manufacturer.*

Objective

This type approval report is prepared on behalf of *AMBIT Microsystems Corporation* in accordance with Part 2, Subpart J, Part 15, Subparts A , C, and E of the Federal Communication Commissions rules.

The objective of the manufacturer is to demonstrate compliance with FCC rules for Output Power, Antenna Requirements, 6 dB Bandwidth and 26 dB Bandwidth, power spectral density, 100 kHz Bandwidth of Band Edges Measurement, Out of Band Emission, Spurious Emission, Conducted and Spurious Radiated Emission, Discontinue Transmitting with Absence of Data or Operational Failure, Peak Excursion to Average Ratio and Frequency Stability.

Related Submittal(s)/Grant(s)

No Related Submittals.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2001, 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.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Open Area Test site used by BACL to collect radiated and conducted emission measurement data is located in the back parking lot of the building at 230 Commercial Street, Sunnyvale, California, USA.

Test site at BACL has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on
December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2001.

The Federal Communications Commission and Voluntary Control Council for Interference has the reports on file and is listed under FCC file 31040/SIT 1300F2 and VCCI Registration No.: C-1298 and R-1234. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The scope of the accreditation covers the FCC Method – 47 CFR Part – Digital Devices, CISPER 22: 1997: Electromagnetic Interference – Limits and Methods of Measurement of Information Technology Equipment test methods.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
Compal	Notebook PC	CY30	N/A	DOC
HP	Printer	2225C	N/A	DOC

External I/O Cabling List and Details

Cable Description	Length (M)	Port/From	To
Shielded Printer Cable	2.0	Parallel Port/Notebook PC	Printer

Power Supply Information

Manufacturer	Description	Model	Serial Number	FCC ID
DELTA	AC Adapter	ADP-90FB	JLT0207012305	DOC

SYSTEM TEST CONFIGURATION

Justification

The host system was configured for testing according to ANSI C63.4-2001.

The EUT was tested in the normal (native) operating mode to represent *worst*-case results during the final qualification test.

EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the system components in a manner similar to a typical use. The test software, provided by the customer, is started the Windows terminal program under the Windows 98/2000/ME/XP operating system.

Once loaded, set the Tx channel to low, mid and high for testing.

Special Accessories

As shown in following test setup block diagram, all interface cables used for compliance testing are shielded. The host PC and the peripherals featured shielded metal connectors.

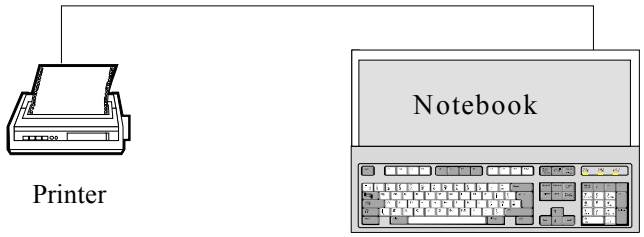
Schematics / Block Diagram

Please refer to Appendix A.

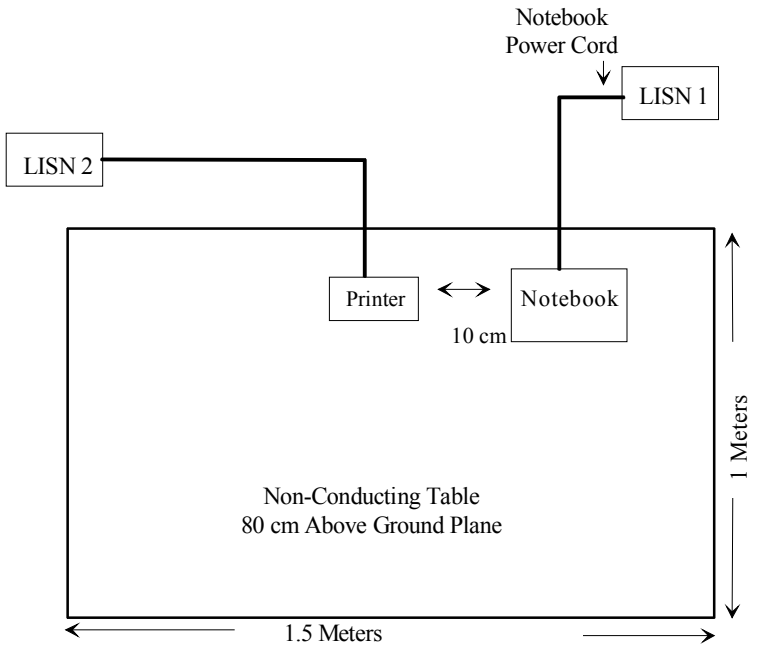
Equipment Modifications

No modifications were made to the EUT.

Configuration of Test System



Test Setup Block Diagram



SUMMARY OF TEST RESULTS

Results reported relate only to the product tested, serial number: 0113.

FCC RULES	DESCRIPTION OF TEST	RESULT
§2.1093	RF Exposure Requirement	Compliant
§15.203	Antenna Requirement	Compliant
§ 15.205, §15.209(a), §15.407(b)(5), §15.407(b)(6)	Restricted Bands, Radiated Emission	Compliant
§ 15.207(a)	AC Line Conduction	Compliant
§15.209(a), §15.247, §15.407	Spurious Emission	Compliant
§15.247(a)(2), §15.407	6 dB Bandwidth & 26 dB Bandwidth	Compliant
§15.247(b)(3), §15.407(a)(2)	Maximum Peak Output Power	Compliant
§15.247(b)(4), §15.407 (f)	RF Exposure Requirement	Compliant
§ 15.247(c)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(d), §15.407(a)(2)	Peak Power Spectral Density	Compliant
§15.407(a)(6)	Peak Excursion	Compliant
§15.407(b)	Out of Band Emission	Compliant
§15.407(c)	Discontinue Transmitting with Absence of Data or Operational Failure	Compliant
§ 15.407(g)	Frequency Stability	Compliant

§1.1307(b)(1) & §2.1093 - RF EXPOSURE

According to §15.247(b)(4) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1093 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*($180/f^2$)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

MPE Prediction

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$S = PG/4\pi R^2$

Where: S = power density
P = power input to antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal: 16.7 (dBm)
Maximum peak output power at antenna input terminal: 46.77 (mW)
Prediction distance: 20 (cm)
Predication frequency: 2400 (MHz)
Antenna Gain (typical): 3 (dBi)
antenna gain: 2 (numeric)
Power density at predication frequency at 20 cm: 0.019 (mW/cm^2)

MPE limit for uncontrolled exposure at prediction frequency: 1.0 (mW/cm^2)

Maximum peak output power at antenna input terminal: 16.7 (dBm)
Maximum peak output power at antenna input terminal: 46.77 (mW)
Prediction distance: 20 (cm)
Predication frequency: 5350 (MHz)
Antenna Gain (typical): 0.81 (dBi)
antenna gain: 1.21 (numeric)
Power density at predication frequency at 20 cm: 0.011(mW/cm^2)

MPE limit for uncontrolled exposure at prediction frequency: 1.0 (mW/cm^2)

Test Result

The EUT is a mobile device. The power density level at 20 cm is 0.019 mW/cm, which is below the uncontrolled limit of 1.0mW/cm^2 at 2400 MHz. The power density level at 20 cm is 0.011 mW/cm², which is below the uncontrolled exposure limit of 1.0mW/cm² at 5350 MHz.

§15.203 - ANTENNA REQUIREMENT

Standard Applicable

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

And according to § 15.247 (1), if transmitting antennas of directional gain greater than 6 dBi are used the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to § 15.407 (d), any U-NII device shall use a transmitting antenna that is an integral part of the device.

Refer to statement below for compliance.

"The antenna for this device is an integral antenna that the end user cannot access. Furthermore the device is for outdoor use as detailed in the Users Manual and Operational Description".

Antenna Connected Construction

The antenna connector is designed with permanent attachment and no consideration of replacement.

§15.205, §15.209(a), §15.407(b)(5), §15.407(b)(6) - SPURIOUS RADIATED EMISSION

Measurement Uncertainty

All measurements involve certain levels of uncertainties. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at BACL is ±4.0 dB.

According to §15.205, except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
[1]0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2655 – 2900	22.01 – 23.12
8.41425 – 8.41475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.57725	240 – 285	3345.8 – 3358	36.43 – 36.5
13.36 – 13.41	322 – 335.4	3600 – 4400	([2])

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510MHz
[2] Above 38.6

Except as provided in paragraph (d) and (e), the filed strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

According to §15.209, the device shall meet radiated emission general requirements.

Except for Class A device, the filed strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (Microvolts/meter)	dB (dBμV/meter)
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

EUT Setup

The radiated emission tests were performed in the open area 3-meter test site, using the setup in accordance with ANSI C63.4-2001. The specification used was the FCC 15 Subpart C limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle as required.

The host PC system was connected with 120Vac/60Hz power source.

Spectrum Analyzer Setup

According to FCC CFR 47, Section 15.31, the EUT was tested to 50GHz.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Frequency Range	***RBW***	***Video B/W***
Below 30MHz	10kHz	10kHz
30 – 1000MHz	100kHz	100kHz
Above 1000MHz	1MHz	1MHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
HP	Spectrum Analyzer	8568B	2601A02165	2003-07-03
HP	Amplifier	8447E	2944A10187	2003-09-23
HP	Quasi-Peak Adapter	85650A	3019A05393	2003-06-13
EMCO	Biconical Antenna	3110B	9309-1165	2003-10-11
EMCO	Log Periodic Antenna	3146	2101	2003-10-11

*** Statement of Traceability: BACL Corp.** certifies that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

For the radiated emissions test, the notebook PC system power cord was connected to the AC floor outlet since the power supply used in the EUT did not provide an accessory power outlet.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dBμV of specification limits), and are distinguished with a "**Qp**" in the data table.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Subpart C. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Subpart C Limit

Summary of Test Results

According to the data in following tables, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.207 and 15.247, and had the worst margin of:

EUT with BY31Antenna for 802.11b, 15.247

-5.8 dB at **4824.00 MHz** in the **Vertical** polarization, Low Channel

-6.9 dB at **4874.00 MHz** in the **Vertical** polarization, Middle Channel

-6.8 dB at **4924.00 MHz** in the **Vertical** polarization, High Channel

-10.4 dB at **210.10 MHz** in the **Horizontal** polarization, Unwanted Emission

EUT with BY31Antenna for 802.11g, 15.247

-9.6 dB at **2340.00 MHz** in the **Vertical** polarization, Low Channel

-14.0 dB at **7311.00 MHz** in the **Vertical** polarization, Middle Channel

-14.3 dB at **7386.00 MHz** in the **Vertical** polarization, High Channel

-10.1 dB at **208.33 MHz** in the **Horizontal** polarization, Unwanted Emission

EUT with BY31 Antenna for 802.11a, 15.407

-8.8 dB at **5150.00 MHz** in the **Vertical** polarization, Low Band, Low Channel

-12.5 dB at **15600.00 MHz** in the **Vertical** polarization, Low Band, Mid Channel

-13.6 dB at **10500.00 MHz** in the **Vertical** polarization, Low Band, High Channel

-7.9 dB at **5250.00 MHz** in the **Vertical** polarization, Mid Band, Low Channel

-9.3 dB at **10600.00 MHz** in the **Vertical** polarization, Mid Band, Mid Channel

-3.2 dB at **5350.00 MHz** in the **Vertical** polarization, Mid Band, High Channel

-7.6 dB at **5725.00 MHz** in the **Vertical** polarization, High Band, Low Channel

-11.4 dB at **17325.00 MHz** in the **Vertical** polarization, High Band, Mid Channel

-7.7 dB at **5825.00 MHz** in the **Vertical** polarization, High Band, High Channel

-10.2 dB at **480.22 MHz** in the **Vertical** polarization, Unwanted Emission

Final test data, EUT with BY31 Antenna for 802.11b (15.247)

Environmental Conditions

Temperature:	12° C
Relative Humidity:	48%
ATM Pressure:	1100 mbar

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Channel, 1-25GHz											
2412.00	94.3	FUND/PEAK	90	1.2	V	28.1	3.4	35.2	90.6		
2412.00	91.2	FUND/PEAK	0	1.5	H	28.1	3.4	35.2	87.5		
2412.00	89.7	FUND/AVE	90	1.2	V	28.1	3.4	35.2	86.0		
2412.00	86.6	FUND/AVE	0	1.5	H	28.1	3.4	35.2	82.9		
4824.00	43.8	AVE	30	1.8	V	32.5	4.9	33.0	48.2	54	-5.8
2340.00	44.8	AVE	110	1.5	V	28.1	3.4	33.5	42.8	54	-11.3
4824.00	36.1	AVE	110	1.5	H	32.5	4.9	33.0	40.5	54	-13.5
7236.00	33.1	AVE	60	1.5	V	35.1	5.6	33.5	40.3	54	-13.7
7236.00	31.7	AVE	90	1.5	H	35.1	5.6	33.5	38.9	54	-15.1
2340.00	37.8	AVE	60	1.5	H	28.1	3.4	33.5	35.8	54	-18.3
4824.00	49.5	PEAK	30	1.8	V	32.5	4.9	33.0	53.9	74	-20.1
7236.00	45.4	PEAK	60	1.5	V	35.1	5.6	33.5	52.6	74	-21.4
2340.00	53.9	PEAK	110	1.5	V	28.1	3.4	33.5	51.9	74	-22.2
7236.00	43.9	PEAK	90	1.5	H	35.1	5.6	33.5	51.1	74	-22.9
4824.00	46.2	PEAK	110	1.5	H	32.5	4.9	33.0	50.6	74	-23.4
2340.00	45.4	PEAK	60	1.5	H	28.1	3.4	33.5	43.4	74	-30.7
Middle Channel, 1-25GHz											
2437.00	92.1	FUND/PEAK	180	1.5	V	28.1	3.4	35.2	88.4		
2437.00	90.2	FUND/PEAK	230	1.2	H	28.1	3.4	35.2	86.5		
2437.00	88.5	FUND/AVE	180	1.5	V	28.1	3.4	35.2	84.8		
2437.00	85.7	FUND/AVE	230	1.2	H	28.1	3.4	35.2	82.0		
4874.00	42.7	AVE	90	1.5	V	32.5	4.9	33.0	47.1	54	-6.9
7311.00	32.8	AVE	270	1.6	V	35.1	5.6	33.5	40.0	54	-14.0
4874.00	35.4	AVE	15	1.2	H	32.5	4.9	33.0	39.8	54	-14.2
7311.00	31.4	AVE	310	1.5	H	35.1	5.6	33.5	38.6	54	-15.4
4874.00	48.3	PEAK	90	1.5	V	32.5	4.9	33.0	52.7	74	-21.3
7311.00	45.2	PEAK	270	1.6	V	35.1	5.6	33.5	52.4	74	-21.6
7311.00	43.7	PEAK	310	1.5	H	35.1	5.6	33.5	50.9	74	-23.1
4874.00	45.6	PEAK	15	1.2	H	32.5	4.9	33.0	50.0	74	-24.0

Final test data, EUT with BY31 Antenna for 802.11b (15.247, Continued)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
High Channel, 1-25GHz											
2462.00	92.3	FUND/PEAK	290	1.5	V	28.1	3.4	35.2	88.6		
2462.00	89.7	FUND/PEAK	210	1.2	H	28.1	3.4	35.2	86.0		
2462.00	88.3	FUND/AVE	290	1.5	V	28.1	3.4	35.2	84.6		
2462.00	85.1	FUND/AVE	210	1.2	H	28.1	3.4	35.2	81.4		
4924.00	42.8	AVE	60	1.0	V	32.5	4.9	33.0	47.2	54	-6.8
7386.00	32.9	AVE	120	1.2	V	35.1	5.6	33.5	40.1	54	-13.9
4924.00	35.6	AVE	30	1.5	H	32.5	4.9	33.0	40.0	54	-14.0
7386.00	31.7	AVE	230	1.0	H	35.1	5.6	33.5	38.9	54	-15.1
4924.00	48.5	PEAK	60	1.0	V	32.5	4.9	33.0	52.9	74	-21.1
7386.00	45.5	PEAK	120	1.2	V	35.1	5.6	33.5	52.7	74	-21.3
7386.00	43.7	PEAK	230	1.0	H	35.1	5.6	33.5	50.9	74	-23.1
4924.00	45.9	PEAK	30	1.5	H	32.5	4.9	33.0	50.3	74	-23.7

Indicated			Table	Antenna		Correction Factor			FCC 15 Subpart B	
Frequency MHz	Ampl. dBμV/m	Direction Degree	Height Meter	Polar H/V	Antenna dBμV/m	Cable Loss dBμV/m	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
210.10	47.2	110	1.6	H	11.9	2.2	28.2	33.1	43.5	-10.4
480.12	42.2	310	1.8	V	18.3	3.1	28.7	34.9	46.0	-11.1
129.33	46.8	15	1.2	H	11.9	1.6	28.5	31.7	43.5	-11.8
575.67	38.4	210	1.5	V	19.3	3.0	28.9	31.8	46.0	-14.2
195.45	40.1	90	1.5	V	14.2	2.1	28.5	27.9	43.5	-15.6
226.55	40.1	150	1.2	V	11.8	2.2	28.2	25.9	46.0	-20.1

Note:

FUND = Fundamental
AVG = average

Final test data, EUT with BY31 Antenna for 802.11g (15.247)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Channel, 1-25GHz											
2412.00	98.2	FUND/PEAK	180	1.5	V	28.1	3.4	35.2	94.5		
2412.00	94.5	FUND/PEAK	270	1.2	H	28.1	3.4	35.2	90.8		
2412.00	88.4	FUND/AVE	180	1.5	V	28.1	3.4	35.2	84.7		
2412.00	84.7	FUND/AVE	270	1.2	H	28.1	3.4	35.2	81.0		
2340.00	46.5	AVE	0	1.5	V	28.1	3.4	33.5	44.5	54	-9.6
2340.00	42.7	AVE	30	1.5	H	28.1	3.4	33.5	40.7	54	-13.4
7236.00	32.8	AVE	270	1.3	V	35.1	5.6	33.5	40.0	54	-14.0
7236.00	31.2	AVE	15	1.5	H	35.1	5.6	33.5	38.4	54	-15.6
4824.00	33.1	AVE	320	1.8	V	32.5	4.9	33.0	37.5	54	-16.5
4824.00	31.4	AVE	30	1.2	H	32.5	4.9	33.0	35.8	54	-18.2
7236.00	44.7	PEAK	270	1.3	V	35.1	5.6	33.5	51.9	74	-22.1
4824.00	46.9	PEAK	320	1.8	V	32.5	4.9	33.0	51.3	74	-22.7
2340.00	52.4	PEAK	0	1.5	V	28.1	3.4	33.5	50.4	74	-23.7
7236.00	42.1	PEAK	15	1.5	H	35.1	5.6	33.5	49.3	74	-24.7
4824.00	43.8	PEAK	30	1.2	H	32.5	4.9	33.0	48.2	74	-25.8
2340.00	49.3	PEAK	30	1.5	H	28.1	3.4	33.5	47.3	74	-26.8
Middle Channel, 1-25GHz											
2437.00	96.4	FUND/PEAK	90	1.2	V	28.1	3.4	35.2	92.7		
2437.00	92.7	FUND/PEAK	15	1.5	H	28.1	3.4	35.2	89.0		
2437.00	87.2	FUND/AVE	90	1.2	V	28.1	3.4	35.2	83.5		
2437.00	83.1	FUND/AVE	15	1.5	H	28.1	3.4	35.2	79.4		
7311.00	32.8	AVE	90	1.2	V	35.1	5.6	33.5	40.0	54	-14.0
4874.00	33.2	AVE	60	1.5	V	32.5	4.9	33.0	37.6	54	-16.4
7311.00	30.4	AVE	30	1.5	H	35.1	5.6	33.5	37.6	54	-16.4
4874.00	31.1	AVE	210	1.6	H	32.5	4.9	33.0	35.5	54	-18.5
7311.00	44.8	PEAK	90	1.2	V	35.1	5.6	33.5	52.0	74	-22.0
4874.00	46.7	PEAK	60	1.5	V	32.5	4.9	33.0	51.1	74	-22.9
7311.00	40.7	PEAK	30	1.5	H	35.1	5.6	33.5	47.9	74	-26.1
4874.00	42.5	PEAK	210	1.6	H	32.5	4.9	33.0	46.9	74	-27.1

Final test data, EUT with BY31 Antenna for 802.11g (15.247, Continued)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV /m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
High Channel, 1-25GHz											
2462.00	95.8	FUND/PEAK	90	1.2	V	28.1	3.4	35.2	92.1		
2462.00	94.3	FUND/PEAK	110	1.5	H	28.1	3.4	35.2	90.6		
2462.00	86.1	FUND/AVE	90	1.2	V	28.1	3.4	35.2	82.4		
2462.00	84.9	FUND/AVE	110	1.5	H	28.1	3.4	35.2	81.2		
7386.00	32.5	AVE	30	1.6	V	35.1	5.6	33.5	39.7	54	-14.3
7386.00	30.9	AVE	210	1.5	H	35.1	5.6	33.5	38.1	54	-15.9
4924.00	32.8	AVE	180	1.5	V	32.5	4.9	33.0	37.2	54	-16.8
4924.00	31.1	AVE	270	1.8	H	32.5	4.9	33.0	35.5	54	-18.5
7386.00	44.3	PEAK	30	1.6	V	35.1	5.6	33.5	51.5	74	-22.5
4924.00	46.1	PEAK	180	1.5	V	32.5	4.9	33.0	50.5	74	-23.5
7386.00	41.8	PEAK	210	1.5	H	35.1	5.6	33.5	49.0	74	-25.0
4924.00	43.6	PEAK	270	1.8	H	32.5	4.9	33.0	48.0	74	-26.0

Indicated			Table	Antenna		Correction Factor			FCC 15 Subpart B	
Frequency MHz	Ampl. dBμV/m	Direction Degree	Height Meter	Polar H/V	Antenna dBμV/m	Cable Loss dBμV/m	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
208.33	47.9	230	1.8	H	11.5	2.2	28.2	33.4	43.5	-10.1
480.25	42.5	120	1.6	V	18.3	3.1	28.7	35.2	46.0	-10.8
128.17	47.6	60	1.5	H	11.9	1.6	28.5	32.5	43.5	-11.0
576.83	39.3	160	1.4	V	19.3	3.0	28.9	32.7	46.0	-13.3
197.20	41.5	15	1.2	V	14.2	2.1	28.5	29.3	43.5	-14.2
227.10	40.1	180	1.2	V	11.8	2.2	28.2	25.9	46.0	-20.1

Note:

FUND = Fundamental
AVG = average

Final test data, EUT with BY31 Antenna for 802.11a (15.407)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Band, Low Channel, 1-50GHz											
5180.00	98.4	FUND/PEAK	180	1.5	V	33.9	5.2	33.0	104.5		
5180.00	95.1	FUND/PEAK	15	1.2	H	33.9	5.2	33.0	101.2		
5180.00	89.3	FUND/AVE	180	1.5	V	33.9	5.2	33.0	95.4		
5180.00	96.2	FUND/AVE	15	1.2	H	33.9	5.2	33.0	102.3		
5150.00	39.1	AVE	120	1.6	V	33.9	5.2	33.0	45.2	54.0	-8.8
5150.00	35.9	AVE	90	1.5	H	33.9	5.2	33.0	42.0	54.0	-12.0
15540.00	34.2	AVE	0	1.6	V	35.1	5.6	33.3	41.6	54.0	-12.4
10360.00	48.7	PEAK	210	1.5	V	35.1	5.6	34.5	54.9	68.3	-13.4
15540.00	33.1	AVE	90	1.0	H	35.1	5.6	33.3	40.5	54.0	-13.5
10360.00	44.9	PEAK	200	1.5	H	35.1	5.6	34.5	51.2	68.3	-17.1
5150.00	50.4	PEAK	120	1.6	V	33.9	5.2	33.0	56.5	74.0	-17.5
15540.00	45.8	PEAK	0	1.6	V	35.1	5.6	33.3	53.2	74.0	-20.8
5150.00	46.7	PEAK	90	1.5	H	33.9	5.2	33.0	52.8	74.0	-21.2
15540.00	44.6	PEAK	90	1.0	H	35.1	5.6	33.3	52.0	74.0	-22.0
Low Band, Middle Channel, 1-50GHz											
5200.00	96.5	FUND/PEAK	180	1.5	V	33.9	5.2	33.0	102.6		
5200.00	94.8	FUND/PEAK	270	1.2	H	33.9	5.2	33.0	100.9		
5200.00	87.3	FUND/AVE	180	1.5	V	33.9	5.2	33.0	93.4		
5200.00	85.7	FUND/AVE	270	1.2	H	33.9	5.2	33.0	91.8		
15600.00	34.1	AVE	30	1.6	V	35.1	5.6	33.3	41.5	54.0	-12.5
15600.00	32.8	AVE	200	1.5	H	35.1	5.6	33.3	40.2	54.0	-13.8
10400.00	47.1	PEAK	150	1.8	V	35.1	5.6	34.5	53.3	68.3	-15.0
10400.00	44.3	PEAK	200	1.3	H	35.1	5.6	34.5	50.5	68.3	-17.8
15600.00	45.4	PEAK	30	1.6	V	35.1	5.6	33.3	52.8	74.0	-21.2
15600.00	44.2	PEAK	200	1.5	H	35.1	5.6	33.3	51.6	74.0	-22.4

Final test data, EUT with BY31 Antenna for 802.11a (15.407, Continued)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Band, High Channel, 1-50GHz											
5250.00	98.3	FUND/PEAK	180	1.6	V	33.9	5.2	33.0	104.4		
5250.00	95.4	FUND/PEAK	0	1.5	H	33.9	5.2	33.0	101.5		
5250.00	89.5	FUND/AVE	180	1.6	V	33.9	5.2	33.0	95.6		
5250.00	86.2	FUND/AVE	0	1.5	H	33.9	5.2	33.0	92.3		
10500.00	48.5	PEAK	90	1.5	V	35.1	5.6	34.5	54.7	68.3	-13.6
10500.00	45.1	PEAK	30	1.2	H	35.1	5.6	34.5	51.3	68.3	-17.0
15750.00	45.9	PEAK	120	1.5	V	35.1	5.6	33.3	53.3	74.0	-20.7
15750.00	44.3	PEAK	180	1.6	H	35.1	5.6	33.3	51.7	74.0	-22.3
15750.00	34.5	AVE	120	1.5	V	35.1	5.6	33.3	41.9	54.0	-12.1
15750.00	32.8	AVE	180	1.6	H	35.1	5.6	33.3	40.2	54.0	-13.8
5403.00	50.2	PEAK	310	1.2	V	33.9	5.2	33.0	56.3	74.0	-17.7
5403.00	47.8	PEAK	0	1.6	H	33.9	5.2	33.0	53.9	74.0	-20.1
5403.00	39.6	AVE	310	1.2	V	33.9	5.2	33.0	45.7	54.0	-8.3
5403.00	36.9	AVE	0	1.6	H	33.9	5.2	33.0	43.0	54.0	-11.0

Final test data, EUT with BY31 Antenna for 802.11a (15.407, Continued)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Mid Band, Low Channel, 1-50GHz											
5280.00	97.1	FUND/PEAK	180	1.6	V	33.9	5.2	33.0	103.2		
5280.00	93.2	FUND/PEAK	270	1.5	H	33.9	5.2	33.0	99.3		
5280.00	88.3	FUND/AVE	180	1.6	V	33.9	5.2	33.0	94.4		
5280.00	84.5	FUND/AVE	270	1.5	H	33.9	5.2	33.0	90.6		
5250.00	54.3	PEAK	270	1.5	V	33.9	5.2	33.0	60.4	68.3	-7.9
5250.00	51.2	PEAK	30	1.2	H	33.9	5.2	33.0	57.3	68.3	-11.0
15840.00	33.8	AVE	60	1.5	V	35.1	5.6	33.3	41.2	54.0	-12.8
10560.00	48.9	PEAK	60	1.5	V	35.1	5.6	34.5	55.1	68.3	-13.2
15840.00	32.5	AVE	30	1.2	H	35.1	5.6	33.3	39.9	54.0	-14.1
10560.00	46.3	PEAK	30	1.2	H	35.1	5.6	34.5	52.5	68.3	-15.8
15840.00	45.2	PEAK	60	1.5	V	35.1	5.6	33.3	52.6	74.0	-21.4
15840.00	44.1	PEAK	30	1.2	H	35.1	5.6	33.3	51.5	74.0	-22.5
Mid Band, Middle Channel, 1-50GHz											
5300.00	97.3	FUND/PEAK	90	1.2	V	33.9	5.2	33.0	103.4		
5300.00	95.4	FUND/PEAK	130	1.0	H	33.9	5.2	33.0	101.5		
5300.00	87.6	FUND/AVE	90	1.2	V	33.9	5.2	33.0	93.7		
5300.00	85.9	FUND/AVE	130	1.0	H	33.9	5.2	33.0	92.0		
10600.00	38.5	AVE	90	1.5	V	35.1	5.6	34.5	44.7	54	-9.3
10600.00	35.9	AVE	210	1.2	H	35.1	5.6	34.5	42.1	54	-11.9
15900.00	34.3	AVE	270	1.5	V	35.1	5.6	33.3	41.7	54	-12.3
15900.00	32.9	AVE	290	1.2	H	35.1	5.6	33.3	40.3	54	-13.7
10600.00	48.3	PEAK	90	1.5	V	35.1	5.6	34.5	54.5	74	-19.5
15900.00	45.6	PEAK	270	1.5	V	35.1	5.6	33.3	53.0	74	-21.0
15900.00	44.5	PEAK	290	1.2	H	35.1	5.6	33.3	51.9	74	-22.1
10600.00	44.6	PEAK	210	1.2	H	35.1	5.6	34.5	50.8	74	-23.2

Final test data, EUT with BY31 Antenna for 802.11a (15.407, Continued)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Mid Band, High Channel, 1-50GHz											
5320.00	100.2	FUND/PEAK	270	1.1	V	33.9	5.2	33.0	106.2		
5320.00	99.0	FUND/PEAK	45	1.6	H	33.9	5.2	33.0	105.1		
5320.00	89.5	FUND/AVE	270	1.1	V	33.9	5.2	33.0	95.6		
5320.00	88.0	FUND/AVE	45	1.6	H	33.9	5.2	33.0	94.1		
5350.00	44.7	AVE	90	1.5	V	33.9	5.2	33.0	50.8	54	-3.2
5350.00	41.9	AVE	15	1.5	H	33.9	5.2	33.0	48.0	54	-6.0
15960.00	36.5	AVE	270	1.8	V	35.1	5.6	33.3	43.9	54	-10.1
15960.00	36.3	AVE	15	1.0	H	35.1	5.6	33.3	43.7	54	-10.3
5350.00	57.3	PEAK	90	1.5	V	33.9	5.2	33.0	63.4	74	-10.6
5350.00	54.8	PEAK	15	1.5	H	33.9	5.2	33.0	60.9	74	-13.1
10640.00	33.4	AVE	270	1.2	V	35.1	5.6	34.5	39.6	54	-14.4
10640.00	33.2	AVE	30	1.5	H	35.1	5.6	34.5	39.4	54	-14.6
15960.00	47.2	PEAK	270	1.8	V	35.1	5.6	33.3	54.6	74	-19.4
15960.00	46.6	PEAK	15	1.0	H	35.1	5.6	33.3	54.0	74	-20.0
10640.00	46.0	PEAK	270	1.2	V	35.1	5.6	34.5	52.2	74	-21.8
10640.00	45.5	PEAK	30	1.5	H	35.1	5.6	34.5	51.7	74	-22.3

Final test data, EUT with BY31 Antenna for 802.11a (15.407, Continued)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
High Band, Low Channel, 1-50GHz											
5750.00	99.7	FUND/PEAK	180	1.6	V	34.1	5.4	33.0	106.2		
5750.00	91.4	FUND/PEAK	160	1.5	H	34.1	5.4	33.0	97.9		
5750.00	90.6	FUND/AVE	180	1.6	V	34.1	5.4	33.0	97.1		
5750.00	82.4	FUND/AVE	160	1.5	H	34.1	5.4	33.0	88.9		
5725.00	64.2	PEAK	0	1.5	V	34.1	5.4	33.0	70.7	78.3	-7.6
5725.00	62.9	PEAK	15	1.2	H	34.1	5.4	33.0	69.4	78.3	-8.9
17250.00	35.3	AVE	310	1.2	V	35.1	5.6	34.0	42.0	54.0	-12.0
17250.00	34.1	AVE	60	1.5	H	35.1	5.6	34.0	40.8	54.0	-13.2
11500.00	33.7	AVE	30	1.4	V	35.1	5.6	34.3	40.1	54.0	-13.9
11500.00	32.8	AVE	90	1.5	H	35.1	5.6	34.3	39.2	54.0	-14.8
11500.00	46.5	PEAK	30	1.4	V	35.1	5.6	34.3	52.9	74.0	-21.1
17250.00	46.2	PEAK	310	1.2	V	35.1	5.6	34.0	52.9	74.0	-21.1
11500.00	45.9	PEAK	90	1.5	H	35.1	5.6	34.3	52.3	74.0	-21.7
17250.00	45.5	PEAK	60	1.5	H	35.1	5.6	34.0	52.2	74.0	-21.8
High Band, Middle Channel, 1-50GHz											
5775.00	98.7	FUND/PEAK	0	1.5	V	34.1	5.4	33.0	105.2		
5775.00	96.3	FUND/PEAK	180	1.2	H	34.1	5.4	33.0	102.8		
5775.00	88.9	FUND/AVE	0	1.5	V	34.1	5.4	33.0	95.4		
5775.00	86.5	FUND/AVE	180	1.2	H	34.1	5.4	33.0	93.0		
17325.00	35.9	AVE	30	1.4	V	35.1	5.6	34.0	42.6	54	-11.4
17325.00	34.7	AVE	60	1.2	H	35.1	5.6	34.0	41.4	54	-12.6
11550.00	33.2	AVE	90	1.5	V	35.1	5.6	34.3	39.6	54	-14.4
11550.00	32.8	AVE	150	1.5	H	35.1	5.6	34.3	39.2	54	-14.8
17325.00	46.2	PEAK	30	1.4	V	35.1	5.6	34.0	52.9	74	-21.1
11550.00	45.6	PEAK	90	1.5	V	35.1	5.6	34.3	52.0	74	-22.0
17325.00	45.3	PEAK	60	1.2	H	35.1	5.6	34.0	52.0	74	-22.0
11550.00	44.7	PEAK	150	1.5	H	35.1	5.6	34.3	51.1	74	-22.9

Final test data, EUT with BY31 Antenna for 802.11a (15.407, Continued)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dBμV/m	Cable DB	Amp. DB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
High Band, High Channel, 1-50GHz											
5800.00	97.8	FUND/PEAK	0	1.5	V	34.1	5.4	33.0	104.3		
5800.00	92.3	FUND/PEAK	90	1.3	H	34.1	5.4	33.0	98.8		
5800.00	88.7	FUND/AVE	0	1.5	V	34.1	5.4	33.0	95.2		
5800.00	83.4	FUND/AVE	90	1.3	H	34.1	5.4	33.0	89.9		
5825.00	64.1	PEAK	180	1.2	V	34.1	5.4	33.0	70.6	78.3	-7.7
5825.00	62.3	PEAK	90	1.2	H	34.1	5.4	33.0	68.8	78.3	-9.5
17400.00	34.8	AVE	330	1.6	V	35.1	5.6	34.0	41.5	54.0	-12.5
17400.00	33.6	AVE	60	1.2	H	35.1	5.6	34.0	40.3	54.0	-13.7
11600.00	33.1	AVE	30	1.8	V	35.1	5.6	34.3	39.5	54.0	-14.5
11600.00	32.4	AVE	180	1.5	H	35.1	5.6	34.3	38.8	54.0	-15.2
17400.00	45.9	PEAK	330	1.6	V	35.1	5.6	34.0	52.6	74.0	-21.4
11600.00	45.3	PEAK	30	1.8	V	35.1	5.6	34.3	51.7	74.0	-22.3
17400.00	44.7	PEAK	60	1.2	H	35.1	5.6	34.0	51.4	74.0	-22.6
11600.00	44.1	PEAK	180	1.5	H	35.1	5.6	34.3	50.5	74.0	-23.5

Indicated			Table	Antenna		Correction Factor			FCC 15 Subpart B	
Frequency MHz	Ampl. dBμV/m	Direction Degree	Height Meter	Polar H/V	Antenna dBμV/m	Cable Loss dBμV/m	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
480.22	43.1	180	2.0	V	18.3	3.1	28.7	35.8	46.0	-10.2
208.10	47.2	270	1.8	H	11.5	2.2	28.2	32.7	43.5	-10.8
576.08	40.5	0	1.2	V	19.3	3.0	28.9	33.9	46.0	-12.1
127.80	44.6	30	1.5	H	11.9	1.6	28.5	29.5	43.5	-14.0
195.25	39.5	330	1.0	V	14.2	2.1	28.5	27.3	43.5	-16.2
226.85	41.8	200	1.8	V	11.8	2.2	28.2	27.6	46.0	-18.4

Note:

FUND = Fundamental
AVG = average

§15.207(a) - CONDUCTED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BACL is ±2.4 dB.

EUT Setup

The measurement was performed in the shield room, using the same setup per ANSI C63.4-2001 measurement procedure. The specification used was FCC 15 Subpart B limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle when necessary.

The notebook PC was connected with 120Vac/60Hz power source.

Spectrum Analyzer Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30Mhz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
Rohde & Schwarz	Artificial LISN	ESH2-Z5	871884/039	2003-03-28
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2003-05-06

*** Statement of Traceability: BACL Corp.** certifies that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the power cord of the host system was connected to the auxiliary outlet of the first LISN.

Maximizing procedure was performed on the six (6) highest emissions of each modes tested to ensure EUT is compliant with all installation combination.

All data was recorded in the peak detection mode. Quasi-peak readings were only performed when an emission was found to be marginal (within -4 dBμV of specification limits). Quasi-peak readings are distinguished with a "**Qp**".

Summary of Test Results

According to the data in following table, the EUT complies with the FCC Conducted margin for a Class B device, with the *worst* margin reading of:

-13.3 dBμV at 4.830 MHz in the Neutral mode

Conducted Emissions Test Data

Environmental Conditions

Temperature:	12° C
Relative Humidity:	48%
ATM Pressure:	1100 mbar

LINE CONDUCTED EMISSIONS				FCC PART 15 CLASS B	
Frequency MHz	Amplitude dBμV	Detector Qp/Ave/Peak	Phase Line/Neutral	Limit dBμV	Margin dB
4.830	32.7	AVG	Neutral	46	-13.3
4.480	29.0	AVG	Line	46	-17.0
8.100	27.4	AVG	Line	46	-18.6
0.215	36.4	AVG	Neutral	56	-19.6
5.420	25.8	AVG	Neutral	46	-20.2
0.215	35.6	AVG	Line	56	-20.4
5.420	34.6	QP	Neutral	56	-21.4
4.830	33.4	QP	Neutral	56	-22.6
4.480	32.7	QP	Line	56	-23.3
8.100	29.7	QP	Line	56	-26.3
0.215	38.3	QP	Neutral	66	-27.7
0.215	37.2	QP	Line	66	-28.8

Plot of Conducted Emissions Test Data

Plot(s) of Conducted Emissions Test Data is presented hereinafter as reference.

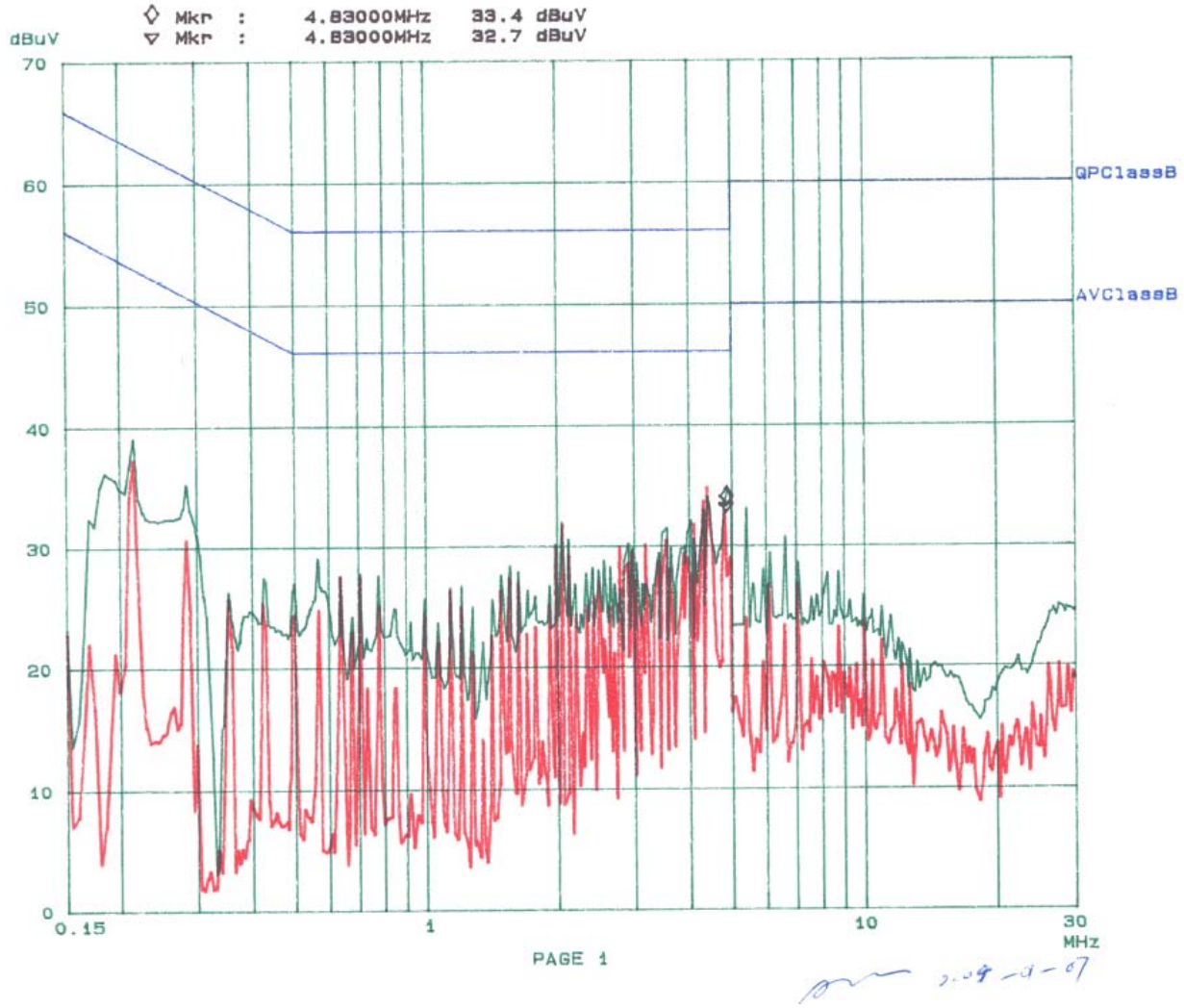
Bay Area Compliance Laboratory Corp 07. Jan 04 18:03
Class B

EUT: T60H677.03
Manuf: Ambit
Op Cond: Normal
Operator: MING
Comment: N

Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	5k	9k	QP+AV	20ms	15dBLN	OFF
1M	5M	10k	9k	QP+AV	1ms	15dBLN	OFF
5M	30M	100k	9k	QP+AV	1ms	15dBLN	OFF

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB



PAGE 1

3.04-4-07

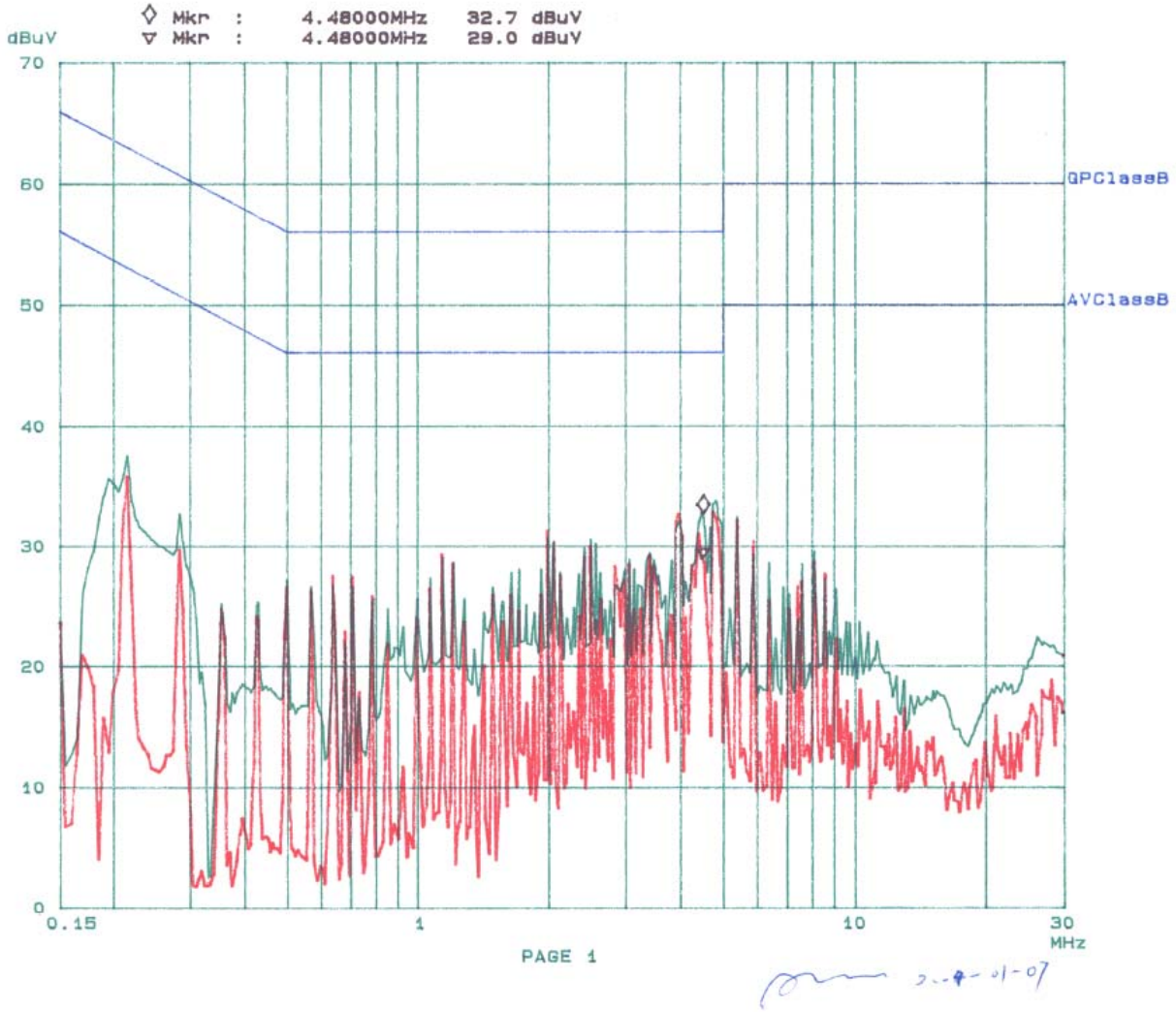
Bay Area Compliance Laboratory Corp 07. Jan 04 17:36
Class B

EUT: T60H677.03
Manuf: Ambit
Op Cond: Normal
Operator: MING
Comment: L

Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	5k	9k	QP+AV	20ms	15dBLN	OFF
1M	5M	10k	9k	QP+AV	1ms	15dBLN	OFF
5M	30M	100k	9k	QP+AV	1ms	15dBLN	OFF

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB



2-9-01-07

§15.209(a) - SPURIOUS EMISSION

Standard Applicable

According to §15.209 (a), except as provided elsewhere in the subpart of 15.209, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241

Measurement Procedure

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 4 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set the SA on Max-Hold Mode, and then keep the EUT in transmitting mode. Record all the signals from each channel until each one has been recorded.
4. Set the SA on View mode and then plot the result on SA screen.
5. Repeat above procedures until all frequencies measured were complete.

Equipment Lists

Manufacturer	Model No.	Description	Calibration Date
HP	8565EC	Spectrum Analyzer	2003-01-22

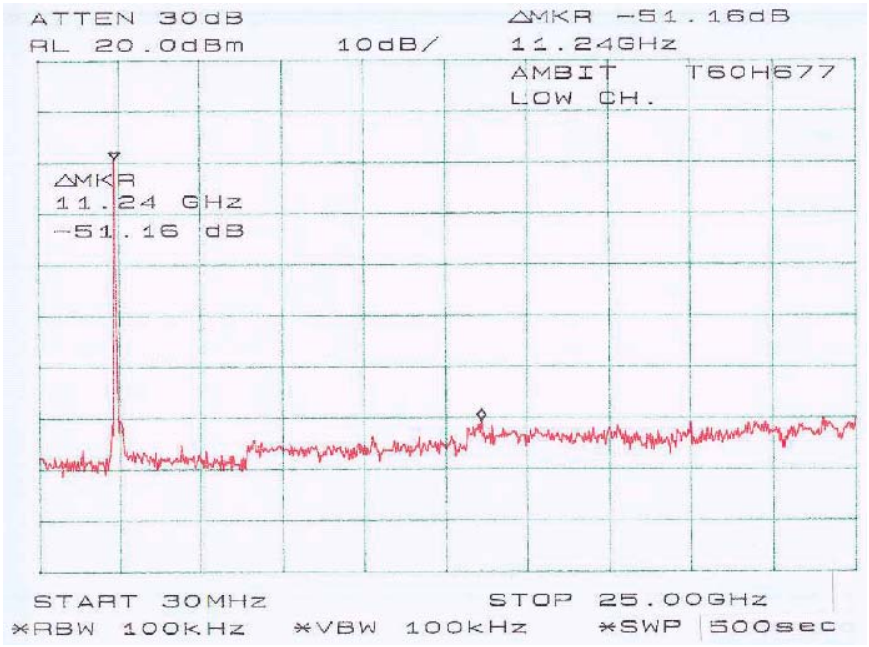
Measurement Result

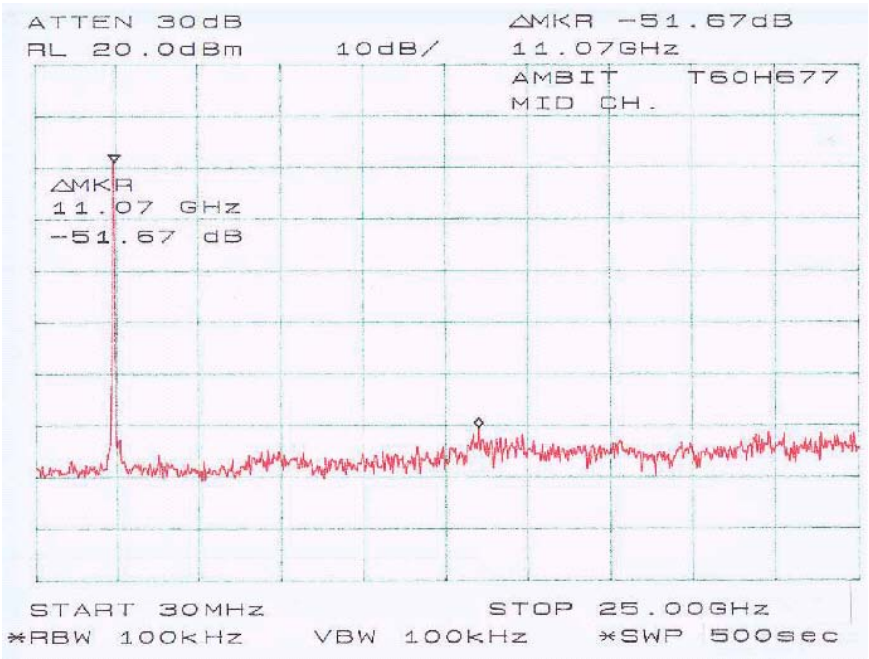
Environmental Conditions

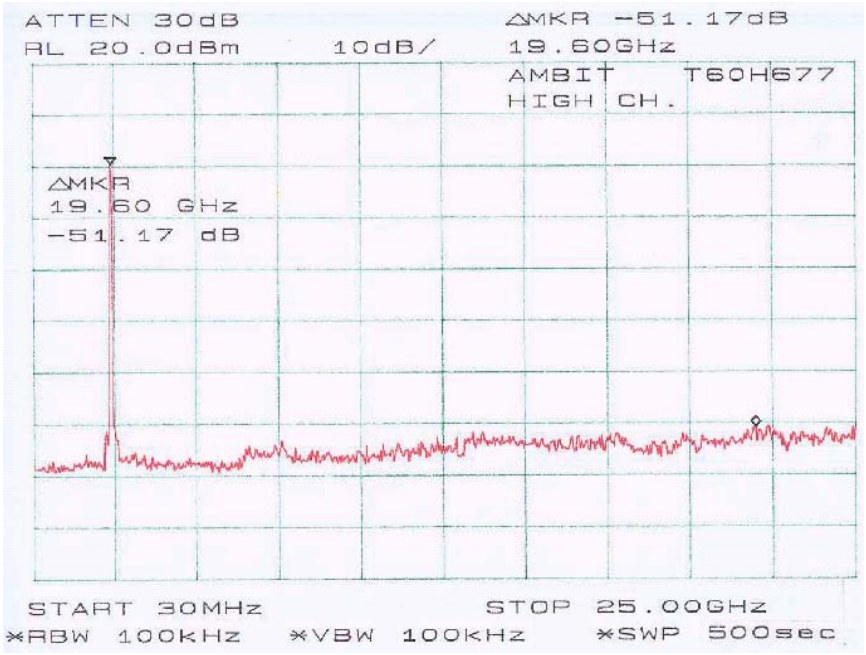
Temperature:	12° C
Relative Humidity:	48%
ATM Pressure:	1100 mbar

Please refer to following pages for plots of spurious emission.

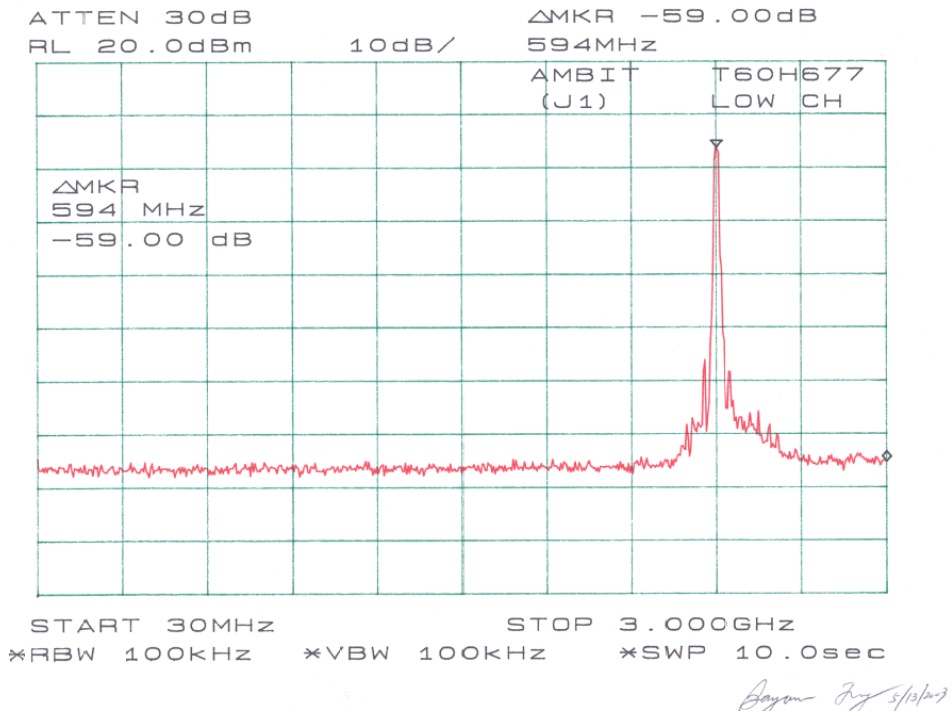
Plots of Spurious Emission for 802.11b (15.247)

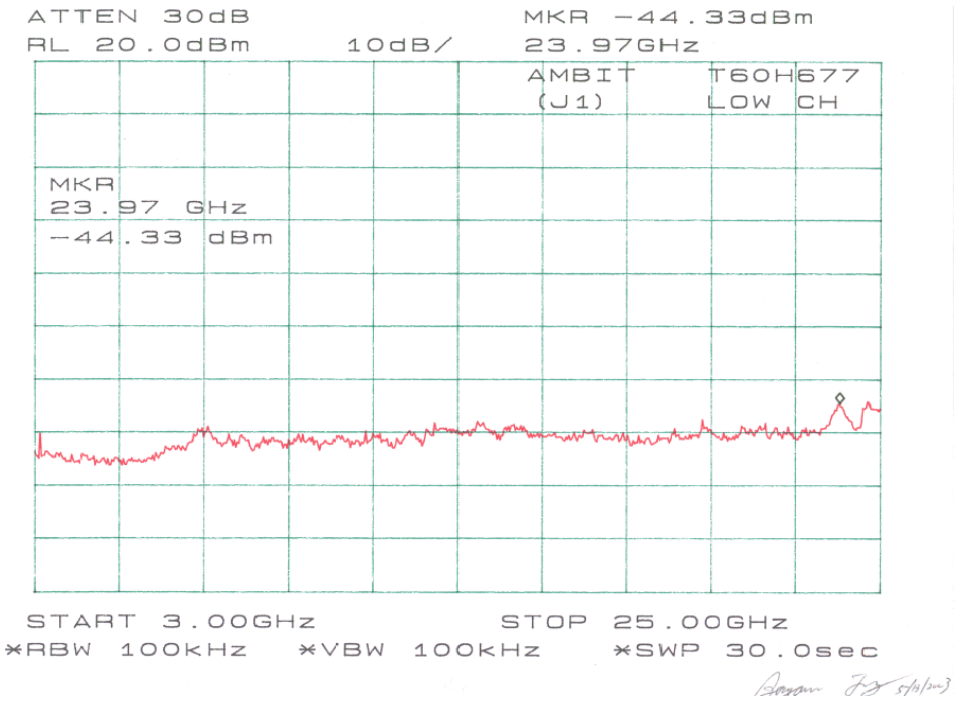






Plots of Spurious Emission for 802.11g (15.247)

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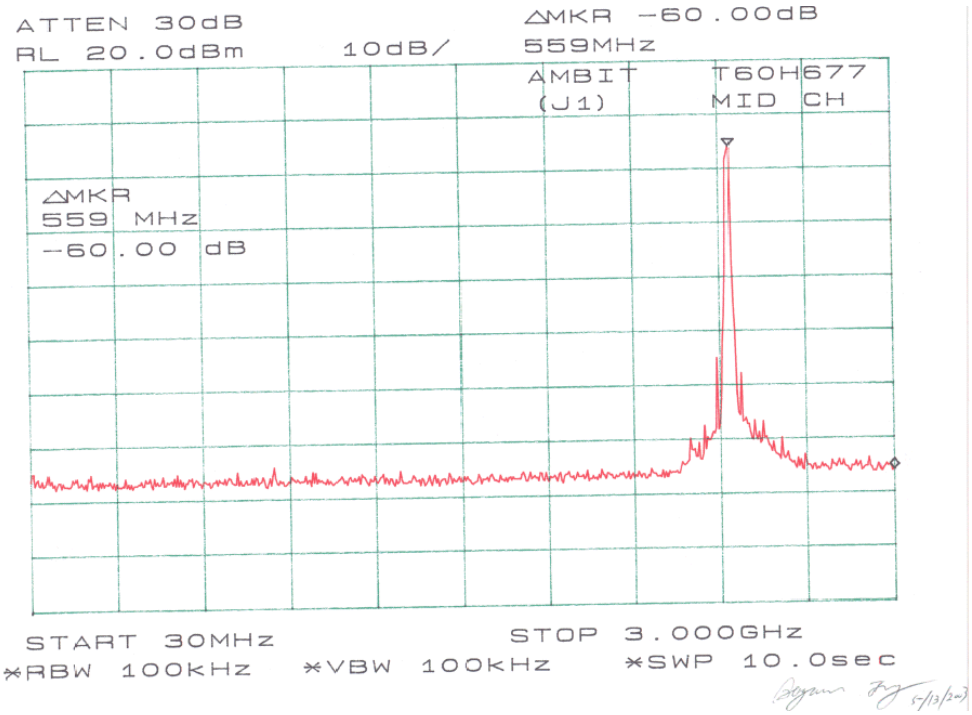
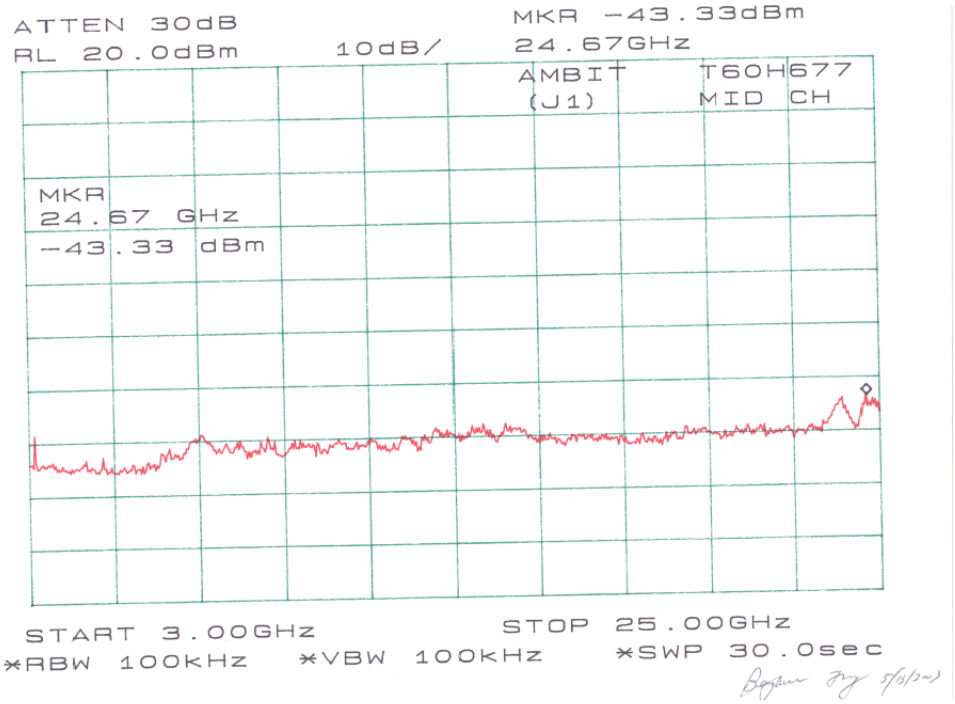
RL 20.0dBm
10dB/
MKR -44.33dBm
23.97GHz
AMBIT
(J1)
T60H677
LOW CH
MKR
23.97 GHz
-44.33 dBm
START 3.00GHz
STOP 25.00GHz
*RBW 100kHz
*VBW 100kHz
*SWP 30.0sec


ATTEN 30dB
RL 20.0dBm
10dB/
ΔMKR -60.00dB
559MHz
AMBIT
(J1)
T60H677
MID CH
ΔMKR
559 MHz
-60.00 dB
START 30MHz
STOP 3.000GHz
*RBW 100kHz
*VBW 100kHz
*SWP 10.0sec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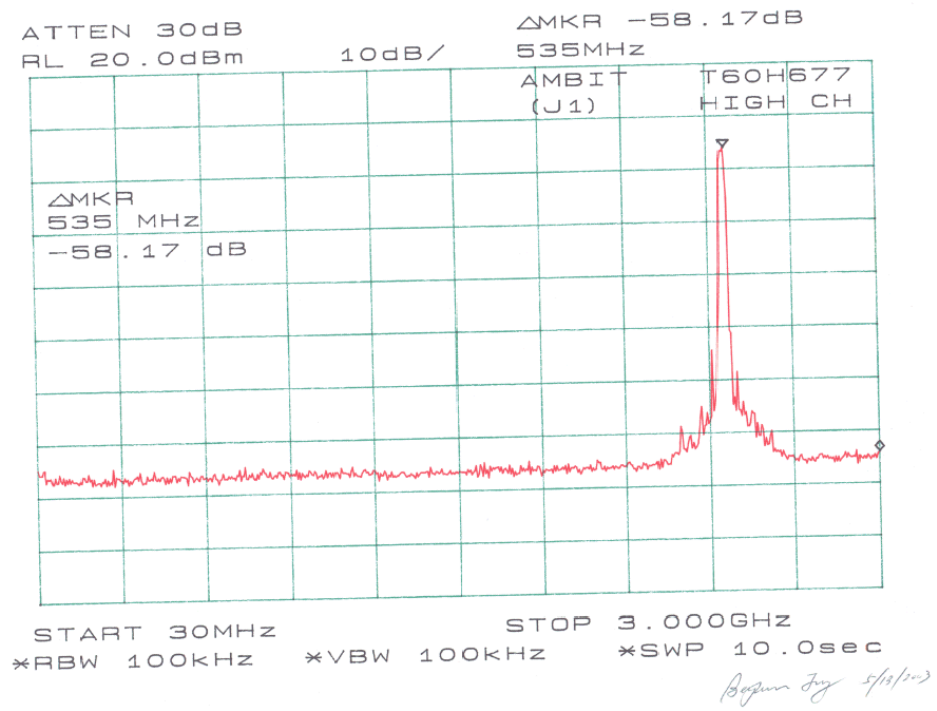
RL 20.0dBm
10dB/
MKR -43.33dBm
24.67GHz
AMBIT
(J1)
T60H677
MID CH
MKR
24.67 GHz
-43.33 dBm
START 3.00GHz
STOP 25.00GHz
*RBW 100kHz
*VBW 100kHz
*SWP 30.0sec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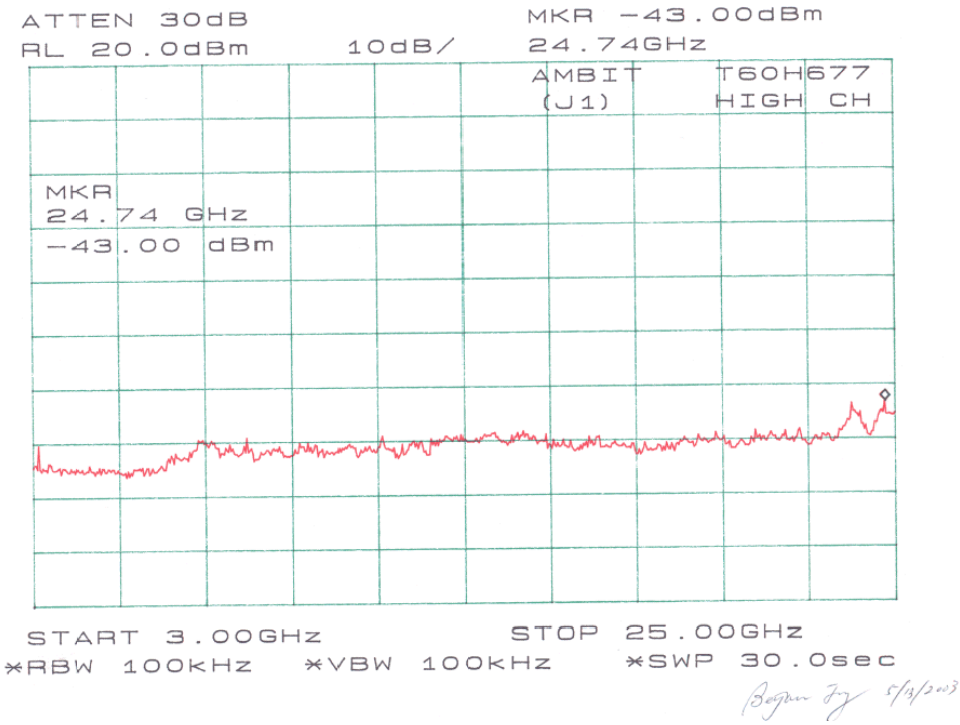
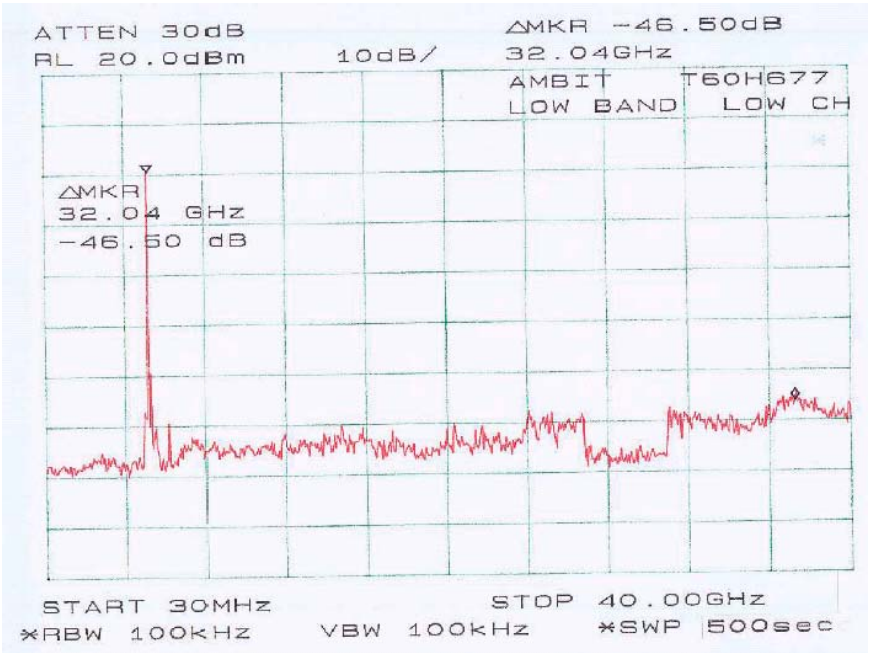
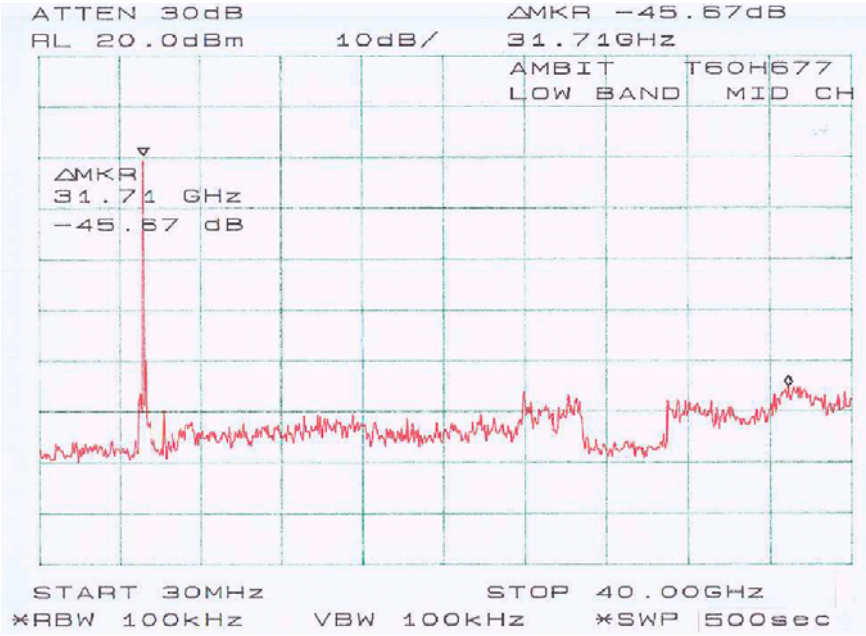
RL 20.0dBm
10dB/
ΔMKR -58.17dB
535MHz
AMBIT
(J1)
T60H677
HIGH CH
ΔMKR
535 MHz
-58.17 dB
START 30MHz
STOP 3.000GHz
*RBW 100kHz
*VBW 100kHz
*SWP 10.0sec



Plots of Spurious Emission for 802.11a (15.247)

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10dB/
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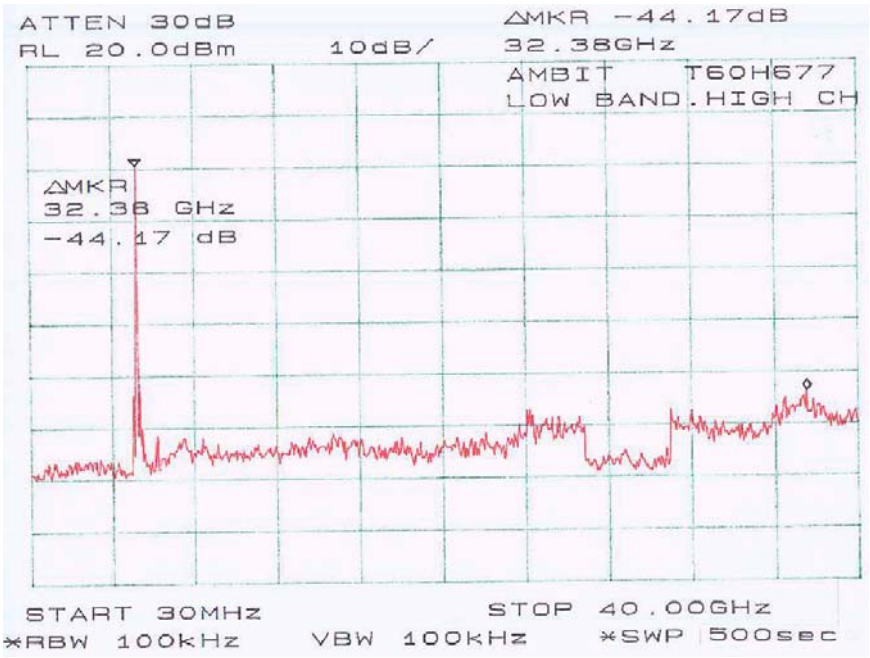
31.71GHz
AMBIT T60H677
LOW BAND MID CH
ΔMKR
31.71 GHz
-45.67 dB
START 30MHz
STOP 40.00GHz
*RBW 100kHz
VBW 100kHz
*SWP 500sec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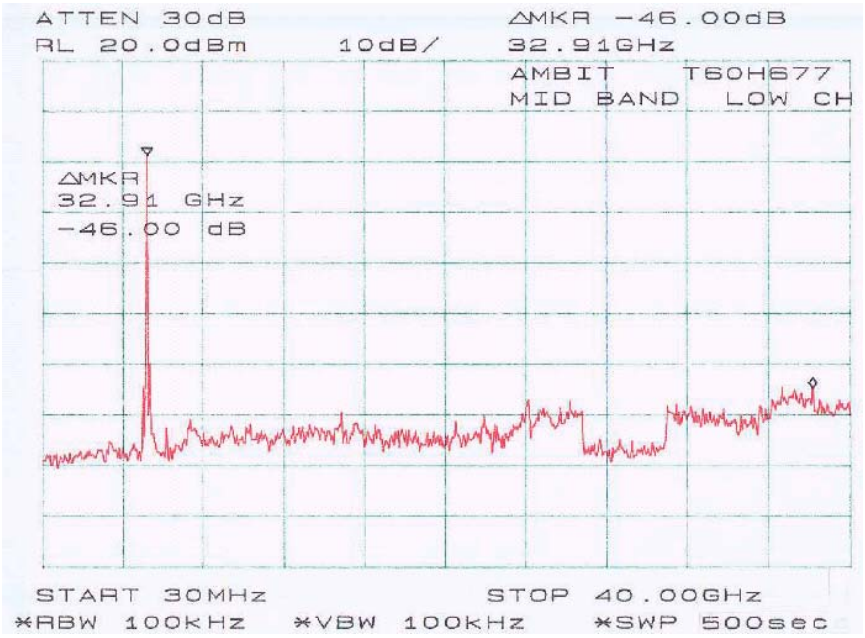
10dB/
ΔMKR -44.17dB
32.38GHz
AMBIT T60H677
LOW BAND.HIGH CH
ΔMKR
32.38 GHz
-44.17 dB
START 30MHz
STOP 40.00GHz
*RBW 100kHz
VBW 100kHz
*SWP 500sec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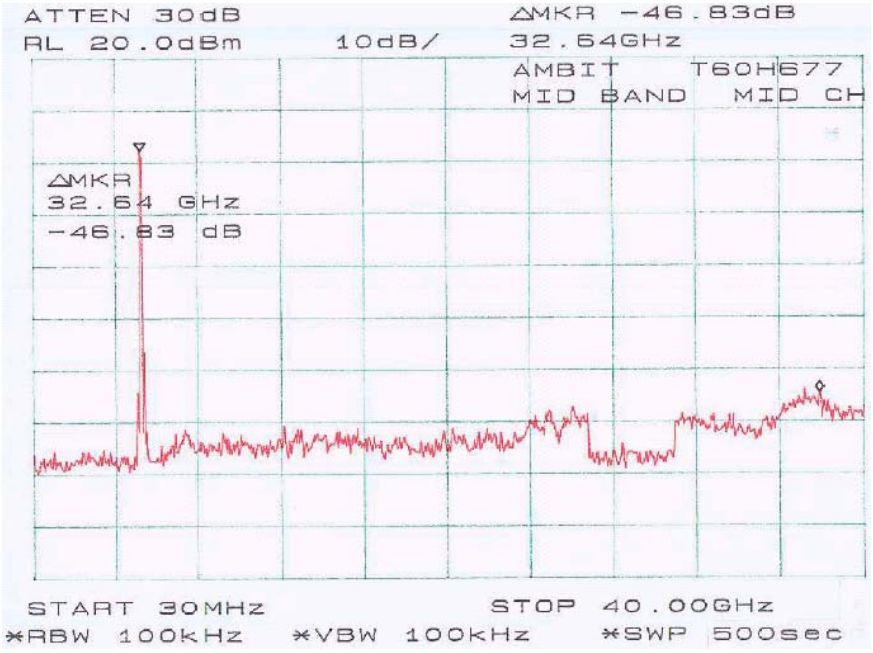
10dB/
ΔMKR -46.00dB
32.91GHz
AMBIT T60H677
MID BAND LOW CH
ΔMKR
32.91 GHz
-46.00 dB
START 30MHz
STOP 40.00GHz
*RBW 100kHz
*VBW 100kHz
*SWP 500sec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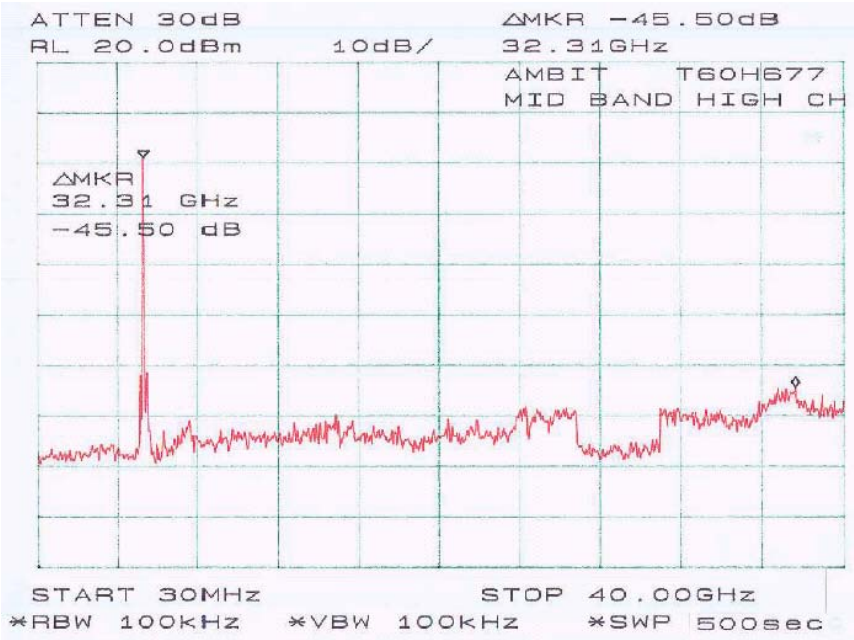
RL 20.0dBm
10dB/
ΔMKR -46.83dB
32.64GHz
AMBIT T60H677
MID BAND MID CH
ΔMKR
32.64 GHz
-46.83 dB
START 30MHz
STOP 40.00GHz
*RBW 100kHz
*VBW 100kHz
*SWP 500sec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10dB/
ΔMKR -45.50dB
32.31GHz
AMBIT T60H677
MID BAND HIGH CH
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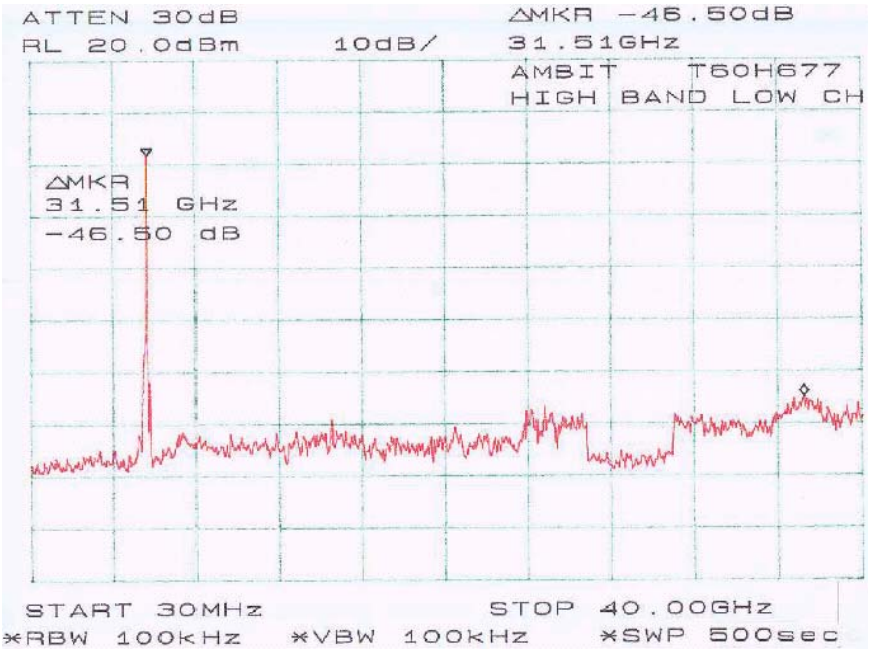
32.31 GHz
-45.50 dB
START 30MHz
STOP 40.00GHz
*RBW 100kHz
*VBW 100kHz
*SWP 500sec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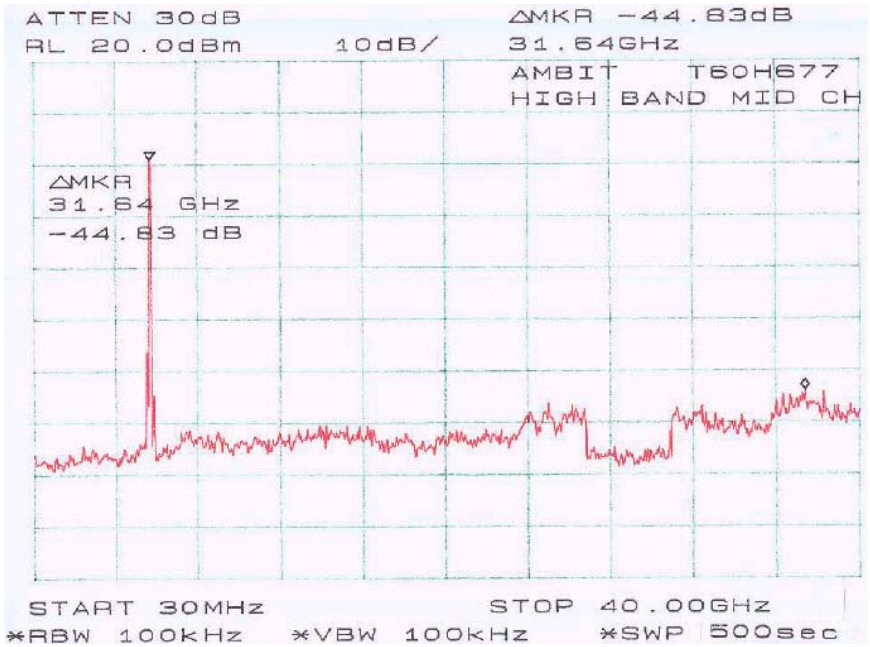
RL 20.0dBm
10dB/
ΔMKR -46.50dB
31.51GHz
AMBIT T60H677
HIGH BAND LOW CH
ΔMKR
31.51 GHz
-46.50 dB
START 30MHz
STOP 40.00GHz
*RBW 100kHz
*VBW 100kHz
*SWP 500sec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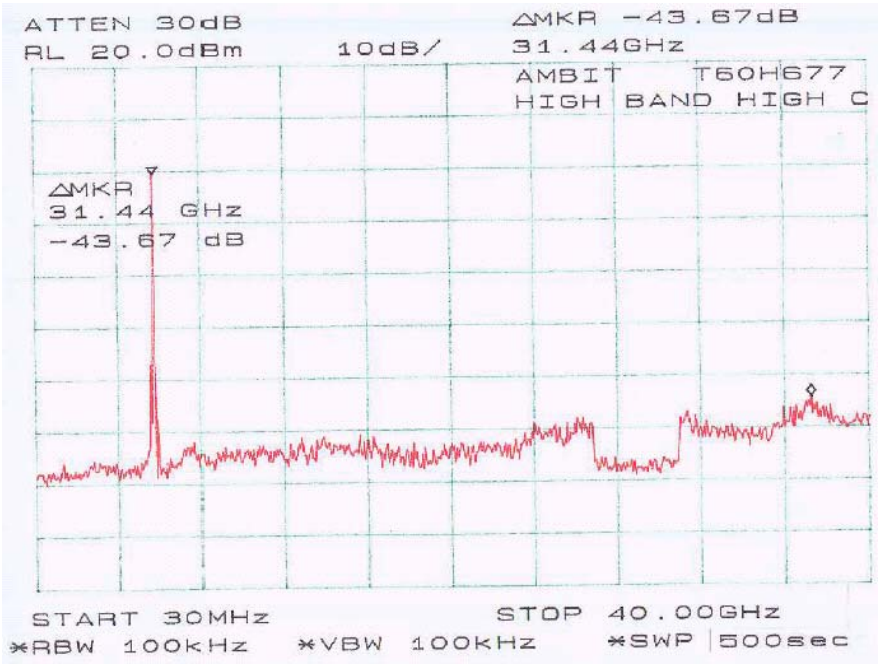
RL 20.0dBm
10dB/
ΔMKR -44.83dB
31.64GHz
AMBIT T60H677
HIGH BAND MID CH
ΔMKR
31.64 GHz
-44.83 dB
START 30MHz
STOP 40.00GHz
*RBW 100kHz
*VBW 100kHz
*SWP 500sec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RL 20.0dBm
10dB/
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AMBIT T60H677
HIGH BAND HIGH C
ΔMKR
31.44 GHz
-43.67 dB
START 30MHz
STOP 40.00GHz
*RBW 100kHz
*VBW 100kHz
*SWP 500sec