

FCC PART 15 TEST REPORT

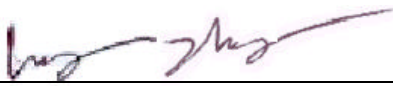
For

AMBIT Microsystems Corporation

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FCC ID: MCLT60M665

2003-07-07

This Report Concerns: ☒ Permissive II Change	Equipment Type: Bluetooth Wireless Card with Wireless LAN MiniPCI Card
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Report No.: R0306112	
Test Date: 2003-06-03	
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TABLE OF CONTENTS

1 - GENERAL INFORMATION.....	3
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	3
1.2 OBJECTIVE	3
1.3 RELATED SUBMITTAL(S)/GRANT(S).....	3
1.4 TEST METHODOLOGY	3
1.5 TEST FACILITY	3
1.6 TEST EQUIPMENT LIST	4
1.7 LOCAL SUPPORT EQUIPMENT LIST AND DETAILS.....	4
1.8 EXTERNAL I/O CABLING LIST AND DETAILS.....	5
2 - SYSTEM TEST CONFIGURATION.....	6
2.1 JUSTIFICATION	6
2.2 EUT EXERCISE SOFTWARE.....	6
2.3 SPECIAL ACCESSORIES.....	6
2.4 SCHEMATICS / BLOCK DIAGRAM	6
2.5 EQUIPMENT MODIFICATIONS.....	6
2.6 CONFIGURATION OF TEST SYSTEM.....	7
2.7 TEST SETUP BLOCK DIAGRAM	7
3 - SUMMARY OF TEST RESULTS	8
4 - SPURIOUS RADIATED EMISSION.....	9
4.1 MEASUREMENT UNCERTAINTY	9
4.2 EUT SETUP	10
4.3 SPECTRUM ANALYZER SETUP	10
4.4 TEST PROCEDURE	11
4.5 CORRECTED AMPLITUDE & MARGIN CALCULATION	11
4.6 TEST RESULTS.....	12
5 - CONDUCTED EMISSIONS	31
5.1 MEASUREMENT UNCERTAINTY	31
5.2 EUT SETUP	31
5.3 SPECTRUM ANALYZER SETUP	31
5.4 TEST PROCEDURE	31
5.5 SUMMARY OF TEST RESULTS.....	31
5.6 CONDUCTED EMISSIONS TEST DATA.....	32
5.7 PLOT OF CONDUCTED EMISSIONS TEST DATA.....	32

1 - GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

The *Ambit Microsystems Corporation's*, model: *T60M665*, or the "EUT" as referred to in this report is a bluetooth wireless Card which measures approximately 2.4"L x 1.7"W x 0.1"H. The EUT operates at 2402 - 2480 MHz, with output of 0.00224W and is co-located with a wireless LAN card.

** The test data gathered is from typical production samples provided by the manufacturer.*

1.2 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 Conducted and Spurious Radiated Emission, for a Permissive Class II application. The difference between the original application and this PC2 is that an additional transmitter, Ambit wireless LAN card 802.11b, was co-located, transmitting with the EUT in the notebook PC. The wireless LAN card was certified with FCC ID: MCLT60H65600, M/N: T60H656. During the test, the EUT was installed in the ACER notebook PC, M/N: SKU-10. The antenna ZI1S and BY27 were used with the wireless LAN card respectively. The antennas were certified with the wireless LAN card 802.11b in the original grant. No changes are made to the EUT itself.

1.3 Related Submittal(s)/Grant(s)

The device was originally granted on 3/19/2003, please refer to FCC Grant under FCC ID:MCLT60M665. The co-located Ambit wireless LAN card is with M/N: T60H656, FCC ID: MCLT60H65600 and was granted on 12/27/02.

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-1992, 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.

1.5 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 C63.4-1992.

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.

1.6 Test Equipment List

Manufacturer	Description	Model	Serial Number	Cal. Due Date
HP	Spectrum Analyzer	8568B	2517A01610	2003-10-30
HP	Spectrum Analyzer	8593A	29190A00242	2004-05-01
HP	Amplifier	8447E	1937A01054	2004-05-01
HP	Quasi-Peak Adapter	85650A	2521A00718	2004-05-01
Com-Power	Biconical Antenna	AB-100	14012	2004-05-01
Com-Power	LISN	LI-200	12005	2004-03-28
Com-Power	LISN	LI-200	12008	2004-03-28
Com-Power	Log Periodic Antenna	AL-100	16091	2004-05-01
Com-Power	Log Periodic Antenna	AB-900	15049	2004-05-01
Rohde & Schwarz	EMI Test Receiver	ESPI	1147 8007 07	2003-12-03
Agilent	Spectrum Analyzer (9KHz – 40GHz)	8564E	08303	2003-08-01
Agilent	Spectrum Analyzer (9KHz – 50GHz)	8565EC	06042	2004-05-03
HP	Amplifier (1-26.5GHz)	8449B	3147A00400	2004-03-14
A.H.System	Horn Antenna (700MHz-18GHz)	SAS-200/571	261	2004-05-31

*** Statement of Traceability:** Bay Area Compliance Laboratory Corp. certifies that all calibration has been performed using suitable standards traceable to the NIST.

1.7 Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
ACER	Notebook PC	SKU-10	N/A	DoC
HP	Printer	2225C	2821S14783	DOC

1.8 External I/O Cabling List and Details

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

2 - SYSTEM TEST CONFIGURATION

2.1 Justification

The host system was configured for testing in a typical fashion (as normally used by a typical user).

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

2.2 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.

2.3 Special Accessories

As shown in section 2.7, all interface cables used for compliance testing are shielded. The host PC and the peripherals featured shielded metal connectors.

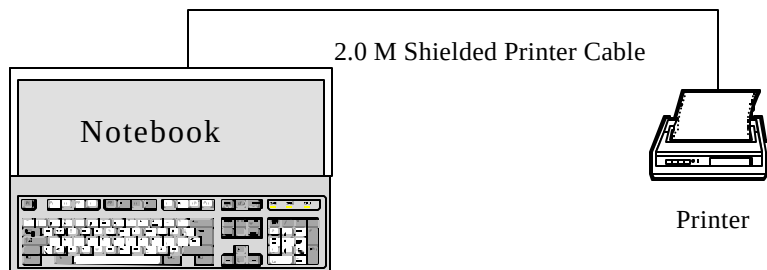
2.4 Schematics / Block Diagram

Please refer to Appendix A.

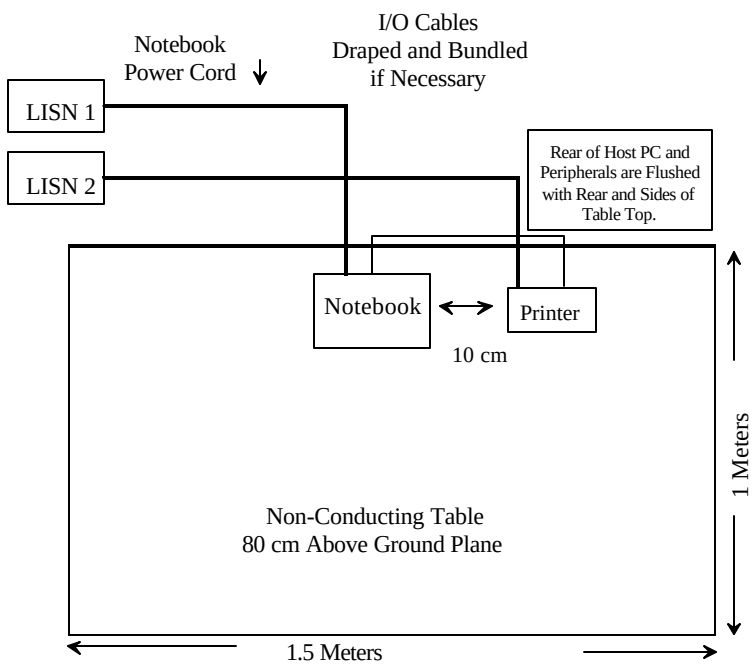
2.5 Equipment Modifications

No modifications were made by BACL to ensure the EUT to comply with the applicable limits and requirements.

2.6 Configuration of Test System



2.7 Test Setup Block Diagram



3 - SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT	REFERENCE
§ 15.209 (a), § 15.205 § 15.247	Radiated Emission Spurious Emission in Restricted Band Unwanted Emission	Compliant	Section 4
§ 15.207 (a)	For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequency within the band 450 kHz to 30 MHz shall not exceed 250 micorvolts.	Compliant	Section 5

4 - SPURIOUS RADIATED EMISSION

4.1 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 field 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

4.2 EUT Setup

The radiated emission tests were performed in the open area 3-meter test site, using the setup in accordance with the ANSI C63.4-1992. 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 when necessary.

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

4.3 Spectrum Analyzer Setup

According to FCC CFR 47, Section 15.31, the EUT was tested to 40GHz. During the radiated emission test, the spectrum analyzer was set with the following configurations:

Start Frequency30 MHz
 Stop Frequency40GHz
 Sweep Speed.....Auto
 IF Bandwidth.....1 MHz
 Video Bandwidth1 MHz
 Quasi-Peak Adapter Bandwidth.....120 kHz
 Quasi-Peak Adapter Mode.....Normal
 Resolution Bandwidth.....1MHz

4.4 Test Procedure

For the radiated emissions test, the Host 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 dB μ V of specification limits), and are distinguished with a "Qp" in the data table.

4.5 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

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

$$\text{Margin} = \text{Corr. Ampl.} - \text{Subpart C Limit}$$

4.6 Test Results

According to the following data, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 (a) and 15.247, and had the worst margin of:

ZI1S Antenna, 30MHz – 25GHz:

T60M665 (Bluetooth Card) transmitted at Low Channel:

-4.9 dB at **4824.00 MHz** in the **Vertical** polarization, T60H656 transmitted at Low Channel

-3.3 dB at **4874.00 MHz** in the **Vertical** polarization, T60H656 transmitted at Middle Channel

-4.4 dB at **4924.00 MHz** in the **Vertical** polarization, T60H656 transmitted at High Channel

T60M665 (Bluetooth Card) transmitted at Mid Channel:

-2.6 dB at **4824.00 MHz** in the **Vertical** polarization, T60H656 transmitted at Low Channel

-3.9 dB at **4874.00 MHz** in the **Vertical** polarization, T60H656 transmitted at Middle Channel

-2.9 dB at **4924.00 MHz** in the **Vertical** polarization, T60H656 transmitted at High Channel

T60M665 (Bluetooth Card) transmitted at High Channel:

-5.4 dB at **4824.00 MHz** in the **Vertical** polarization, T60H656 transmitted at Low Channel

-5.6 dB at **4874.00 MHz** in the **Vertical** polarization, T60H656 transmitted at Middle Channel

-2.4 dB at **4924.00 MHz** in the **Vertical** polarization, T60H656 transmitted at High Channel

-4.7 dB at **205.15 MHz** in the **Vertical** polarization, Unwanted Emission

BY27 Antenna, 30MHz – 25GHz:

T60M665 (Bluetooth Card) transmitted at Low Channel:

-13.4 dB at **7236.00 MHz** in the **Horizontal** polarization, T60H656 transmitted at Low Channel

-12.8 dB at **7311.00.00 MHz** in the **Horizontal** polarization, T60H656 transmitted at Middle Channel

-12.6 dB at **7386.00 MHz** in the **Vertical** polarization, T60H656 transmitted at High Channel

T60M665 (Bluetooth Card) transmitted at Mid Channel:

-13.3 dB at **7236.00 MHz** in the **Horizontal** polarization, T60H656 transmitted at Low Channel

-12.8 dB at **7311.00 MHz** in the **Horizontal** polarization, T60H656 transmitted at Middle Channel

-11.7 dB at **7323.00 MHz** in the **Vertical** polarization, T60H656 transmitted at High Channel

T60M665 (Bluetooth Card) transmitted at High Channel:

-12.8 dB at **7236.00 MHz** in the **Horizontal** polarization, T60H656 transmitted at Low Channel

-13.8 dB at **7311.00 MHz** in the **Horizontal** polarization, T60H656 transmitted at Middle Channel

-3.8 dB at **7440.00 MHz** in the **Vertical** polarization, T60H656 transmitted at High Channel

-3.3 dB at **972.50 MHz** in the **Vertical** polarization, Unwanted Emission

4.6.1 T60H656 802.11b transmitted with T60M665 Bluetooth Low Channel, Antenna ZI1S

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, 30MHz-25GHz											
2412.00	107.8	Peak	45	2.2	v	28.1	3.4	35.2	104.1		
2412.00	101.7	Peak	270	2.0	h	28.1	3.4	35.2	97.9		
2412.00	98.7	Ave	45	2.2	v	28.1	3.4	35.2	94.9		
2412.00	93.5	Ave	270	2.0	h	28.1	3.4	35.2	89.8		
4824.00	44.7	Ave	180	1.0	v	32.5	4.9	33.0	49.1	54	-4.9
4824.00	39.7	Ave	15	1.6	h	32.5	4.9	33.0	44.1	54	-9.9
7236.00	36.5	Ave	200	1.5	v	35.1	5.6	33.5	43.7	54	-10.3
7236.00	36.3	Ave	0	1.4	h	35.1	5.6	33.5	43.6	54	-10.4
7236.00	49.5	Peak	200	1.5	v	35.1	5.6	33.5	56.7	74	-17.3
7236.00	48.3	Peak	0	1.4	h	35.1	5.6	33.5	55.6	74	-18.4
4824.00	50.7	Peak	180	1.0	v	32.5	4.9	33.0	55.1	74	-18.9
4824.00	48.5	Peak	15	1.6	h	32.5	4.9	33.0	52.9	74	-21.1

Mid Channel, 30MHz-25GHz											
2437.00	108.2	Peak	30	1.0	v	28.1	3.4	35.2	104.4		
2437.00	102.2	Peak	270	1.0	h	28.1	3.4	35.2	98.4		
2437.00	99.8	Ave	30	1.0	v	28.1	3.4	35.2	96.1		
2437.00	95.2	Ave	270	1.0	h	28.1	3.4	36.2	90.4		
2402.00	94.3	Peak	270	1.0	v	28.1	3.4	35.2	90.6		
2402.00	88.7	Peak	0	1.8	h	28.1	3.4	35.2	84.9		
2402.00	93.2	Ave	270	1.0	v	28.1	3.4	35.2	89.4		
2402.00	87.8	Ave	0	1.8	h	28.1	3.4	36.2	83.1		
4874.00	46.3	Ave	150	1.5	v	32.5	4.9	33.0	50.7	54	-3.3
4874.00	40.0	Ave	180	1.8	h	32.5	4.9	33.0	44.4	54	-9.6
7311.00	36.7	Ave	30	1.2	v	35.1	5.6	33.5	43.9	54	-10.1
7311.00	36.5	Ave	200	1.6	h	35.1	5.6	33.5	43.7	54	-10.3
7206.00	36.3	Ave	0	1.5	v	35.1	5.6	33.5	43.5	54	-10.5
7206.00	36.2	Ave	45	1.4	h	35.1	5.6	33.5	43.4	54	-10.6
4804.00	33.8	Ave	270	1.4	v	32.5	4.9	33.0	38.2	54	-15.8
4804.00	33.5	Ave	90	1.5	h	32.5	4.9	33.0	37.9	54	-16.1
7311.00	49.8	Peak	30	1.2	v	35.1	5.6	33.5	57.1	74	-16.9
4874.00	49.5	Peak	180	1.8	h	32.5	4.9	33.0	56.6	74	-17.4
7311.00	49.4	Peak	200	1.6	h	35.1	5.6	33.5	56.6	74	-17.4
7206.00	48.8	Peak	0	1.5	v	35.1	5.6	33.5	56.1	74	-17.9
7206.00	48.7	Peak	45	1.4	h	35.1	5.6	33.5	55.9	74	-18.1
4874.00	52.2	Peak	150	1.5	v	32.5	4.9	35.2	54.4	74	-19.6
4804.00	46.2	Peak	90	1.5	h	32.5	4.9	33.0	50.9	74	-23.1
4804.00	46.5	Peak	270	1.4	v	32.5	4.9	35.2	48.7	74	-25.3

High Channel, 30MHz-25GHz											
2462.00	102.7	Peak	270	1.3	v	28.1	3.4	35.2	98.9		
2462.00	98.5	Peak	100	1.6	h	28.1	3.4	35.2	94.8		
2462.00	94.0	Ave	270	1.3	v	28.1	3.4	35.2	90.3		
2462.00	89.5	Ave	100	1.6	h	28.1	3.4	36.2	84.8		
2402.00	91.7	Peak	180	2.0	v	28.1	3.4	35.2	87.9		
2402.00	89.5	Peak	180	1.2	h	28.1	3.4	35.2	85.8		
2402.00	90.2	Ave	180	2.0	v	28.1	3.4	35.2	86.4		
2402.00	88.0	Ave	180	1.2	h	28.1	3.4	36.2	83.3		
4924.00	45.2	Ave	0	1.5	v	32.5	4.9	33.0	49.6	54	-4.4
4924.00	39.3	Ave	180	1.7	h	32.5	4.9	33.0	43.7	54	-10.3
7386.00	36.2	Ave	270	1.4	v	35.1	5.6	33.5	43.4	54	-10.6
7386.00	36.1	Ave	120	1.5	h	35.1	5.6	33.5	43.3	54	-10.7
7206.00	36.1	Ave	180	2.0	v	35.1	5.6	33.5	43.3	54	-10.7
7206.00	36.0	Ave	0	1.4	h	35.1	5.6	33.5	43.2	54	-10.8
4804.00	33.4	Ave	150	1.8	v	32.5	4.9	33.0	37.8	54	-16.2
4804.00	33.3	Ave	30	1.5	h	32.5	4.9	33.0	37.7	54	-16.3
7386.00	49.5	Peak	270	1.4	v	35.1	5.6	33.5	56.7	74	-17.3
4924.00	49.2	Peak	180	1.7	h	32.5	4.9	33.0	56.6	74	-17.4
7206.00	49.2	Peak	180	2.0	v	35.1	5.6	33.5	56.4	74	-17.6
7206.00	49.2	Peak	0	1.4	h	35.1	5.6	33.5	56.4	74	-17.6
7386.00	49.0	Peak	120	1.5	h	35.1	5.6	33.5	56.2	74	-17.8
4924.00	52.2	Peak	0	1.5	v	32.5	4.9	35.2	54.4	74	-19.6
4804.00	46.0	Peak	30	1.5	h	32.5	4.9	33.0	50.7	74	-23.3
4804.00	46.3	Peak	150	1.8	v	32.5	4.9	35.2	48.5	74	-25.5

4.6.2 T60H656 802.11b transmitted with T60M665 Bluetooth Mid Channel, Antenna ZI1S

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, 30MHz-25GHz											
2412.00	109.2	Peak	270	1.5	v	28.1	3.4	35.2	105.4		
2412.00	104.2	Peak	30	1.4	h	28.1	3.4	35.2	100.4		
2412.00	103.0	Ave	270	1.5	v	28.1	3.4	35.2	99.3		
2412.00	96.0	Ave	30	1.4	h	28.1	3.4	35.2	92.3		
2441.00	92.83	Peak	270	1.0	v	28.1	3.4	35.2	89.1		
2441.00	86.2	Peak	180	1.4	h	28.1	3.4	35.2	82.4		
2441.00	91.67	Ave	270	1.0	v	28.1	3.4	35.2	87.9		
2441.00	85.2	Ave	180	1.4	h	28.1	3.4	36.2	80.4		
4824.00	47.0	Ave	60	1.5	v	32.5	4.9	33.0	51.4	54	-2.6
4824.00	40.7	Ave	220	1.8	h	32.5	4.9	33.0	45.1	54	-8.9
7236.00	36.5	Ave	270	1.2	v	35.1	5.6	33.5	43.7	54	-10.3
7236.00	36.5	Ave	270	1.7	h	35.1	5.6	33.5	43.7	54	-10.3
7323.00	36.3	Ave	90	1.0	v	35.1	5.6	33.5	43.5	54	-10.5
7323.00	36.3	Ave	30	1.5	h	35.1	5.6	33.5	43.5	54	-10.5
4882.00	33.3	Ave	250	1.2	v	32.5	4.9	33.0	37.7	54	-16.3
4882.00	33.0	Ave	30	1.3	h	32.5	4.9	33.0	37.4	54	-16.6
7323.00	49.5	Peak	90	1.0	v	35.1	5.6	33.5	56.7	74	-17.3
7323.00	49.3	Peak	30	1.5	h	35.1	5.6	33.5	56.5	74	-17.5
4824.00	52.0	Peak	60	1.5	v	32.5	4.9	33.0	56.4	74	-17.6
7236.00	49.2	Peak	270	1.7	h	35.1	5.6	33.5	56.4	74	-17.6
7236.00	49.0	Peak	270	1.2	v	35.1	5.6	33.5	56.2	74	-17.8
4824.00	49.3	Peak	220	1.8	h	32.5	4.9	33.0	53.7	74	-20.3
4882.00	46.2	Peak	30	1.3	h	32.5	4.9	33.0	50.9	74	-23.1
4882.00	46.5	Peak	250	1.2	v	32.5	4.9	35.2	48.7	74	-25.3

Mid Channel, 30MHz-25GHz											
2437.00	108.8	Peak	200	1.2	v	28.1	3.4	35.2	105.1		
2437.00	101.7	Peak	180	2.2	h	28.1	3.4	35.2	97.9		
2437.00	101.2	Ave	200	1.2	v	28.1	3.4	35.2	97.4		
2437.00	94.5	Ave	180	2.2	h	28.1	3.4	36.2	89.8		
4874.00	45.7	Ave	0	2.2	v	32.5	4.9	33.0	50.1	54	-3.9
7311.00	36.7	Ave	200	1.5	v	35.1	5.6	33.5	43.9	54	-10.1
7311.00	36.5	Ave	30	1.8	h	35.1	5.6	33.5	43.7	54	-10.3
4874.00	37.7	Ave	270	1.5	h	32.5	4.9	33.0	42.1	54	-11.9
7311.00	49.5	Peak	200	1.5	v	35.1	5.6	33.5	56.7	74	-17.3
4874.00	48.2	Peak	270	1.5	h	32.5	4.9	33.0	56.6	74	-17.4
7311.00	49.2	Peak	30	1.8	h	35.1	5.6	33.5	56.4	74	-17.6
4874.00	52.2	Peak	0	2.2	v	32.5	4.9	35.2	54.4	74	-19.6
High Channel, 30MHz-25GHz											
2462.00	105.3	Peak	270	1.5	v	28.1	3.4	35.2	101.6		
2462.00	98.3	Peak	250	1.2	h	28.1	3.4	35.2	94.6		
2462.00	96.2	Ave	270	1.5	v	28.1	3.4	35.2	92.4		
2462.00	88.5	Ave	250	1.2	h	28.1	3.4	36.2	83.8		
2441.00	92.8	Peak	270	1.0	v	28.1	3.4	35.2	89.1		
2441.00	86.3	Peak	250	1.6	h	28.1	3.4	35.2	82.6		
2441.00	91.5	Ave	270	1.0	v	28.1	3.4	35.2	87.8		
2441.00	85.8	Ave	250	1.6	h	28.1	3.4	36.2	81.1		
4924.00	46.7	Ave	180	1.7	v	32.5	4.9	33.0	51.1	54	-2.9
4924.00	39.3	Ave	270	1.6	h	32.5	4.9	33.0	43.7	54	-10.3
7386.00	36.3	Ave	90	1.6	v	35.1	5.6	33.5	43.6	54	-10.4
7323.00	36.3	Ave	300	1.2	v	35.1	5.6	33.5	43.5	54	-10.5
7386.00	36.2	Ave	220	1.5	h	35.1	5.6	33.5	43.4	54	-10.6
7323.00	36.2	Ave	60	1.4	h	35.1	5.6	33.5	43.4	54	-10.6
4882.00	33.3	Ave	270	1.0	v	32.5	4.9	33.0	37.7	54	-16.3
4882.00	33.2	Ave	120	1.5	h	32.5	4.9	33.0	37.6	54	-16.4
4924.00	49.7	Peak	270	1.6	h	32.5	4.9	33.0	57.4	74	-16.6
7323.00	49.4	Peak	300	1.2	v	35.1	5.6	33.5	56.6	74	-17.4
7386.00	49.3	Peak	90	1.6	v	35.1	5.6	33.5	56.5	74	-17.5
7386.00	49.0	Peak	220	1.5	h	35.1	5.6	33.5	56.2	74	-17.8
7323.00	49.0	Peak	60	1.4	h	35.1	5.6	33.5	56.2	74	-17.8
4924.00	53.0	Peak	180	1.7	v	32.5	4.9	35.2	55.2	74	-18.8
4882.00	46.0	Peak	120	1.5	h	32.5	4.9	33.0	50.8	74	-23.2
4882.00	46.4	Peak	270	1.0	v	32.5	4.9	35.2	48.6	74	-25.4

4.6.3 T60H656 802.11b transmitted with T60M665 Bluetooth high Channel, Antenna ZI1S

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, 30MHz-25GHz											
2412.00	109.0	Peak	60	1.0	v	28.1	3.4	35.2	105.3		
2412.00	103.0	Peak	250	1.2	h	28.1	3.4	35.2	99.3		
2412.00	102.0	Ave	60	1.0	v	28.1	3.4	35.2	98.3		
2412.00	93.7	Ave	250	1.2	h	28.1	3.4	35.2	89.9		
2480.00	91.5	Peak	270	1.5	v	28.1	3.4	35.2	87.8		
2480.00	85.3	Peak	220	1.6	h	28.1	3.4	35.2	81.6		
2480.00	91.2	Ave	270	1.5	v	28.1	3.4	35.2	87.4		
2480.00	83.7	Ave	220	1.6	h	28.1	3.4	36.2	78.9		
4824.00	44.2	Ave	270	1.1	v	32.5	4.9	33.0	48.6	54	-5.4
7236.00	36.5	Ave	30	1.4	v	35.1	5.6	33.5	43.7	54	-10.3
7440.00	36.4	Ave	250	1.5	v	35.1	5.6	33.5	43.6	54	-10.4
7236.00	36.3	Ave	270	1.2	h	35.1	5.6	33.5	43.5	54	-10.5
7440.00	36.3	Ave	30	1.6	h	35.1	5.6	33.5	43.5	54	-10.5
4824.00	38.2	Ave	45	1.0	h	32.5	4.9	33.0	42.6	54	-11.4
4960.00	33.2	Ave	300	1.5	v	32.5	4.9	33.0	37.6	54	-16.4
4960.00	33.2	Ave	180	1.4	h	32.5	4.9	33.0	37.6	54	-16.4
7236.00	49.7	Peak	30	1.4	v	35.1	5.6	33.5	56.9	74	-17.1
7440.00	49.5	Peak	250	1.5	v	35.1	5.6	33.5	56.7	74	-17.3
7236.00	49.3	Peak	270	1.2	h	35.1	5.6	33.5	56.5	74	-17.5
7440.00	49.2	Peak	30	1.6	h	35.1	5.6	33.5	56.4	74	-17.6
4824.00	50.3	Peak	270	1.1	v	32.5	4.9	33.0	54.7	74	-19.3
4824.00	48.0	Peak	45	1.0	h	32.5	4.9	33.0	52.4	74	-21.6
4960.00	46.1	Peak	180	1.4	h	32.5	4.9	33.0	50.7	74	-23.3
4960.00	46.3	Peak	300	1.5	v	32.5	4.9	35.2	48.5	74	-25.5

Mid Channel, 30MHz-25GHz											
2437.00	107.7	Peak	270	1.5	v	28.1	3.4	35.2	103.9		
2437.00	103.2	Peak	250	1.6	h	28.1	3.4	35.2	99.4		
2437.00	99.8	Ave	270	1.5	v	28.1	3.4	35.2	96.1		
2437.00	95.0	Ave	250	1.6	h	28.1	3.4	36.2	90.3		
2480.00	92.3	Peak	270	1.0	v	28.1	3.4	35.2	88.6		
2480.00	87.0	Peak	270	1.5	h	28.1	3.4	35.2	83.3		
2480.00	90.8	Ave	270	1.0	v	28.1	3.4	35.2	87.1		
2480.00	86.3	Ave	270	1.5	h	28.1	3.4	36.2	81.6		
4874.00	44.0	Ave	150	1.3	v	32.5	4.9	33.0	48.4	54	-5.6
7311.00	36.3	Ave	270	1.5	v	35.1	5.6	33.5	43.5	54	-10.5
7311.00	36.2	Ave	180	1.4	h	35.1	5.6	33.5	43.4	54	-10.6
7440.00	36.1	Ave	250	1.2	v	35.1	5.6	33.5	43.3	54	-10.7
7440.00	36.1	Ave	270	1.5	h	35.1	5.6	33.5	43.3	54	-10.7
4874.00	38.3	Ave	15	1.2	h	32.5	4.9	33.0	42.7	54	-11.3
4960.00	33.1	Ave	90	1.2	v	32.5	4.9	33.0	37.5	54	-16.5
4960.00	33.0	Ave	270	1.5	h	32.5	4.9	33.0	37.4	54	-16.6
7311.00	49.4	Peak	270	1.5	v	35.1	5.6	33.5	56.6	74	-17.4
7440.00	49.3	Peak	250	1.2	v	35.1	5.6	33.5	56.5	74	-17.5
7440.00	49.2	Peak	270	1.5	h	35.1	5.6	33.5	56.4	74	-17.6
7311.00	48.8	Peak	180	1.4	h	35.1	5.6	33.5	56.1	74	-17.9
4874.00	48.8	Peak	15	1.2	h	32.5	4.9	33.0	54.4	74	-19.6
4874.00	50.0	Peak	150	1.3	v	32.5	4.9	35.2	52.2	74	-21.8
4960.00	46.2	Peak	270	1.5	h	32.5	4.9	33.0	50.8	74	-23.2
4960.00	46.4	Peak	90	1.2	v	32.5	4.9	35.2	48.6	74	-25.4

High Channel, 1-50GHz											
2462.00	106.0	Peak	60	1.0	v	28.1	3.4	35.2	102.3		
2462.00	102.5	Peak	270	1.6	h	28.1	3.4	35.2	98.8		
2462.00	97.7	Ave	60	1.0	v	28.1	3.4	35.2	93.9		
2462.00	94.3	Ave	270	1.6	h	28.1	3.4	36.2	89.6		
2480.00	92.7	Peak	270	1.0	v	28.1	3.4	35.2	88.9		
2480.00	87.3	Peak	250	1.5	h	28.1	3.4	35.2	83.6		
2480.00	91.5	Ave	270	1.0	v	28.1	3.4	35.2	87.8		
2480.00	85.3	Ave	250	1.5	h	28.1	3.4	36.2	80.6		
4924.00	47.2	Ave	180	1.8	v	32.5	4.9	33.0	51.6	54	-2.4
4924.00	39.8	Ave	180	1.6	h	32.5	4.9	33.0	44.2	54	-9.8
7386.00	36.5	Ave	45	1.2	v	35.1	5.6	33.5	43.7	54	-10.3
7440.00	36.4	Ave	270	1.2	v	35.1	5.6	33.5	43.6	54	-10.4
7386.00	36.3	Ave	270	1.5	h	35.1	5.6	33.5	43.5	54	-10.5
7440.00	36.3	Ave	250	1.5	h	35.1	5.6	33.5	43.5	54	-10.5
4960.00	33.3	Ave	90	1.2	v	32.5	4.9	33.0	37.7	54	-16.3
4960.00	33.2	Ave	300	1.5	h	32.5	4.9	33.0	37.6	54	-16.4
7440.00	49.7	Peak	270	1.2	v	35.1	5.6	33.5	56.9	74	-17.1
4924.00	49.7	Peak	180	1.6	h	32.5	4.9	33.0	56.6	74	-17.4
7386.00	49.3	Peak	45	1.2	v	35.1	5.6	33.5	56.5	74	-17.5
7386.00	49.1	Peak	270	1.5	h	35.1	5.6	33.5	56.3	74	-17.7
7440.00	49.0	Peak	250	1.5	h	35.1	5.6	33.5	56.2	74	-17.8
4924.00	52.2	Peak	180	1.8	v	32.5	4.9	35.2	54.4	74	-19.6
4960.00	46.0	Peak	300	1.5	h	32.5	4.9	33.0	50.7	74	-23.3
4960.00	46.3	Peak	90	1.2	v	32.5	4.9	35.2	48.5	74	-25.5

Unwanted Emission, 30 – 1000MHz											
205.15	50.17	/	250	1.5	v	11.5	2.2	25.0	38.8	43.5	-4.7
232.53	49.83	/	220	1.5	v	12.6	2.2	25.0	39.6	46	-6.4
396.25	44.30	/	90	1.2	h	16.4	2.5	25.0	38.2	46	-7.8
175.83	45.20	/	0	1.4	v	13.1	1.9	25.0	35.2	43.5	-8.3
132.00	45.50	/	100	1.2	v	12.0	1.6	25.0	34.1	43.5	-9.4
149.50	44.00	/	90	1.8	h	12.6	1.7	25.0	33.2	43.5	-10.3
482.17	35.17	/	120	1.4	v	18.3	3.1	25.0	31.6	46	-14.4

4.6.4 T60H656 802.11b transmitted with T60M665 Bluetooth Low Channel, Antenna BY27

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, 30MHz-25GHz											
2412.00	111.33	Peak	90	1.6	v	28.1	3.4	29.0	113.8		
2412.00	109.83	Peak	330	1.5	h	28.1	3.4	29.0	112.3		
2412.00	103.67	Ave	90	1.6	v	28.1	3.4	29.0	106.1		
2412.00	101.50	Ave	330	1.5	h	28.1	3.4	29.0	104.0		
2402.00	96.00	Peak	90	1.5	v	28.1	3.4	29.0	98.5		
2402.00	92.17	Peak	270	1.4	h	28.1	3.4	29.0	94.6		
2402.00	93.50	Ave	90	1.5	v	28.1	3.4	29.0	96.0		
2402.00	89.67	Ave	270	1.4	h	28.1	3.4	29.0	92.1		
7236.00	36.33	Ave	180	1.4	h	35.1	5.6	36.5	40.6	54	-13.4
4824.00	35.83	Ave	170	1.4	h	32.5	4.9	33.0	40.2	54	-13.8
7236.00	35.33	Ave	90	1.6	v	35.1	5.6	36.5	39.6	54	-14.4
7206.00	35.33	Ave	90	1.6	v	35.1	5.6	36.5	39.6	54	-14.4
7206.00	35.17	Ave	270	1.5	h	35.1	5.6	36.5	39.4	54	-14.6
4824.00	34.01	Ave	0	1.6	v	32.5	4.9	33.0	38.4	54	-15.6
4804.00	33.50	Ave	45	1.5	v	32.5	4.9	33.0	37.9	54	-16.1
4804.00	33.33	Ave	90	1.4	h	32.5	4.9	33.0	37.7	54	-16.3
4824.00	49.00	Peak	0	1.6	v	32.5	4.9	33.0	53.4	74	-20.6
7236.00	48.33	Peak	180	1.4	h	35.1	5.6	36.5	52.6	74	-21.4
4804.00	47.17	Peak	45	1.5	v	32.5	4.9	33.0	51.6	74	-22.4
7236.00	47.17	Peak	90	1.6	v	35.1	5.6	36.5	51.4	74	-22.6
4824.00	46.50	Peak	170	1.4	h	32.5	4.9	33.0	50.9	74	-23.1
7206.00	46.53	Peak	270	1.5	h	35.1	5.6	36.5	50.8	74	-23.2
7206.00	46.33	Peak	90	1.6	v	35.1	5.6	36.5	50.6	74	-23.4
4804.00	45.67	Peak	90	1.4	h	32.5	4.9	33.0	50.1	74	-23.9

Mid Channel, 30MHz-25GHz											
2437.00	111.33	Peak	90	1.3	v	28.1	3.4	29.0	113.8		
2437.00	108.00	Peak	90	1.4	h	28.1	3.4	29.0	110.5		
2437.00	102.50	Ave	90	1.3	v	28.1	3.4	29.0	105.0		
2437.00	99.50	Ave	90	1.4	h	28.1	3.4	29.0	102.0		
2402.00	96.50	Peak	100	1.5	v	28.1	3.4	29.0	99.0		
2402.00	93.00	Peak	270	1.4	h	28.1	3.4	29.0	95.5		
2402.00	94.00	Ave	100	1.5	v	28.1	3.4	29.0	96.5		
2402.00	90.21	Ave	270	1.4	h	28.1	3.4	29.0	92.7		
7311.00	36.91	Ave	270	1.5	h	35.1	5.6	36.5	41.2	54	-12.8
7206.00	36.25	Ave	90	1.6	v	35.1	5.6	36.5	40.5	54	-13.5
7311.00	35.48	Ave	90	1.6	v	35.1	5.6	36.5	39.7	54	-14.3
7206.00	35.17	Ave	270	1.5	h	35.1	5.6	36.5	39.4	54	-14.6
4874.00	34.12	Ave	45	1.5	v	32.5	4.9	33.0	38.5	54	-15.5
4874.00	34.00	Ave	90	1.4	h	32.5	4.9	33.0	38.4	54	-15.6
4804.00	33.50	Ave	45	1.5	v	32.5	4.9	33.0	37.9	54	-16.1
4804.00	33.33	Ave	90	1.4	h	32.5	4.9	33.0	37.7	54	-16.3
7311.00	48.24	Peak	270	1.5	h	35.1	5.6	36.5	52.5	74	-21.5
4874.00	47.52	Peak	45	1.5	v	32.5	4.9	33.0	51.9	74	-22.1
4804.00	47.17	Peak	45	1.5	v	32.5	4.9	33.0	51.6	74	-22.4
7311.00	47.00	Peak	90	1.6	v	35.1	5.6	36.5	51.2	74	-22.8
7206.00	46.53	Peak	270	1.5	h	35.1	5.6	36.5	50.8	74	-23.2
7206.00	46.35	Peak	90	1.6	v	35.1	5.6	36.5	50.6	74	-23.4
4804.00	45.87	Peak	90	1.4	h	32.5	4.9	33.0	50.3	74	-23.7
4874.00	45.25	Peak	90	1.4	h	32.5	4.9	33.0	49.7	74	-24.3

High Channel, 30MHz-25GHz											
2462.00	113.93	Peak	90	1.3	v	28.1	3.4	29.0	116.4		
2462.00	110.67	Peak	60	1.4	h	28.1	3.4	29.0	113.1		
2462.00	106.98	Ave	90	1.3	v	28.1	3.4	29.0	109.4		
2462.00	102.17	Ave	60	1.4	h	28.1	3.4	29.0	104.6		
2402.00	92.00	Peak	85	1.4	v	28.1	3.4	29.0	94.5		
2402.00	92.17	Peak	130	1.2	h	28.1	3.4	29.0	94.6		
2402.00	91.50	Ave	85	1.4	v	28.1	3.4	29.0	94.0		
2402.00	91.83	Ave	130	1.2	h	28.1	3.4	29.0	94.3		
7386.00	37.17	Ave	120	1.1	v	35.1	5.6	36.5	41.4	54	-12.6
7386.00	37.02	Ave	300	1.2	h	35.1	5.6	36.5	41.3	54	-12.7
4924.00	36.17	Ave	85	1.2	v	32.5	4.9	33.0	40.6	54	-13.4
7206.00	35.57	Ave	90	1.6	v	35.1	5.6	36.5	39.8	54	-14.2
7206.00	35.20	Ave	270	1.5	h	35.1	5.6	36.5	39.4	54	-14.6
4924.00	34.83	Ave	300	1.1	h	32.5	4.9	33.0	39.2	54	-14.8
4804.00	33.56	Ave	50	1.4	v	32.5	4.9	33.0	38.0	54	-16.0
4804.00	33.50	Ave	90	1.3	h	32.5	4.9	33.0	37.9	54	-16.1
7386.00	48.17	Peak	120	1.1	v	35.1	5.6	36.5	52.4	74	-21.6
7386.00	48.00	Peak	300	1.2	h	35.1	5.6	36.5	52.2	74	-21.8
4924.00	47.17	Peak	85	1.2	v	32.5	4.9	33.0	51.6	74	-22.4
4804.00	47.21	Peak	50	1.4	v	32.5	4.9	33.0	51.6	74	-22.4
7206.00	46.51	Peak	270	1.5	h	35.1	5.6	36.5	50.8	74	-23.2
4924.00	46.27	Peak	300	1.1	h	32.5	4.9	33.0	50.7	74	-23.3
7206.00	46.31	Peak	90	1.6	v	35.1	5.6	36.5	50.6	74	-23.4
4804.00	45.67	Peak	90	1.3	h	32.5	4.9	33.0	50.1	74	-23.9

4.6.5 T60H656 802.11b transmitted with T60M665 Bluetooth Mid Channel, Antenna BY27

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency	Ampl.	Comments	Angle	Height	Polar	Antenna	Cable	Amp.	Corr. Ampl.	Limit	Margin
MHz	dBμV/m		Degree	Meter	H/ V	dBμV/m	DB	DB	dBμV/m	dBμV/ m	dB
Low Channel, 30MHz-25GHz											
2412.00	112.33	Peak	90	1.7	v	28.1	3.4	29.0	114.8		
2412.00	109.33	Peak	330	1.6	h	28.1	3.4	29.0	111.8		
2412.00	104.33	Ave	90	1.7	v	28.1	3.4	29.0	106.8		
2412.00	101.33	Ave	330	1.6	h	28.1	3.4	29.0	103.8		
2441.00	92.17	Peak	90	1.7	v	28.1	3.4	29.0	94.6		
2441.00	84.33	Peak	300	1.6	h	28.1	3.4	29.0	86.8		
2441.00	91.83	Ave	90	1.7	v	28.1	3.4	29.0	94.3		
2441.00	82.67	Ave	300	1.6	h	28.1	3.4	29.0	85.1		
7236.00	36.50	Ave	180	1.4	h	35.1	5.6	36.5	40.7	54	-13.3
4824.00	36.00	Ave	170	1.4	h	32.5	4.9	33.0	40.4	54	-13.6
7236.00	35.38	Ave	90	1.5	v	35.1	5.6	36.5	39.6	54	-14.4
7323.00	34.84	Ave	90	1.5	v	35.1	5.6	36.5	39.1	54	-14.9
4824.00	34.54	Ave	0	1.5	v	32.5	4.9	33.0	39.0	54	-15.1
7323.00	34.52	Ave	260	1.4	h	35.1	5.6	36.5	38.8	54	-15.2
4882.00	32.87	Ave	50	1.5	v	32.5	4.9	33.0	37.3	54	-16.7
4882.00	32.77	Ave	85	1.4	h	32.5	4.9	33.0	37.2	54	-16.8
4824.00	49.83	Peak	0	1.5	v	32.5	4.9	33.0	54.2	74	-19.8
7236.00	48.51	Peak	180	1.4	h	35.1	5.6	36.5	52.8	74	-21.2
7236.00	47.40	Peak	90	1.5	v	35.1	5.6	36.5	51.6	74	-22.4
4824.00	46.71	Peak	170	1.4	h	32.5	4.9	33.0	51.1	74	-22.9
4882.00	46.64	Peak	50	1.5	v	32.5	4.9	33.0	51.1	74	-23.0
7323.00	45.97	Peak	260	1.4	h	35.1	5.6	36.5	50.2	74	-23.8
7323.00	45.75	Peak	90	1.5	v	35.1	5.6	36.5	50.0	74	-24.0
4882.00	45.11	Peak	85	1.4	h	32.5	4.9	33.0	49.5	74	-24.5

Mid Channel, 30MHz-25GHz											
2437.00	111.50	Peak	90	1.3	v	28.1	3.4	29.0	114.0		
2437.00	108.02	Peak	100	1.5	h	28.1	3.4	29.0	110.5		
2437.00	102.35	Ave	90	1.3	v	28.1	3.4	29.0	104.8		
2437.00	99.35	Ave	100	1.5	h	28.1	3.4	29.0	101.8		
2441.00	92.20	Peak	90	1.6	v	28.1	3.4	29.0	94.7		
2441.00	84.35	Peak	320	1.6	h	28.1	3.4	29.0	86.8		
2441.00	91.73	Ave	90	1.6	v	28.1	3.4	29.0	94.2		
2441.00	82.65	Ave	320	1.6	h	28.1	3.4	29.0	85.1		
7311.00	36.91	Ave	270	1.5	h	35.1	5.6	36.5	41.2	54	-12.8
7311.00	35.48	Ave	90	1.6	v	35.1	5.6	36.5	39.7	54	-14.3
7323.00	34.84	Ave	90	1.5	v	35.1	5.6	36.5	39.1	54	-14.9
4874.00	34.51	Ave	45	1.5	v	32.5	4.9	33.0	38.9	54	-15.1
7323.00	34.52	Ave	270	1.4	h	35.1	5.6	36.5	38.8	54	-15.2
4874.00	34.00	Ave	90	1.4	h	32.5	4.9	33.0	38.4	54	-15.6
4882.00	33.17	Ave	60	1.5	v	32.5	4.9	33.0	37.6	54	-16.4
4882.00	33.07	Ave	90	1.4	h	32.5	4.9	33.0	37.5	54	-16.5
7311.00	48.24	Peak	270	1.5	h	35.1	5.6	36.5	52.5	74	-21.5
4874.00	47.52	Peak	45	1.5	v	32.5	4.9	33.0	51.9	74	-22.1
4882.00	46.94	Peak	60	1.5	v	32.5	4.9	33.0	51.4	74	-22.7
7311.00	47.00	Peak	90	1.6	v	35.1	5.6	36.5	51.2	74	-22.8
7323.00	45.97	Peak	270	1.4	h	35.1	5.6	36.5	50.2	74	-23.8
7323.00	45.75	Peak	90	1.5	v	35.1	5.6	36.5	50.0	74	-24.0
4882.00	45.41	Peak	90	1.4	h	32.5	4.9	33.0	49.8	74	-24.2
4874.00	45.25	Peak	90	1.4	h	32.5	4.9	33.0	49.7	74	-24.3

High Channel, 30MHz-25GHz											
2462.00	114.96	Peak	90	1.2	v	28.1	3.4	29.0	117.4		
2462.00	110.83	Peak	45	1.3	h	28.1	3.4	29.0	113.3		
2462.00	106.75	Ave	90	1.2	v	28.1	3.4	29.0	109.2		
2462.00	102.81	Ave	45	1.3	h	28.1	3.4	29.0	105.3		
2441.00	91.50	Peak	90	1.3	v	28.1	3.4	29.0	94.0		
2441.00	91.37	Peak	110	1.2	h	28.1	3.4	29.0	93.8		
2441.00	88.00	Ave	90	1.3	v	28.1	3.4	29.0	90.5		
2441.00	87.96	Ave	110	1.2	h	28.1	3.4	29.0	90.4		
7323.00	38.01	Ave	90	1.4	v	35.1	5.6	36.5	42.3	54	-11.7
7386.00	37.56	Ave	110	1.1	v	35.1	5.6	36.5	41.8	54	-12.2
7323.00	37.45	Ave	270	1.5	h	35.1	5.6	36.5	41.7	54	-12.3
7386.00	37.31	Ave	300	1.2	h	35.1	5.6	36.5	41.6	54	-12.4
4924.00	36.58	Ave	90	1.2	v	32.5	4.9	33.0	41.0	54	-13.0
4924.00	35.24	Ave	300	1.2	h	32.5	4.9	33.0	39.7	54	-14.4
4882.00	34.23	Ave	90	1.4	v	32.5	4.9	33.0	38.6	54	-15.4
4882.00	34.00	Ave	60	1.5	h	32.5	4.9	33.0	38.4	54	-15.6
7323.00	48.61	Peak	90	1.4	v	35.1	5.6	36.5	52.9	74	-21.1
7386.00	48.58	Peak	110	1.1	v	35.1	5.6	36.5	52.8	74	-21.2
7386.00	48.41	Peak	300	1.2	h	35.1	5.6	36.5	52.7	74	-21.3
7323.00	48.31	Peak	270	1.5	h	35.1	5.6	36.5	52.6	74	-21.4
4924.00	47.58	Peak	90	1.2	v	32.5	4.9	33.0	52.0	74	-22.0
4882.00	47.00	Peak	90	1.4	v	32.5	4.9	33.0	51.4	74	-22.6
4882.00	46.83	Peak	60	1.5	h	32.5	4.9	33.0	51.2	74	-22.8
4924.00	46.68	Peak	300	1.2	h	32.5	4.9	33.0	51.1	74	-22.9

4.6.6 T60H656 802.11b transmitted with T60M665 Bluetooth high Channel, Antenna BY27

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, 30MHz-25GHz											
2412.00	112.01	Peak	90	1.6	v	28.1	3.4	29.0	114.5		
2412.00	108.33	Peak	330	1.6	h	28.1	3.4	29.0	110.8		
2412.00	104.20	Ave	90	1.6	v	28.1	3.4	29.0	106.7		
2412.00	101.30	Ave	330	1.6	h	28.1	3.4	29.0	103.8		
2480.00	92.17	Peak	270	1.9	v	28.1	3.4	29.0	90.1		
2480.00	87.67	Peak	45	1.9	h	28.1	3.4	29.0	93.8		
2480.00	91.33	Ave	270	1.9	v	28.1	3.4	29.0	89.0		
2480.00	86.50	Ave	45	1.9	h	28.1	3.4	29.0	89.0		
7236.00	36.91	Ave	180	1.6	h	35.1	5.6	36.5	41.2	54	-12.8
4824.00	36.12	Ave	170	1.5	h	32.5	4.9	33.0	40.5	54	-13.5
7236.00	35.48	Ave	90	1.5	v	35.1	5.6	36.5	39.7	54	-14.3
7440.00	34.95	Ave	80	1.5	v	35.1	5.6	36.5	39.2	54	-14.8
4824.00	34.54	Ave	0	1.5	v	32.5	4.9	33.0	39.0	54	-15.1
4960.00	34.33	Ave	60	1.4	v	32.5	4.9	33.0	38.7	54	-15.3
7440.00	34.25	Ave	260	1.4	h	35.1	5.6	36.5	38.5	54	-15.5
4960.00	34.00	Ave	130	1.3	h	32.5	4.9	33.0	38.4	54	-15.6
4824.00	49.57	Peak	0	1.5	v	32.5	4.9	33.0	54.0	74	-20.0
7236.00	48.50	Peak	180	1.6	h	35.1	5.6	36.5	52.7	74	-21.3
7236.00	47.08	Peak	90	1.5	v	35.1	5.6	36.5	51.3	74	-22.7
4824.00	46.67	Peak	170	1.5	h	32.5	4.9	33.0	51.1	74	-22.9
4960.00	46.17	Peak	60	1.4	v	32.5	4.9	33.0	50.6	74	-23.4
4960.00	45.83	Peak	130	1.3	h	32.5	4.9	33.0	50.6	74	-23.4
7440.00	45.97	Peak	260	1.4	h	35.1	5.6	36.5	50.2	74	-23.8
7440.00	45.75	Peak	80	1.5	v	35.1	5.6	36.5	50.0	74	-24.0

Mid Channel, 30MHz-25GHz											
2437.00	111.83	Peak	95	1.1	v	28.1	3.4	29.0	114.3		
2437.00	106.17	Peak	270	1.4	h	28.1	3.4	29.0	108.6		
2437.00	101.83	Ave	95	1.1	v	28.1	3.4	29.0	104.3		
2437.00	98.00	Ave	270	1.4	h	28.1	3.4	29.0	100.5		
2480.00	93.33	Peak	95	1.2	v	28.1	3.4	29.0	90.0		
2480.00	87.50	Peak	5	1.4	h	28.1	3.4	29.0	95.5		
2480.00	93.00	Ave	95	1.2	v	28.1	3.4	29.0	88.3		
2480.00	85.83	Ave	5	1.4	h	28.1	3.4	29.0	88.3		
7311.00	36.00	Ave	270	1.5	h	35.1	5.6	36.5	40.2	54	-13.8
7311.00	35.41	Ave	90	1.6	v	35.1	5.6	36.5	39.7	54	-14.3
7440.00	34.95	Ave	80	1.5	v	35.1	5.6	36.5	39.2	54	-14.8
4874.00	34.27	Ave	50	1.5	v	32.5	4.9	33.0	38.7	54	-15.3
4960.00	34.20	Ave	60	1.3	v	32.5	4.9	33.0	38.6	54	-15.4
4960.00	34.17	Ave	130	1.3	h	32.5	4.9	33.0	38.6	54	-15.4
7440.00	34.25	Ave	260	1.4	h	35.1	5.6	36.5	38.5	54	-15.5
4874.00	34.00	Ave	90	1.4	h	32.5	4.9	33.0	38.4	54	-15.6
7311.00	48.02	Peak	270	1.5	h	35.1	5.6	36.5	52.3	74	-21.7
4960.00	46.00	Peak	60	1.3	v	32.5	4.9	33.0	51.4	74	-22.6
4960.00	47.00	Peak	130	1.3	h	32.5	4.9	33.0	51.4	74	-22.6
7311.00	46.89	Peak	90	1.6	v	35.1	5.6	36.5	51.1	74	-22.9
4874.00	46.17	Peak	90	1.4	h	32.5	4.9	33.0	50.6	74	-23.4
4874.00	45.83	Peak	50	1.5	v	32.5	4.9	33.0	50.2	74	-23.8
7440.00	45.97	Peak	260	1.4	h	35.1	5.6	36.5	50.2	74	-23.8
7440.00	45.75	Peak	80	1.5	v	35.1	5.6	36.5	50.0	74	-24.0

High Channel, 1-50GHz											
2462.00	115.33	Peak	90	1.3	v	28.1	3.4	29.0	117.8		
2462.00	110.33	Peak	85	1.2	h	28.1	3.4	29.0	112.8		
2462.00	106.83	Ave	90	1.3	v	28.1	3.4	29.0	109.3		
2462.00	102.53	Ave	85	1.2	h	28.1	3.4	29.0	105.0		
2480.00	95.67	Peak	90	1.1	v	28.1	3.4	29.0	94.8		
2480.00	92.33	Peak	90	1.1	h	28.1	3.4	29.0	95.0		
2480.00	92.50	Ave	90	1.1	v	28.1	3.4	29.0	91.3		
2480.00	88.83	Ave	90	1.1	h	28.1	3.4	29.0	91.3		
7440.00	35.00	Ave	90	1.1	v	35.1	5.6	36.5	50.2	54	-3.8
7386.00	37.61	Ave	85	1.1	v	35.1	5.6	36.5	41.9	54	-12.1
7386.00	37.45	Ave	85	1.2	h	35.1	5.6	36.5	41.7	54	-12.3
4924.00	37.17	Ave	90	1.2	v	32.5	4.9	33.0	41.6	54	-12.4
4924.00	37.00	Ave	90	1.2	h	32.5	4.9	33.0	41.4	54	-12.6
4960.00	35.00	Ave	85	1.2	v	32.5	4.9	33.0	39.4	54	-14.6
7440.00	34.53	Ave	90	1.2	h	35.1	5.6	36.5	39.2	54	-14.8
4960.00	34.33	Ave	85	1.2	h	32.5	4.9	33.0	38.7	54	-15.3
4924.00	49.98	Peak	90	1.2	v	32.5	4.9	33.0	54.4	74	-19.6
4924.00	49.83	Peak	90	1.2	h	32.5	4.9	33.0	54.2	74	-19.8
7386.00	48.78	Peak	85	1.1	v	35.1	5.6	36.5	53.0	74	-21.0
7386.00	48.50	Peak	85	1.2	h	35.1	5.6	36.5	52.7	74	-21.3
4960.00	47.00	Peak	85	1.2	v	32.5	4.9	33.0	51.4	74	-22.6
4960.00	46.50	Peak	85	1.2	h	32.5	4.9	33.0	51.4	74	-22.6
7440.00	45.83	Peak	90	1.1	v	35.1	5.6	36.5	50.1	74	-23.9
7440.00	46.00	Peak	90	1.2	h	35.1	5.6	36.5	50.1	74	-23.9

Unwanted Emission, 30 – 1000MHz											
972.50	39.56	/	180	1.3	v	23.9	4.3	25.0	42.7	46	-3.3
199.28	48.53	/	250	1.3	v	14.2	2.1	25.0	39.9	43.5	-3.6
538.80	44.65	/	120	1.3	v	19.3	3.0	25.0	41.9	46	-4.1
761.20	41.25	/	85	1.2	h	22.6	2.6	25.0	41.5	46	-4.5
823.80	40.23	/	60	1.3	h	22.3	3.7	25.0	41.3	46	-4.7
634.20	43.12	/	30	1.3	v	20.0	3.0	25.0	41.2	46	-4.8
457.70	43.56	/	45	1.3	h	17.1	3.0	25.0	38.7	46	-7.3
203.76	46.35	/	220	1.3	h	11.5	2.2	25.0	35.0	43.5	-8.5
215.78	45.83	/	120	1.2	h	11.9	2.2	25.0	34.9	43.5	-8.6
123.50	46.50	/	30	1.3	h	11.7	1.6	25.0	34.8	43.5	-8.7
271.53	45.50	/	280	1.3	v	13.3	2.2	25.0	36.0	46	-10.0
207.74	44.33	/	90	1.2	h	11.5	2.2	25.0	33.0	43.5	-10.5
255.03	44.33	/	85	1.1	h	13.3	2.2	25.0	34.8	46	-11.2
346.35	41.67	/	90	1.2	v	15.4	2.3	25.0	34.4	46	-11.6
183.20	40.00	/	270	1.3	h	13.2	2.0	25.0	30.2	43.5	-13.3
235.92	42.50	/	160	1.2	v	12.6	2.2	25.0	32.3	46	-13.7
210.03	40.33	/	60	1.2	v	11.9	2.2	25.0	29.4	43.5	-14.1
226.05	42.00	/	140	1.3	h	11.8	2.2	25.0	31.0	46	-15.0
150.50	37.00	/	180	1.3	v	12.7	1.7	25.0	26.4	43.5	-17.1

5 - CONDUCTED EMISSIONS

5.1 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.

5.2 EUT Setup

The measurement was performed at the Shield Room, using the same setup per ANSI C63.4-1992 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 host PC system was connected with 120Vac/60Hz power source.

5.3 Spectrum Analyzer Setup

The spectrum analyzer was set with the following configurations during the conduction test:

Start Frequency	150 kHz
Stop Frequency	30 MHz
Sweep Speed.....	Auto
IF Bandwidth.....	10 kHz
Video Bandwidth	10 kHz
Quasi-Peak Adapter Bandwidth.....	9 kHz
Quasi-Peak Adapter Mode.....	Normal

5.4 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 dB μ V of specification limits). Quasi-peak readings are distinguished with a "Qp".

5.5 Summary of Test Results

According to the data in section 11.6, the EUT complies with the FCC Conducted margin for a Class B device, with the *worst* margin reading of:

-17.9 dB μ V at 15.6 MHz in the Neutral mode, ZI1S antenna

-11.2 dB μ V at 0.165 MHz in the Line mode, BY27 antenna

5.6 Conducted Emissions Test Data

EUT operates with ZI1S Antenna:

LINE CONDUCTED EMISSIONS				FCC PART 15 CLASS B	
Frequency MHz	Amplitude dB μ V	Detector Qp/Ave/Peak	Phase Line/Neutral	Limit dB μ V	Margin dB
15.6	32.1	Ave	Neutral	50	-17.9
0.715	27.3	Ave	Neutral	46	-18.7
0.15	45.4	Qp	Line	66	-20.6
0.15	45.2	Qp	Neutral	66	-20.8
0.71	25	Ave	Line	46	-21
15.4	38.3	Qp	Neutral	60	-21.7
0.15	33.9	Ave	Neutral	56	-22.1
0.715	33.1	Qp	Neutral	56	-22.9
0.15	32.6	Ave	Line	56	-23.4
0.71	32.5	Qp	Line	56	-23.5
13.7	25.3	Ave	Line	50	-24.7
13.7	31.2	Qp	Line	60	-28.8

EUT operates with BY27 Antenna:

LINE CONDUCTED EMISSIONS				FCC PART 15 CLASS B	
Frequency MHz	Amplitude dB μ V	Detector Qp/Ave/Peak	Phase Line/Neutral	Limit dB μ V	Margin dB
0.165	41.80	Ave	Line	53	-11.20
15.2	37.70	Ave	Neutral	50	-12.30
0.165	47.70	Qp	Line	63	-15.30
15.2	44.70	Qp	Neutral	60	-15.30
0.205	36.80	Ave	Neutral	53	-16.20
14	30.10	Ave	Line	50	-19.90
0.205	42.00	Qp	Neutral	63	-21.00
0.505	28.00	Ave	Neutral	50	-22.00
14	35.60	Qp	Line	60	-24.40
0.505	33.60	Qp	Neutral	60	-26.40
0.25	34.10	Qp	Line	62	-27.90
0.25	17.60	Ave	Line	52	-34.40

5.7 Plot of Conducted Emissions Test Data

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

Bay Area Compliance Laboratory Corp FCC CLASS B

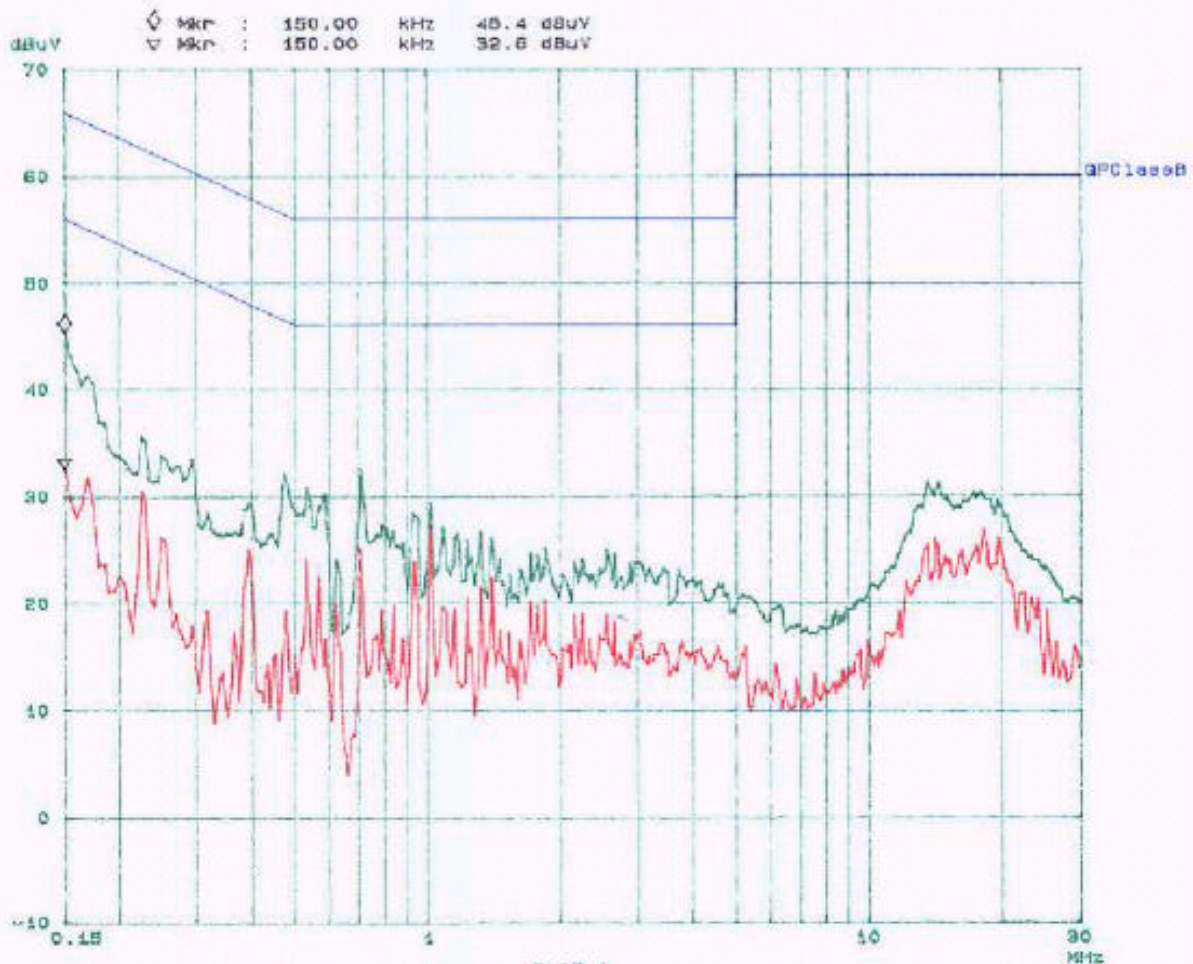
12 Jun 03 14:17

EUT: T80H888+T80H888
 Manuf: AMBIT
 Op Cond: Normal
 Operator: Ling
 Comment: Line

Scan Settings (2 Ranges)

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

Final Measurement: x GP / + AV
 Hold Time: 1 s
 Subrange: 25
 Avg Margin: 6dB



Bay Area Compliance Laboratory Corp FCC CLASS B

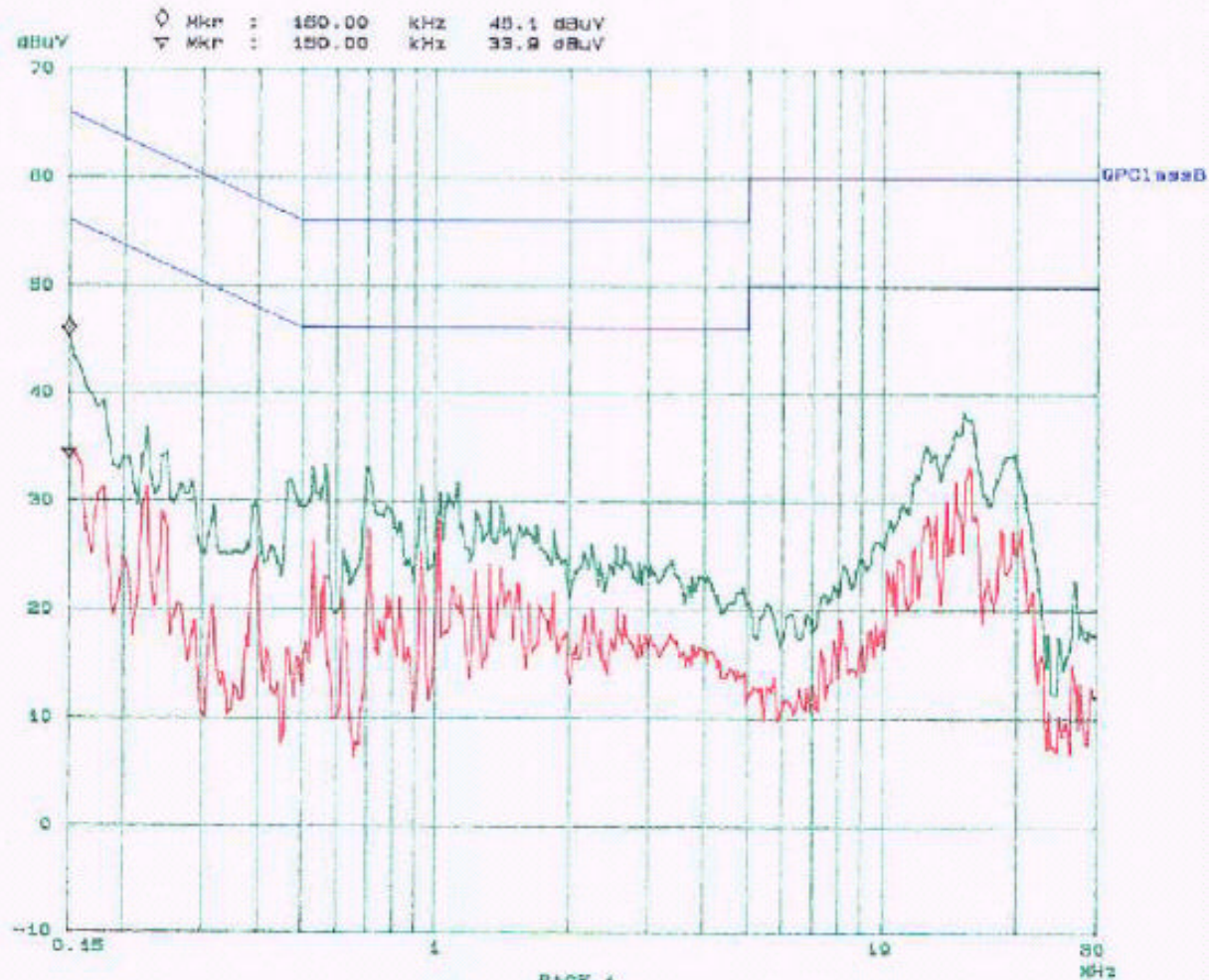
12. Jun 03 15:02

EUT: T60H666+T60H665
 Manuf: AMBIT
 Op Cond: Normal
 Operator: Ling
 Comment: Neutral

Scan Settings (2 Ranges)

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

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



2003-6-31

Bay Area Compliance Laboratory Corp
CLASS B

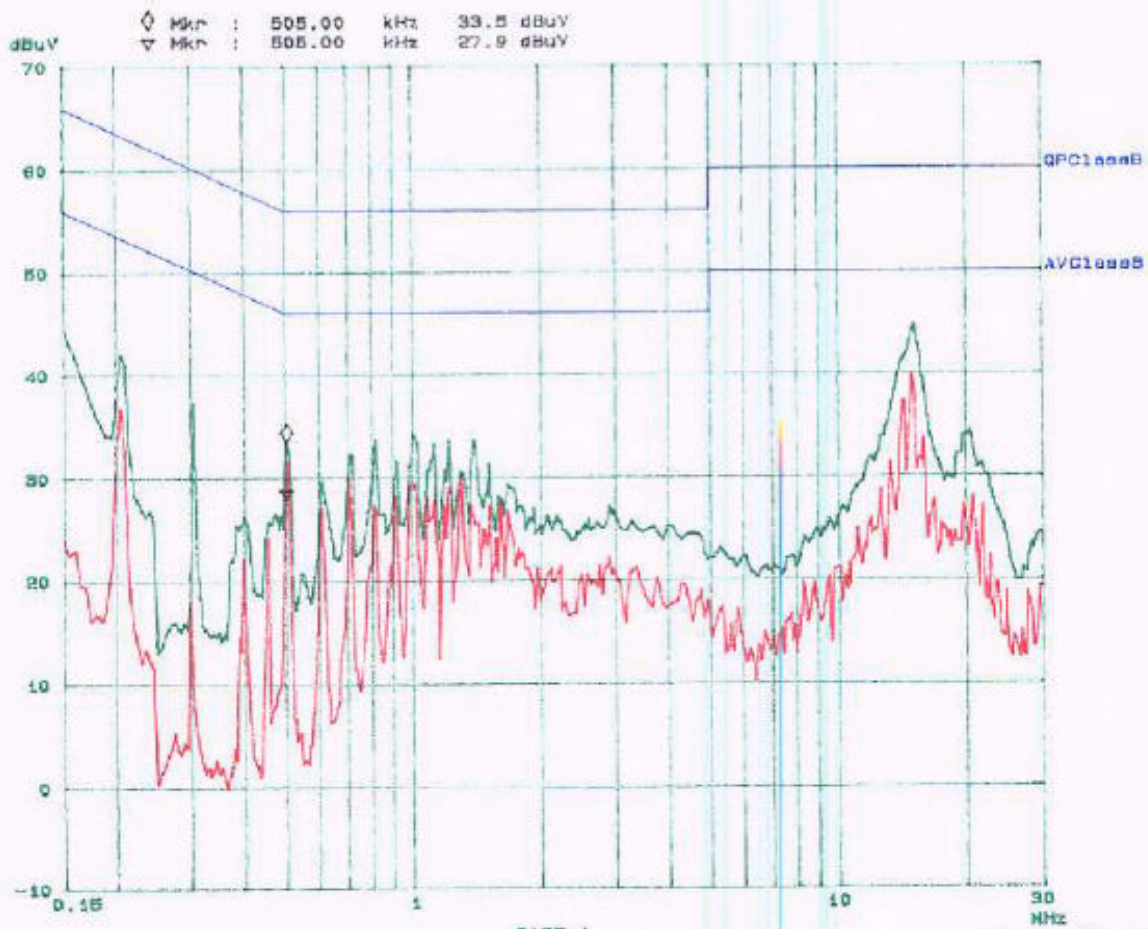
29. Jun 03 12:05

EUT: 760H555+760M555
Manuf: AMBIT
Op Cond: 50ma1
Operator: JAMES
Comment: N

Scan Settings (3 Ranges)

Frequencies			Receiver Settings			
Start	Stop	Step	IF BW	Detector	N-Time	Atten Preset
150k	1M	5k	9k	QP+AV	20dB	10dB LN OFF
1M	9M	10k	9k	QP+AV	10dB	10dB LN OFF
9M	30M	100k	9k	QP+AV	10dB	10dB LN OFF

Final Measurement: x QP / + AV
Meas Time: 1.8
Subranges: 25
Acc Margin: 5dB



for James
2003-6-29

Bay Area Compliance Laboratory Corp
CLASS B

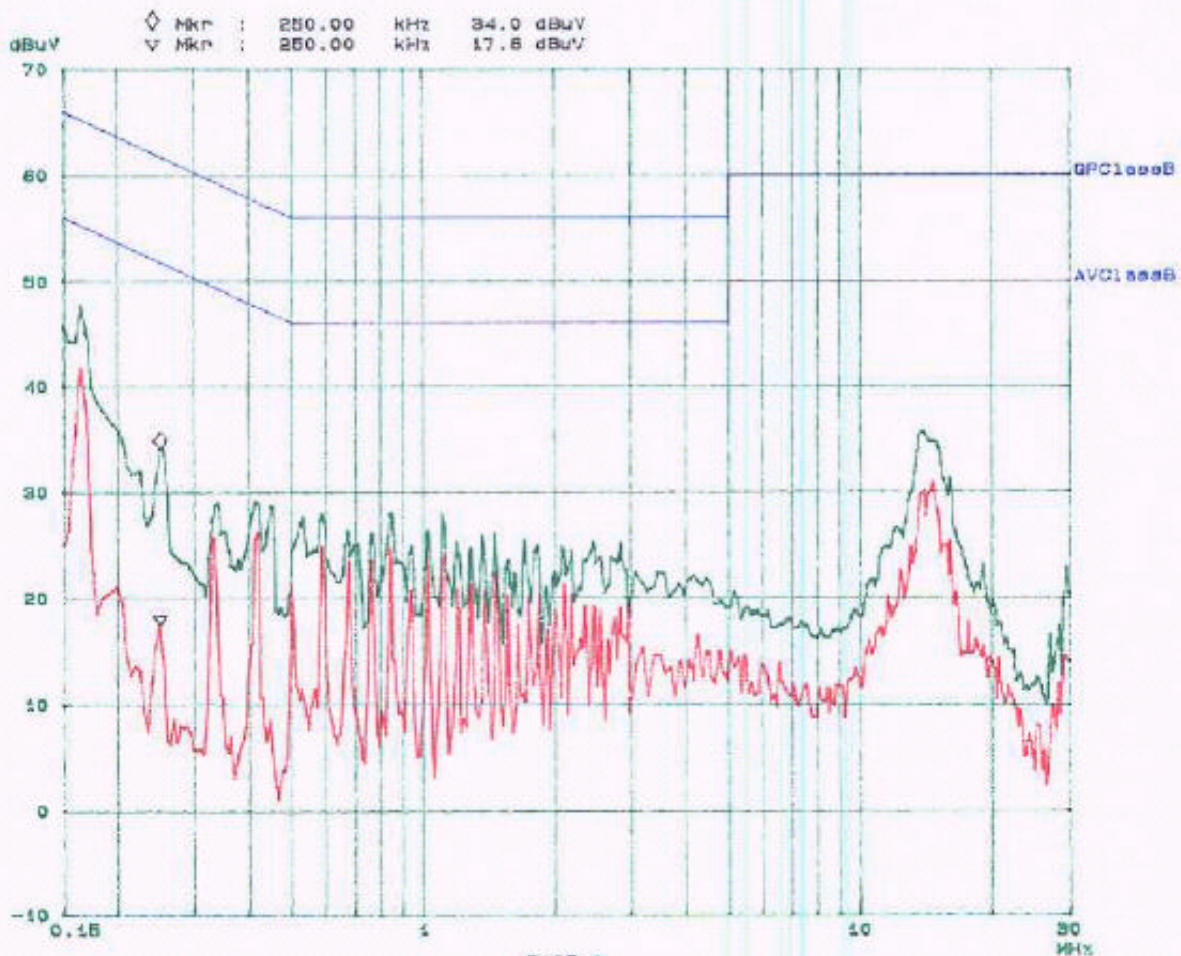
29. Jun 03 11:52

EUT: T80H888+T80H888
Manuf: AMBIT
Op Cond: B0rme1
Operator: JAMES
Comment: L

Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preampl
100k	1M	5k	9k	QP+AV	20ms	10dB LN	OFF
1M	3M	10k	9k	QP+AV	1ms	10dB LN	OFF
3M	30M	100k	9k	QP+AV	1ms	10dB LN	OFF

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



*Long for January
2003-0-29*