SAR EVALUATION REPORT

For

AMBIT Microsystems Corporation

4-1, Ming Shen Street, Tu Chen Industrial District.
Tu Chen, Taipei Hsien 236, Taiwan, R.O.C.

FCC ID: MCLAIRMPI350DE

2003-07-21

This Report Concerns: ☒ Original Report	**Equipment Type:** Wireless MiniPCI Card
Test Engineer:	Eric Hong / HONG
Report No.:	R0305081S
Test Date:	2003-05-17
Reviewed By:	Ling Zhang
Prepared By:	Bay Area Compliance Laboratory Corporation 230 Commercial Street Sunnyvale, CA 94085 Tel: (408) 732-9162 Fax: (408) 732 9164

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SUMMARY

The US Federal Communications Commission has released the report and order “Guidelines for Evaluating the Environmental Effects of RF Radiation", ET Docket No. 93-62 in August 1996 [1].

The order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 mW/g as recommended by the ANSI/IEEE standard C95.1-1992 [6] for an uncontrolled environment (Paragraph 65). According to the Supplement C of OET Bulletin 65 “Evaluating Compliance with FCC Guide-lines for Human Exposure to Radio frequency Electromagnetic Fields", released on Jun 29, 2001 by the FCC, the device should be evaluated at maximum output power (radiated from the antenna) under “worst-case” conditions for normal or intended use, incorporating normal antenna operating positions, device peak performance frequencies and positions for maximum RF energy coupling.

This report describes the methodology and results of experiments performed on wireless data terminal. The objective was to determine if there is RF radiation and if radiation is found, what is the extent of radiation with respect to safety limits. SAR (Specific Absorption Rate) is the measure of RF exposure determined by the amount of RF energy absorbed by human body (or its parts) – to determine how the RF energy couples to the body or head which is a primary health concern for body worn devices. The limit below which the exposure to RF is considered safe by regulatory bodies in North America is 1.6 mW/g average over 1 gram of tissue mass.

The test configurations were laid out on a specially designed test fixture to ensure the reproducibility of measurements. Each configuration was scanned for SAR. Analysis of each scan was carried out to characterize the above effects in the device.

The investigation was limited to the worst-case scenario from the device usage point of view. For the clarity of data analysis, and clarity of presentation, only one tissue simulation was used for the head and body simulation. This means that if SAR was found at the headset position, the magnitude of SAR would be overestimated comparing to SAR to a headset placed in the ear region.

There was no SAR of any concern measured on the device for any of the investigated configurations.

1 - REFERENCE

[1] Federal Communications Commission, \Report and order: Guidelines for evaluating the environmental effects of radiofrequency radiation", Tech. Rep. FCC 96-326, FCC, Washington, D.C. 20554, 1996.

[2] David L. Means Kwok Chan, Robert F. Cleveland, \Evaluating compliance with FCC guidelines for human exposure to radiofrequency electromagnetic fields", Tech. Rep., Federal Communication Commission, O_ce of Engineering & Technology, Washington, DC, 1997.

[3] Thomas Schmid, Oliver Egger, and Niels Kuster, \Automated E-field scanning system for dosimetric assessments", IEEE Transactions on Microwave Theory and Techniques, vol. 44, pp. 105{113, Jan. 1996.

[4] Niels Kuster, Ralph K.astle, and Thomas Schmid, \Dosimetric evaluation of mobile communications equipment with known precision", IEICE Transactions on Communications, vol. E80-B, no. 5, pp. 645{652, May 1997.

[5] CENELEC, \Considerations for evaluating of human exposure to electromagnetic fields (EMFs) from mobile telecommunication equipment (MTE) in the frequency range 30MHz - 6GHz", Tech. Rep., CENELEC, European Committee for Electrotechnical Standardization, Brussels, 1997.

[6] ANSI, ANSI/IEEE C95.1-1992: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz, The Institute of Electrical and Electronics Engineers, Inc., New York, NY 10017, 1992.

[7] Katja Pokovic, Thomas Schmid, and Niels Kuster, \Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies", in ICECOM _ 97, Dubrovnik, October 15{17, 1997, pp. 120-24.

[8] Katja Pokovic, Thomas Schmid, and Niels Kuster, \E-_eld probe with improved isotropy in brain simulating liquids", in Proceedings of the ELMAR, Zadar, Croatia, 23{25 June, 1996, pp. 172-175.

[9] Volker Hombach, Klaus Meier, Michael Burkhardt, Eberhard K. uhn, and Niels Kuster, \The depen-dence of EM energy absorption upon human head modeling at 900 MHz", IEEE Transactions on Microwave Theory and Techniques, vol. 44, no. 10, pp. 1865-1873, Oct. 1996.

[10] Klaus Meier, Ralf Kastle, Volker Hombach, Roger Tay, and Niels Kuster, \The dependence of EM energy absorption upon human head modeling at 1800 MHz", IEEE Transactions on Microwave Theory and Techniques, Oct. 1997, in press.

[11] W. Gander, Computermathematik, Birkhaeuser, Basel, 1992.

[12] W. H. Press, S. A. Teukolsky,W. T. Vetterling, and B. P. Flannery, Numerical Recepies in C, The Art of Scientific Computing, Second Edition, Cambridge University Press, 1992.Dosimetric Evaluation of Sample device, month 1998 9

[13] NIS81 NAMAS, \The treatment of uncertainity in EMC measurement", Tech. Rep., NAMAS Executive, National Physical Laboratory, Teddington, Middlesex, England, 1994.

[14] Barry N. Taylor and Christ E. Kuyatt, \Guidelines for evaluating and expressing the uncertainty of NIST measurement results", Tech. Rep., National Institute of Standards and Technology, 1994. Dosimetric Evaluation of Sample device, month 1998 10

2 - TESTING EQUIPMENT

2.1 Equipments List & Calibration Info

Type / Model	Cal. Date	S/N:
DASY3 Professional Dosimetric System	N/A	N/A
Robot RX60L	N/A	F00/5H31A1/A/01
Robot Controller	N/A	F01/5J72A1/A/01
Dell Computer Optiplex GX110	N/A	N/A
Pentium III, Windows NT	N/A	N/A
SPEAG EDC3	N/A	N/A
SPEAG DAE3	6/02	456
SPEAG E-Field Probe ET3DV6	9/7/02	1604
SPEAG Dummy Probe	N/A	N/A
SPEAG Generic Twin Phantom	N/A	N/A
SPEAG Light Alignment Sensor	N/A	278
Apprel Validation Dipole D-1800-S-2	11/6/01	BCL-049
SPEAG Validation Dipole D900V2	9/3/02	122
Brain Equivalent Matter (800MHz)	Daily	N/A
Brain Equivalent Matter (1900MHz)	Daily	N/A
Brain Equivalent Matter (2450MHz)	Daily	N/A
Muscle Equivalent Matter (800MHz)	Daily	N/A
Muscle Equivalent Matter (1900MHz)	Daily	N/A
Muscle Equivalent Matter (2450MHz)	Daily	N/A
Robot Table	N/A	N/A
Phone Holder	N/A	N/A
Phantom Cover	N/A	N/A
HP Spectrum Analyzer HP8593GM	6/20/02	3009A00791
Microwave Amp. 8349B	N/A	2644A02662
Power Meter HP436A	4/2/02	2709A29209
Power Sensor HP8482A	4/2/02	2349A08568
Signal Generator RS SMIQ O3	2/10/02	1084800403
Network Analyzer HP-8753ES	7/30/02	820079
Dielectric Probe Kit HP85070A	N/A	N/A
Apprel Validation Dipole D-2450-S-1	10/1/02	BCL-141

2.2 Equipment Calibration Certificate

Please see the attached file.

Engineering

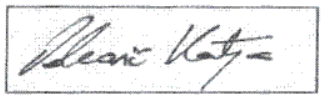
Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Additional Conversion Factors

for Dosimetric E-Field Probe

Type	ET3DV6
Serial Number:	1604
Place of Assessment	Zurich
Date of Assessment:	October 4, 2002
Probe Calibration Date:	August 26, 2002

Schmid & Partner Engineering AG hereby certifies that conversion factor(s) of this probe have been evaluated on the date indicated above. The assessment was performed using the FDTD numerical code SEMCAD of Schmid & Partner Engineering AG. Since the evaluation is coupled with measured conversion factors, it has to be recalculated yearly, i.e., following the re-calibration schedule of the probe. The uncertainty of the numerical assessment is based on the extrapolation from measured value at 900 MHz or at 1800 MHz.

Assessed by: 

Conversion Factor (± standard deviation)

150 MHz	**ConvF**	**9.2 ± 8%**	ε_r = 52.3 σ = 0.76 mho/m (head tissue)
300 MHz	**ConvF**	**8.0 ± 8%**	**ε_r = 45.3** **σ = 0.87 mho/m** **(head tissue)**
450 MHz	**ConvF**	**7.3 ± 8%**	**ε_r = 43.5** **σ = 0.87 mho/m** **(head tissue)**
2450 MHz	**ConvF**	**4.7 ± 8%**	ε_r = 39.2 σ = 1.80 mho/m (head tissue)
150 MHz	**ConvF**	**8.8 ± 8%**	**ε_r = 61.9** **σ = 0.80 mho/m** **(body tissue)**
450 MHz	**ConvF**	**7.7 ± 8%**	**ε_r = 56.7** **σ = 0.94 mho/m** **(body tissue)**
2450 MHz	**ConvF**	**4.3 ± 8%**	**ε_r = 52.7** **σ = 1.95 mho/m** **(body tissue)**

Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Calibration Certificate

Dosimetric E-Field Probe

Type:	ET3DV6
Serial Number:	1604
Place of Calibration:	Zurich
Date of Calibration:	August 26, 2002
Calibration Interval:	12 months

Schmid & Partner Engineering AG hereby certifies, that this device has been calibrated on the date indicated above. The calibration was performed in accordance with specifications and procedures of Schmid & Partner Engineering AG.

Wherever applicable, the standards used in the calibration process are traceable to international standards. In all other cases the standards of the Laboratory for EMF and Microwave Electronics at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland have been applied.

Calibrated by:	N. Vellen
Approved by:	Jelusić Katja

DASY3 - Parameters of Probe: ET3DV6 SN:1604

Sensitivity in Free Space

Diode Compression

NormX	1.73 $\mu V/(V/m)^2$	DCP X	93	mV
NormY	1.68 $\mu V/(V/m)^2$	DCP Y	93	mV
NormZ	1.72 $\mu V/(V/m)^2$	DCP Z	93	mV

Sensitivity in Tissue Simulating Liquid

Head	**900 MHz**	ε_r = 41.5 ± 5%	σ = 0.97 ± 5% mho/m
Head	**835 MHz**	ε_r = 41.5 ± 5%	σ = 0.90 ± 5% mho/m

ConvF X	6.5 ± 9.5% (k=2)	Boundary effect:	
ConvF Y	6.5 ± 9.5% (k=2)	Alpha	0.36
ConvF Z	6.5 ± 9.5% (k=2)	Depth	2.82

Head	**1800 MHz**	ε_r = 40.0 ± 5%	σ = 1.40 ± 5% mho/m
Head	**1900 MHz**	ε_r = 40.0 ± 5%	σ = 1.40 ± 5% mho/m

ConvF X	5.5 ± 9.5% (k=2)	Boundary effect:	
ConvF Y	5.5 ± 9.5% (k=2)	Alpha	0.50
ConvF Z	5.5 ± 9.5% (k=2)	Depth	2.46

Boundary Effect

Head **900 MHz** **Typical SAR gradient: 5 % per mm**

Probe Tip to Boundary		1 mm	2 mm
SAR_{be} [%]	Without Correction Algorithm	11.1	6.6
SAR_{be} [%]	With Correction Algorithm	0.4	0.6

Head **1800 MHz** **Typical SAR gradient: 10 % per mm**

Probe Tip to Boundary		1 mm	2 mm
SAR_{be} [%]	Without Correction Algorithm	12.3	8.1
SAR_{be} [%]	With Correction Algorithm	0.1	0.1

Sensor Offset

Probe Tip to Sensor Center	2.7	mm
Optical Surface Detection	1.3 ± 0.2	mm

D800 NEWEB, Body 2450 Mhz Liquid Measurement, 2003-05-17

frequency	e'	e''
2400000000.0000	54.7983	14.1030
2402000000.0000	54.8166	14.1308
2404000000.0000	54.8206	14.1602
2406000000.0000	54.8178	14.1709
2408000000.0000	54.8142	14.1903
2410000000.0000	54.7905	14.1837
2412000000.0000	54.8584	14.2091
2414000000.0000	54.8476	14.2237
2416000000.0000	54.8834	14.2368
2418000000.0000	54.8444	14.2407
2420000000.0000	54.8320	14.2288
2422000000.0000	54.8357	14.2667
2424000000.0000	54.8327	14.2791
2426000000.0000	54.8450	14.2879
2428000000.0000	54.8837	14.3064
2430000000.0000	54.9150	14.3199
2432000000.0000	54.9431	14.3551
2434000000.0000	54.9597	14.3400
2436000000.0000	54.9572	14.3017
2438000000.0000	55.0297	14.3548
2440000000.0000	55.0486	14.3520
2442000000.0000	55.0615	14.3858
2444000000.0000	55.0778	14.4161
2446000000.0000	55.0647	14.3875
2448000000.0000	55.0772	14.4231
2450000000.0000	55.0941	14.4006
2452000000.0000	55.4626	14.5183
2454000000.0000	55.1063	14.4755
2456000000.0000	55.0833	14.4556
2458000000.0000	55.0840	14.4798
2460000000.0000	55.1215	14.4711
2462000000.0000	55.1044	14.4156
2464000000.0000	55.1300	14.4415
2466000000.0000	55.1043	14.4427
2468000000.0000	55.1047	14.4941
2470000000.0000	54.9889	14.4841
2472000000.0000	55.0137	14.5185
2474000000.0000	55.0331	14.5423
2476000000.0000	54.9625	14.5482
2478000000.0000	54.9737	14.5434
2480000000.0000	54.9386	14.5662
2482000000.0000	54.9034	14.5957
2484000000.0000	54.8922	14.5831
2486000000.0000	54.8616	14.5936
2488000000.0000	54.8275	14.6142
2490000000.0000	54.8372	14.6341
2492000000.0000	54.8168	14.6482
2494000000.0000	54.7842	14.6716
2496000000.0000	54.7180	14.6992
2498000000.0000	54.6916	14.6719
2500000000.0000	54.6262	14.7111

$s = w e_o e'' = 2 p f e_o e''=1.96$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 14.4006$

D800 NEWEB, Head 2450 Mhz Liquid Measurement, 2003-05-17

frequency	e'	e''
2400000000.0000	39.5791	13.0437
2402000000.0000	39.5698	13.0767
2404000000.0000	39.5178	13.0880
2406000000.0000	39.5921	13.1381
2408000000.0000	39.5627	13.1529
2410000000.0000	39.5773	13.1817
2412000000.0000	39.5574	13.1947
2414000000.0000	39.5652	13.1979
2416000000.0000	39.6385	13.2260
2418000000.0000	39.6101	13.2455
2420000000.0000	39.6041	13.2803
2422000000.0000	39.6207	13.2915
2424000000.0000	39.6730	13.2963
2426000000.0000	39.6600	13.3118
2428000000.0000	39.6964	13.3633
2430000000.0000	39.7141	13.3730
2432000000.0000	39.7864	13.4118
2434000000.0000	39.7909	13.4019
2436000000.0000	39.7071	13.4242
2438000000.0000	39.8023	13.4534
2440000000.0000	39.8577	13.5505
2442000000.0000	39.9249	13.5604
2444000000.0000	39.9633	13.5339
2446000000.0000	39.9665	13.5411
2448000000.0000	39.9750	13.5767
2450000000.0000	40.0029	13.5593
2452000000.0000	40.3009	13.6525
2454000000.0000	40.0702	13.5843
2456000000.0000	40.1010	13.6050
2458000000.0000	40.1174	13.6044
2460000000.0000	40.1212	13.6075
2462000000.0000	40.0557	13.5481
2464000000.0000	40.1127	13.5945
2466000000.0000	40.1457	13.5843
2468000000.0000	40.0586	13.5517
2470000000.0000	40.0654	13.5932
2472000000.0000	40.0919	13.5990
2474000000.0000	40.0230	13.6193
2476000000.0000	40.0713	13.6229
2478000000.0000	40.0592	13.6317
2480000000.0000	40.0633	13.6715
2482000000.0000	40.0132	13.6510
2484000000.0000	39.9683	13.6785
2486000000.0000	39.9628	13.6587
2488000000.0000	39.9282	13.6523
2490000000.0000	39.8586	13.6187
2492000000.0000	39.8261	13.6216
2494000000.0000	39.8397	13.6225
2496000000.0000	39.7687	13.6408
2498000000.0000	39.7173	13.6109
2500000000.0000	39.7001	13.6279

$s = w e_o e'' = 2 p f e_o e''=1.85$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 13.5593$

D800 Hitachi, Body 2450 Mhz Liquid Measurement, 2003-05-17

frequency	e'	e''
2400000000.0000	54.7983	14.1030
2402000000.0000	54.8166	14.1308
2404000000.0000	54.8206	14.1602
2406000000.0000	54.8178	14.1709
2408000000.0000	54.8142	14.1903
2410000000.0000	54.7905	14.1837
2412000000.0000	54.8584	14.2091
2414000000.0000	54.8476	14.2237
2416000000.0000	54.8834	14.2368
2418000000.0000	54.8444	14.2407
2420000000.0000	54.8320	14.2288
2422000000.0000	54.8357	14.2667
2424000000.0000	54.8327	14.2791
2426000000.0000	54.8450	14.2879
2428000000.0000	54.8837	14.3064
2430000000.0000	54.9150	14.3199
2432000000.0000	54.9431	14.3551
2434000000.0000	54.9597	14.3400
2436000000.0000	54.9572	14.3017
2438000000.0000	55.0297	14.3548
2440000000.0000	55.0486	14.3520
2442000000.0000	55.0615	14.3858
2444000000.0000	55.0778	14.4161
2446000000.0000	55.0647	14.3875
2448000000.0000	55.0772	14.4231
2450000000.0000	55.0941	14.4006
2452000000.0000	55.4626	14.5183
2454000000.0000	55.1063	14.4755
2456000000.0000	55.0833	14.4556
2458000000.0000	55.0840	14.4798
2460000000.0000	55.1215	14.4711
2462000000.0000	55.1044	14.4156
2464000000.0000	55.1300	14.4415
2466000000.0000	55.1043	14.4427
2468000000.0000	55.1047	14.4941
2470000000.0000	54.9889	14.4841
2472000000.0000	55.0137	14.5185
2474000000.0000	55.0331	14.5423
2476000000.0000	54.9625	14.5482
2478000000.0000	54.9737	14.5434
2480000000.0000	54.9386	14.5662
2482000000.0000	54.9034	14.5957
2484000000.0000	54.8922	14.5831
2486000000.0000	54.8616	14.5936
2488000000.0000	54.8275	14.6142
2490000000.0000	54.8372	14.6341
2492000000.0000	54.8168	14.6482
2494000000.0000	54.7842	14.6716
2496000000.0000	54.7180	14.6992
2498000000.0000	54.6916	14.6719
2500000000.0000	54.6262	14.7111

$s = w e_o e'' = 2 p f e_o e''=1.96$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 14.4006$

D800 Hitachi, Head 2450 Mhz Liquid Measurement, 2003-05-17

frequency	e'	e''
2425000000.0000	39.8294	13.6397
2426000000.0000	39.9185	13.6792
2427000000.0000	40.0178	13.7043
2428000000.0000	40.0417	13.6872
2429000000.0000	39.8901	13.6453
2430000000.0000	39.6703	13.5458
2431000000.0000	39.5529	13.4899
2432000000.0000	39.7084	13.5551
2433000000.0000	39.8644	13.6207
2434000000.0000	40.0388	13.6236
2435000000.0000	40.0783	13.6516
2436000000.0000	40.0141	13.6349
2437000000.0000	39.9134	13.5818
2438000000.0000	39.8767	13.5688
2439000000.0000	39.7014	13.5228
2440000000.0000	39.7136	13.5248
2441000000.0000	39.8376	13.5713
2442000000.0000	40.0487	13.6461
2443000000.0000	40.2307	13.6743
2444000000.0000	40.1397	13.6568
2445000000.0000	39.9609	13.5906
2446000000.0000	39.9034	13.5524
2447000000.0000	39.9612	13.5839
2448000000.0000	40.0729	13.6145
2449000000.0000	40.0977	13.5894
2450000000.0000	40.0304	13.6026
2451000000.0000	40.0642	13.5918
2452000000.0000	40.0165	13.5888
2453000000.0000	39.9705	13.5740
2454000000.0000	39.9302	13.5757
2455000000.0000	39.8940	13.5591
2456000000.0000	39.8075	13.5480
2457000000.0000	39.7917	13.5327
2458000000.0000	39.8310	13.5387
2459000000.0000	39.8655	13.5731
2460000000.0000	39.8941	13.5824
2461000000.0000	39.9904	13.6316
2462000000.0000	39.8564	13.5885
2463000000.0000	39.7534	13.5403
2464000000.0000	39.7377	13.5524
2465000000.0000	39.7007	13.5374
2466000000.0000	39.7520	13.5748
2467000000.0000	39.8200	13.5943
2468000000.0000	39.8401	13.5976
2469000000.0000	39.9142	13.6082
2470000000.0000	39.9692	13.6902
2471000000.0000	39.9169	13.6694
2472000000.0000	39.8860	13.6669
2473000000.0000	39.7928	13.6261
2474000000.0000	39.7841	13.6345
2475000000.0000	39.8348	13.6543

$s = w e_o e'' = 2 p f e_o e''=1.85$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 13.6026$

D600 NEWEB, Body 2450 Mhz Liquid Measurement, 2003-05-16

frequency	e'	e''
2400000000.0000	54.6489	14.4710
2402000000.0000	54.6686	14.4718
2404000000.0000	54.6217	14.4956
2406000000.0000	54.6254	14.5202
2408000000.0000	54.6325	14.5300
2410000000.0000	54.6219	14.5260
2412000000.0000	54.6533	14.5518
2414000000.0000	54.6557	14.5806
2416000000.0000	54.6901	14.5983
2418000000.0000	54.6335	14.5998
2420000000.0000	54.6276	14.6203
2422000000.0000	54.6805	14.5960
2424000000.0000	54.6813	14.6240
2426000000.0000	54.6532	14.6361
2428000000.0000	54.7115	14.6530
2430000000.0000	54.8023	14.6451
2432000000.0000	54.8323	14.6699
2434000000.0000	54.8266	14.6973
2436000000.0000	54.7964	14.6969
2438000000.0000	54.8442	14.7115
2440000000.0000	54.8438	14.7687
2442000000.0000	54.8635	14.7589
2444000000.0000	54.8976	14.7799
2446000000.0000	54.9217	14.7647
2448000000.0000	54.9493	14.7785
2450000000.0000	54.9598	14.7628
2452000000.0000	55.3331	14.8731
2454000000.0000	54.9819	14.8047
2456000000.0000	54.9753	14.8043
2458000000.0000	54.9339	14.8297
2460000000.0000	54.9639	14.8113
2462000000.0000	54.9505	14.7983
2464000000.0000	54.9684	14.8010
2466000000.0000	54.9266	14.7961
2468000000.0000	54.9143	14.8317
2470000000.0000	54.8712	14.8240
2472000000.0000	54.8482	14.8510
2474000000.0000	54.8801	14.8793
2476000000.0000	54.8384	14.8745
2478000000.0000	54.8158	14.9201
2480000000.0000	54.8040	14.9095
2482000000.0000	54.7913	14.9148
2484000000.0000	54.7807	14.9532
2486000000.0000	54.7427	14.9194
2488000000.0000	54.6861	14.9388
2490000000.0000	54.6651	14.9547
2492000000.0000	54.6314	14.9869
2494000000.0000	54.6148	15.0229
2496000000.0000	54.5650	15.0424
2498000000.0000	54.5199	14.9782
2500000000.0000	54.4736	15.0471

$s = w e_o e'' = 2 p f e_o e''=2.01$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 14.7628$

D600 NEWEB, Head 2450 Mhz Liquid Measurement, 2003-05-16

frequency	e'	e''
2400000000.0000	38.7499	13.5720
2402000000.0000	38.7696	13.5728
2404000000.0000	38.7227	13.5936
2406000000.0000	38.7234	13.5212
2408000000.0000	38.7335	13.6310
2410000000.0000	38.7229	13.6210
2412000000.0000	38.7543	13.6518
2414000000.0000	38.7567	13.6816
2416000000.0000	38.7911	13.6993
2418000000.0000	38.7345	13.6998
2420000000.0000	38.7286	13.7213
2422000000.0000	38.7815	13.6970
2424000000.0000	38.7823	13.7250
2426000000.0000	38.7542	13.7381
2428000000.0000	38.8114	13.7540
2430000000.0000	38.9023	13.7461
2432000000.0000	38.9333	13.7699
2434000000.0000	38.9276	13.7983
2436000000.0000	38.8974	13.6079
2438000000.0000	38.9452	13.7215
2440000000.0000	38.9448	13.7787
2442000000.0000	38.9645	13.6689
2444000000.0000	38.9986	13.6789
2446000000.0000	38.0317	13.6657
2448000000.0000	38.0593	13.5885
2450000000.0000	38.0698	13.5628
2452000000.0000	38.4341	13.5731
2454000000.0000	38.0919	13.5047
2456000000.0000	38.0853	13.6043
2458000000.0000	38.9339	13.6297
2460000000.0000	38.9639	13.7113
2462000000.0000	38.9505	13.7993
2464000000.0000	38.9684	13.8010
2466000000.0000	38.9266	13.8071
2468000000.0000	38.9143	13.8317
2470000000.0000	38.8712	14.8340
2472000000.0000	38.8482	13.8510
2474000000.0000	38.8801	13.8793
2476000000.0000	38.8384	13.8745
2478000000.0000	38.8158	13.9201
2480000000.0000	38.8040	13.9095
2482000000.0000	38.7913	13.9148
2484000000.0000	38.7807	13.9532
2486000000.0000	38.7427	13.9194
2488000000.0000	38.6861	13.9388
2490000000.0000	38.6651	13.9547
2492000000.0000	38.6314	13.9869
2494000000.0000	38.6148	13.0229
2496000000.0000	38.5650	14.0424
2498000000.0000	38.5199	13.9782
2500000000.0000	38.4736	14.0471

$s = w e_o e'' = 2 p f e_o e''=1.85$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 13.5628$

D600 Hitachi, Body 2450 Mhz Liquid Measurement, 2003-05-16

frequency	e'	e''
2400000000.0000	54.6489	14.4710
2402000000.0000	54.6686	14.4718
2404000000.0000	54.6217	14.4956
2406000000.0000	54.6254	14.5202
2408000000.0000	54.6325	14.5300
2410000000.0000	54.6219	14.5260
2412000000.0000	54.6533	14.5518
2414000000.0000	54.6557	14.5806
2416000000.0000	54.6901	14.5983
2418000000.0000	54.6335	14.5998
2420000000.0000	54.6276	14.6203
2422000000.0000	54.6805	14.5960
2424000000.0000	54.6813	14.6240
2426000000.0000	54.6532	14.6361
2428000000.0000	54.7115	14.6530
2430000000.0000	54.8023	14.6451
2432000000.0000	54.8323	14.6699
2434000000.0000	54.8266	14.6973
2436000000.0000	54.7964	14.6969
2438000000.0000	54.8442	14.7115
2440000000.0000	54.8438	14.7687
2442000000.0000	54.8635	14.7589
2444000000.0000	54.8976	14.7799
2446000000.0000	54.9217	14.7647
2448000000.0000	54.9493	14.7785
2450000000.0000	54.9598	14.7628
2452000000.0000	55.3331	14.8731
2454000000.0000	54.9819	14.8047
2456000000.0000	54.9753	14.8043
2458000000.0000	54.9339	14.8297
2460000000.0000	54.9639	14.8113
2462000000.0000	54.9505	14.7983
2464000000.0000	54.9684	14.8010
2466000000.0000	54.9266	14.7961
2468000000.0000	54.9143	14.8317
2470000000.0000	54.8712	14.8240
2472000000.0000	54.8482	14.8510
2474000000.0000	54.8801	14.8793
2476000000.0000	54.8384	14.8745
2478000000.0000	54.8158	14.9201
2480000000.0000	54.8040	14.9095
2482000000.0000	54.7913	14.9148
2484000000.0000	54.7807	14.9532
2486000000.0000	54.7427	14.9194
2488000000.0000	54.6861	14.9388
2490000000.0000	54.6651	14.9547
2492000000.0000	54.6314	14.9869
2494000000.0000	54.6148	15.0229
2496000000.0000	54.5650	15.0424
2498000000.0000	54.5199	14.9782
2500000000.0000	54.4736	15.0471

$s = w e_o e'' = 2 p f e_o e''=2.01$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 14.7628$

D600 Hitachi, Head 2450 Mhz Liquid Measurement, 2003-05-16

frequency	e'	e''
2400000000.0000	38.7499	13.5720
2402000000.0000	38.7696	13.5728
2404000000.0000	38.7227	13.5936
2406000000.0000	38.7234	13.5212
2408000000.0000	38.7335	13.6310
2410000000.0000	38.7229	13.6210
2412000000.0000	38.7543	13.6518
2414000000.0000	38.7567	13.6816
2416000000.0000	38.7911	13.6993
2418000000.0000	38.7345	13.6998
2420000000.0000	38.7286	13.7213
2422000000.0000	38.7815	13.6970
2424000000.0000	38.7823	13.7250
2426000000.0000	38.7542	13.7381
2428000000.0000	38.8114	13.7540
2430000000.0000	38.9023	13.7461
2432000000.0000	38.9333	13.7699
2434000000.0000	38.9276	13.7983
2436000000.0000	38.8974	13.6079
2438000000.0000	38.9452	13.7215
2440000000.0000	38.9448	13.7787
2442000000.0000	38.9645	13.6689
2444000000.0000	38.9986	13.6789
2446000000.0000	38.0317	13.6657
2448000000.0000	38.0593	13.5885
2450000000.0000	38.0698	13.5628
2452000000.0000	38.4341	13.5731
2454000000.0000	38.0919	13.5047
2456000000.0000	38.0853	13.6043
2458000000.0000	38.9339	13.6297
2460000000.0000	38.9639	13.7113
2462000000.0000	38.9505	13.7993
2464000000.0000	38.9684	13.8010
2466000000.0000	38.9266	13.8071
2468000000.0000	38.9143	13.8317
2470000000.0000	38.8712	14.8340
2472000000.0000	38.8482	13.8510
2474000000.0000	38.8801	13.8793
2476000000.0000	38.8384	13.8745
2478000000.0000	38.8158	13.9201
2480000000.0000	38.8040	13.9095
2482000000.0000	38.7913	13.9148
2484000000.0000	38.7807	13.9532
2486000000.0000	38.7427	13.9194
2488000000.0000	38.6861	13.9388
2490000000.0000	38.6651	13.9547
2492000000.0000	38.6314	13.9869
2494000000.0000	38.6148	13.0229
2496000000.0000	38.5650	14.0424
2498000000.0000	38.5199	13.9782
2500000000.0000	38.4736	14.0471

$s = w e_o e'' = 2 p f e_o e''=1.85$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 13.5628$

D400 NEWEB, Body 2450 Mhz Liquid Measurement, 2003-05-21

frequency	e'	e''
2400000000.0000	54.2057	14.2582
2402000000.0000	54.2364	14.2859
2404000000.0000	54.2331	14.3358
2406000000.0000	54.2385	14.3562
2408000000.0000	54.2411	14.3848
2410000000.0000	54.2526	14.3770
2412000000.0000	54.2892	14.3902
2414000000.0000	54.3018	14.4177
2416000000.0000	54.3297	14.4416
2418000000.0000	54.3146	14.4681
2420000000.0000	54.3337	14.4720
2422000000.0000	54.3657	14.4667
2424000000.0000	54.3921	14.4639
2426000000.0000	54.4068	14.4801
2428000000.0000	54.4493	14.5228
2430000000.0000	54.5099	14.4158
2432000000.0000	54.5124	14.3275
2434000000.0000	54.5346	14.2366
2436000000.0000	54.5381	14.2134
2438000000.0000	54.5544	14.2120
2440000000.0000	54.6231	14.2138
2442000000.0000	54.6333	14.2372
2444000000.0000	54.6491	14.2648
2446000000.0000	54.6626	14.2330
2448000000.0000	54.7116	14.2207
2450000000.0000	54.7168	14.2929
2452000000.0000	54.0906	14.3958
2454000000.0000	54.7589	14.3197
2456000000.0000	54.7495	14.3202
2458000000.0000	54.7221	14.3321
2460000000.0000	54.7655	14.4149
2462000000.0000	54.7390	14.6712
2464000000.0000	54.7336	14.6742
2466000000.0000	54.7097	14.6499
2468000000.0000	54.6772	14.7111
2470000000.0000	54.5793	14.9983
2472000000.0000	54.5569	14.9835
2474000000.0000	54.5544	14.9456
2476000000.0000	54.4968	14.9514
2478000000.0000	54.4800	14.7410
2480000000.0000	54.4658	14.6571
2482000000.0000	54.4072	14.6601
2484000000.0000	54.4063	14.8644
2486000000.0000	54.3627	14.8518
2488000000.0000	54.3238	14.8591
2490000000.0000	54.3082	14.7862
2492000000.0000	54.2495	14.7239
2494000000.0000	54.2134	14.7298
2496000000.0000	54.1386	14.7408
2498000000.0000	54.1112	14.7357
2500000000.0000	54.0548	14.7878

$s = w e_o e'' = 2 p f e_o e''=1.95$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 14.2929$

D400 NEWEB, Head 2450 Mhz Liquid Measurement, 2003-05-21

frequency	e'	e''
2400000000.0000	38.4791	13.1427
2402000000.0000	38.4498	13.1768
2404000000.0000	38.4278	13.1890
2406000000.0000	38.4921	13.1382
2408000000.0000	38.4627	13.1539
2410000000.0000	38.4773	13.1837
2412000000.0000	38.4574	13.1927
2414000000.0000	38.4652	13.1821
2416000000.0000	38.5385	13.2260
2418000000.0000	38.5101	13.2445
2420000000.0000	38.5041	13.2103
2422000000.0000	38.5207	13.2915
2424000000.0000	38.5730	13.2923
2426000000.0000	38.5600	13.3118
2428000000.0000	38.5964	13.3643
2430000000.0000	38.6141	13.3710
2432000000.0000	38.6864	13.4128
2434000000.0000	38.6909	13.4029
2436000000.0000	38.6071	13.4252
2438000000.0000	38.7023	13.4544
2440000000.0000	38.7577	13.5515
2442000000.0000	38.7249	13.5614
2444000000.0000	38.7633	13.5349
2446000000.0000	38.7665	13.5421
2448000000.0000	38.7750	13.5777
2450000000.0000	39.7029	13.5583
2452000000.0000	39.7009	13.6515
2454000000.0000	39.7702	13.5833
2456000000.0000	39.7010	13.6061
2458000000.0000	39.7174	13.6054
2460000000.0000	39.7212	13.6065
2462000000.0000	39.6557	13.5491
2464000000.0000	39.6127	13.5955
2466000000.0000	39.6457	13.5853
2468000000.0000	39.6586	13.5527
2470000000.0000	39.5654	13.5912
2472000000.0000	39.5919	13.5980
2474000000.0000	39.5230	13.6183
2476000000.0000	39.5713	13.6279
2478000000.0000	39.5592	13.6367
2480000000.0000	39.5633	13.6755
2482000000.0000	39.5132	13.6530
2484000000.0000	38.5683	13.6795
2486000000.0000	38.5628	13.6587
2488000000.0000	38.5282	13.6533
2490000000.0000	38.5586	13.6197
2492000000.0000	38.4261	13.6226
2494000000.0000	38.4397	13.6255
2496000000.0000	38.4687	13.6438
2498000000.0000	38.4173	13.6129
2500000000.0000	38.4001	13.6259

$s = w e_o e'' = 2 p f e_o e''=1.85$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 13.5583$

C400 NEWEB, Body 2450 Mhz Liquid Measurement, 2003-05-30

frequency	e'	e''
2400000000.0000	53.5983	14.2130
2402000000.0000	53.5166	14.2408
2404000000.0000	53.5206	14.2502
2406000000.0000	53.5178	14.2509
2408000000.0000	53.5142	14.2503
2410000000.0000	53.5905	14.2537
2412000000.0000	53.5584	14.2491
2414000000.0000	53.5476	14.2437
2416000000.0000	53.5834	14.2368
2418000000.0000	53.5444	14.2407
2420000000.0000	53.5320	14.2488
2422000000.0000	53.5357	14.2467
2424000000.0000	53.5327	14.2391
2426000000.0000	53.5450	14.2379
2428000000.0000	53.5837	14.2264
2430000000.0000	53.4150	14.3129
2432000000.0000	53.4310	14.3551
2434000000.0000	53.4597	14.3421
2436000000.0000	53.4572	14.3017
2438000000.0000	53.4297	14.3546
2440000000.0000	53.4486	14.3512
2442000000.0000	53.4615	14.3857
2444000000.0000	53.4778	14.3161
2446000000.0000	53.4647	14.3867
2448000000.0000	53.4772	14.3270
2450000000.0000	53.4941	14.4072
2452000000.0000	53.3626	14.4183
2454000000.0000	53.3063	14.4715
2456000000.0000	53.2833	14.4556
2458000000.0000	53.2840	14.4798
2460000000.0000	53.2215	14.4711
2462000000.0000	53.2044	14.4156
2464000000.0000	53.2300	14.4415
2466000000.0000	53.3043	14.4427
2468000000.0000	53.4047	14.4941
2470000000.0000	53.4889	14.4841
2472000000.0000	53.4137	14.4185
2474000000.0000	53.4331	14.3423
2476000000.0000	53.4625	14.3482
2478000000.0000	53.4737	14.3414
2480000000.0000	53.4386	14.3662
2482000000.0000	53.4034	14.3957
2484000000.0000	53.4922	14.3831
2486000000.0000	53.4616	14.4236
2488000000.0000	53.4275	14.4112
2490000000.0000	53.3372	14.4351
2492000000.0000	53.3168	14.5482
2494000000.0000	53.3842	14.4716
2496000000.0000	53.3180	14.4952
2498000000.0000	53.3916	14.5719
2500000000.0000	53.3262	14.4322

$s = w e_o e'' = 2 p f e_o e''=1.96$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 14.4072$

C400 NEWEB, Head 2450 Mhz Liquid Measurement, 2003-05-30

frequency	e'	e''
2400000000.0000	39.4791	13.3427
2402000000.0000	39.4698	13.3737
2404000000.0000	39.4178	13.3882
2406000000.0000	39.4921	13.3384
2408000000.0000	39.4627	13.3521
2410000000.0000	39.4773	13.3812
2412000000.0000	39.4574	13.3949
2414000000.0000	39.4652	13.3971
2416000000.0000	39.4385	13.3267
2418000000.0000	39.4101	13.3452
2420000000.0000	39.4041	13.3804
2422000000.0000	39.4207	13.3912
2424000000.0000	39.4730	13.3963
2426000000.0000	39.4600	13.3119
2428000000.0000	39.4964	13.3634
2430000000.0000	39.4141	13.3738
2432000000.0000	39.4064	13.4118
2434000000.0000	39.4109	13.4019
2436000000.0000	39.4071	13.4242
2438000000.0000	39.4023	13.4534
2440000000.0000	39.4277	13.4505
2442000000.0000	39.4249	13.3604
2444000000.0000	39.4233	13.3339
2446000000.0000	39.4365	13.3411
2448000000.0000	39.4250	13.3768
2450000000.0000	39.4129	13.4593
2452000000.0000	39.4009	13.4528
2454000000.0000	39.4702	13.4847
2456000000.0000	39.4610	13.4059
2458000000.0000	39.4574	13.4048
2460000000.0000	39.4612	13.3077
2462000000.0000	39.4657	13.4486
2464000000.0000	39.4927	13.4944
2466000000.0000	39.4257	13.4849
2468000000.0000	39.4486	13.3518
2470000000.0000	39.4354	13.3932
2472000000.0000	39.4619	13.3994
2474000000.0000	39.4530	13.3193
2476000000.0000	39.4513	13.3229
2478000000.0000	39.4592	13.4317
2480000000.0000	39.4533	13.4715
2482000000.0000	39.4432	13.4515
2484000000.0000	39.4183	13.4783
2486000000.0000	39.4228	13.4585
2488000000.0000	39.4382	13.4523
2490000000.0000	39.4286	13.4186
2492000000.0000	39.4711	13.4216
2494000000.0000	39.4397	13.4226
2496000000.0000	39.4687	13.4407
2498000000.0000	39.4173	13.4108
2500000000.0000	39.4001	13.4277

$s = w e_o e'' = 2 p f e_o e''=1.83$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 13.4593$

C640 Foxonn, Body 2450 Mhz Liquid Measurement, 2003-05-17

frequency	e'	e''
2400000000.0000	53.9875	14.4887
2402000000.0000	54.0280	14.4962
2404000000.0000	54.0079	14.5514
2406000000.0000	54.0241	14.5559
2408000000.0000	54.0081	14.5779
2410000000.0000	54.0156	14.5465
2412000000.0000	54.0578	14.5681
2414000000.0000	54.0592	14.5876
2416000000.0000	54.1038	14.6147
2418000000.0000	54.0763	14.6135
2420000000.0000	54.0765	14.5951
2422000000.0000	54.1192	14.5980
2424000000.0000	54.1132	14.6074
2426000000.0000	54.1396	14.6106
2428000000.0000	54.1727	14.6743
2430000000.0000	54.2172	14.6546
2432000000.0000	54.2169	14.6497
2434000000.0000	54.2355	14.6497
2436000000.0000	54.2098	14.6627
2438000000.0000	54.2750	14.5219
2440000000.0000	54.3176	14.5194
2442000000.0000	54.3442	14.5292
2444000000.0000	54.3630	14.5474
2446000000.0000	54.3388	14.4631
2448000000.0000	54.3837	14.4608
2450000000.0000	54.3858	14.4379
2452000000.0000	54.7630	14.4566
2454000000.0000	54.4080	14.5038
2456000000.0000	54.4026	14.6881
2458000000.0000	54.3878	14.6231
2460000000.0000	54.4142	14.6089
2462000000.0000	54.4025	14.6737
2464000000.0000	54.3795	14.6940
2466000000.0000	54.3772	14.6828
2468000000.0000	54.3632	14.6226
2470000000.0000	54.3113	14.6023
2472000000.0000	54.2793	14.6536
2474000000.0000	54.2934	14.6668
2476000000.0000	54.2634	14.6753
2478000000.0000	54.2502	14.6944
2480000000.0000	54.2390	14.6959
2482000000.0000	54.1973	14.6930
2484000000.0000	54.1545	14.7493
2486000000.0000	54.1519	14.7147
2488000000.0000	54.0984	14.7511
2490000000.0000	54.0737	14.7519
2492000000.0000	54.0701	14.7836
2494000000.0000	54.0354	15.7246
2496000000.0000	53.9653	15.7431
2498000000.0000	53.9191	15.7036
2500000000.0000	53.8886	15.7343

$s = w e_o e'' = 2 p f e_o e''=1.97$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 14.4379$

C640 Foxonn, Head 2450 Mhz Liquid Measurement, 2003-05-17

frequency	e'	e''
2400000000.0000	38.7499	13.4721
2402000000.0000	38.7696	13.4729
2404000000.0000	38.7227	13.4937
2406000000.0000	38.7234	13.4213
2408000000.0000	38.7335	13.5311
2410000000.0000	38.7229	13.5211
2412000000.0000	38.7543	13.5519
2414000000.0000	38.7567	13.5815
2416000000.0000	38.7911	13.5994
2418000000.0000	38.7345	13.5999
2420000000.0000	38.7286	13.6214
2422000000.0000	38.7815	13.6971
2424000000.0000	38.7823	13.6251
2426000000.0000	38.7542	13.6382
2428000000.0000	38.8114	13.6541
2430000000.0000	38.9023	13.6462
2432000000.0000	38.9333	13.6698
2434000000.0000	38.9276	13.6984
2436000000.0000	38.8974	13.5078
2438000000.0000	38.8452	13.6216
2440000000.0000	38.8448	13.6789
2442000000.0000	38.7645	13.5688
2444000000.0000	38.7896	13.5789
2446000000.0000	38.7417	13.5657
2448000000.0000	38.7593	13.6886
2450000000.0000	38.8918	13.6628
2452000000.0000	38.8941	13.6732
2454000000.0000	38.8919	13.6047
2456000000.0000	38.9853	13.6144
2458000000.0000	38.9449	13.6397
2460000000.0000	38.9749	13.6214
2462000000.0000	38.9615	13.6994
2464000000.0000	38.9794	13.7011
2466000000.0000	38.9586	13.7072
2468000000.0000	38.9463	13.7318
2470000000.0000	38.8812	13.7341
2472000000.0000	38.8482	13.8510
2474000000.0000	38.8111	13.8793
2476000000.0000	38.8494	13.8745
2478000000.0000	38.8268	13.9201
2480000000.0000	38.8150	13.9095
2482000000.0000	38.8023	13.9148
2484000000.0000	38.7907	13.9532
2486000000.0000	38.7527	13.9194
2488000000.0000	38.6851	13.9388
2490000000.0000	38.6651	13.9547
2492000000.0000	38.6414	13.9869
2494000000.0000	38.6148	13.0229
2496000000.0000	38.5750	14.0424
2498000000.0000	38.5299	13.9782
2500000000.0000	38.4536	14.0471

$s = w e_o e'' = 2 p f e_o e''=1.86$
where $f = 2450x 10^6$
$e_o = 8.854 x 10^{-12}$
$e'' = 13.6628$

3 - EUT SUMMARY

Applicant:	AMBIT Microsystems Corporation
Product Description:	Wireless MinPCI Card
Model Name:	AIR-MPI350DE
FCC ID:	MCLAIRMPI350DE
Serial Number:	None
Transmitter Frequency:	2412-2462 MHz
Maximum Output Power:	21.33 dBm (136 mW)
RF Exposure environment:	General Population/Uncontrolled
Power Supply:	DELL AC Adapter, M/N: AA22850
Applicable Standard	FCC CFR 47, Part 15 Subpart C
Application Type:	Certification

[1] Specific Absorption Rate (SAR) is a measure of the rate of energy absorption due to exposure to an RF transmitting source (wireless portable device).
[2] IEEE/ANSI Std. C95.1-1992 limits are used to determine compliance with FCC ET Docket 93-62.

Note: The test data was good for test sample only. It may have deviation for other test samples.

4 - SYSTEM TEST CONFIGURATION

4.1 Justification

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

4.2 EUT Exercise Software and Procedure

The EUT exercising program used during SAR testing was designed to exercise the various system components in a manner similar to a typical use. The software, PRISM utilities, contained on the hard drive, is auto starting on power-up. Once loaded, the program sequentially exercises each system component.

The testing procedure is as follows:

1. Click PRISM test utilities on Window
2. Select wireless LAN Adapter under adapters list
3. Select low, mid and high channels under Radio Channels
4. Select Tx Rate of 11MB
5. Click on “continuous Tx” bottom

4.3 Special Accessories

All interface cables used for compliance testing are shielded as normally supplied by INMAC, Monster Cable and their respective support equipment manufacturer. The EUT is featured shielded metal connectors.

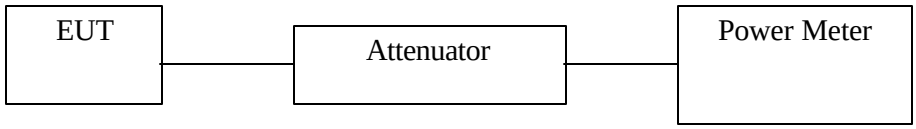
4.4 Equipment Modifications

No modification(s) were made to ensure that the EUT complies with the applicable limits.

5 - CONDUCTED OUTPUT POWER MEASUREMENT

5.1 Measurement Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a spectrum analyzer.
3. Add a correction factor to the display.



5.2 Test Results

D800 NEWEB:

Antenna	Frequency (MHz)	Peak Output Power (dBm)	Correction Factor (dBm)	Corrected Factor (dBm)	Output Power (W)	Standard (W)	Result
Main	2412	12.67	8.0	20.67	0.117	≤ 1 W	Compliant
	2437	13.17	8.0	21.17	0.131	≤ 1 W	Compliant
	2462	12.67	8.0	20.67	0.117	≤ 1 W	Compliant
Auxiliary	2412	12.50	8.0	20.50	0.112	≤ 1 W	Compliant
	2437	13.00	8.0	21.00	0.126	≤ 1 W	Compliant
	2462	12.67	8.0	20.67	0.117	≤ 1 W	Compliant

D800 Hitachi:

Antenna	Frequency (MHz)	Peak Output Power (dBm)	Correction Factor (dBm)	Corrected Factor (dBm)	Output Power (W)	Standard (W)	Result
Main	2412	12.67	8.0	20.67	0.117	≤ 1 W	Compliant
	2437	12.83	8.0	20.83	0.121	≤ 1 W	Compliant
	2462	12.67	8.0	20.67	0.117	≤ 1 W	Compliant
Auxiliary	2412	12.50	8.0	20.50	0.112	≤ 1 W	Compliant
	2437	13.00	8.0	21.00	0.126	≤ 1 W	Compliant
	2462	12.50	8.0	20.50	0.112	≤ 1 W	Compliant

D600 NEWEB:

Antenna	Frequency (MHz)	Peak Output Power (dBm)	Correction Factor (dBm)	Corrected Factor (dBm)	Output Power (W)	Standard (W)	Result
Main	2412	12.50	8.0	20.50	0.112	≤ 1 W	Compliant
	2437	13.00	8.0	21.00	0.126	≤ 1 W	Compliant
	2462	12.50	8.0	20.50	0.112	≤ 1 W	Compliant
Auxiliary	2412	12.50	8.0	20.50	0.112	≤ 1 W	Compliant
	2437	12.83	8.0	20.83	0.121	≤ 1 W	Compliant
	2462	12.67	8.0	20.67	0.117	≤ 1 W	Compliant

D600 Hitachi:

Antenna	Frequency (MHz)	Peak Output Power (dBm)	Correction Factor (dBm)	Corrected Factor (dBm)	Output Power (W)	Standard (W)	Result
Main	2412	12.50	8.0	20.50	0.112	≤ 1 W	Compliant
	2437	13.17	8.0	21.17	0.131	≤ 1 W	Compliant
	2462	12.50	8.0	20.50	0.112	≤ 1 W	Compliant
Auxiliary	2412	12.33	8.0	20.33	0.108	≤ 1 W	Compliant
	2437	13.00	8.0	21.00	0.126	≤ 1 W	Compliant
	2462	12.67	8.0	20.67	0.117	≤ 1 W	Compliant

D400 NEWEB:

Antenna	Frequency (MHz)	Peak Output Power (dBm)	Correction Factor (dBm)	Corrected Factor (dBm)	Output Power (W)	Standard (W)	Result
Main	2412	12.50	8.0	20.50	0.112	≤ 1 W	Compliant
	2437	13.00	8.0	21.00	0.126	≤ 1 W	Compliant
	2462	12.83	8.0	20.83	0.120	≤ 1 W	Compliant
Auxiliary	2412	12.50	8.0	20.50	0.112	≤ 1 W	Compliant
	2437	13.00	8.0	21.00	0.126	≤ 1 W	Compliant
	2462	12.67	8.0	20.67	0.117	≤ 1 W	Compliant

C400 NEWEB:

Antenna	Frequency (MHz)	Peak Output Power (dBm)	Correction Factor (dBm)	Corrected Factor (dBm)	Output Power (W)	Standard (W)	Result
Main	2412	12.50	8.0	20.50	0.112	≤ 1 W	Compliant
	2437	12.83	8.0	20.83	0.120	≤ 1 W	Compliant
	2462	12.83	8.0	20.83	0.120	≤ 1 W	Compliant
Auxiliary	2412	12.33	8.0	20.33	0.108	≤ 1 W	Compliant
	2437	12.83	8.0	20.83	0.120	≤ 1 W	Compliant
	2462	12.67	8.0	20.67	0.117	≤ 1 W	Compliant

C640 Foxonn:

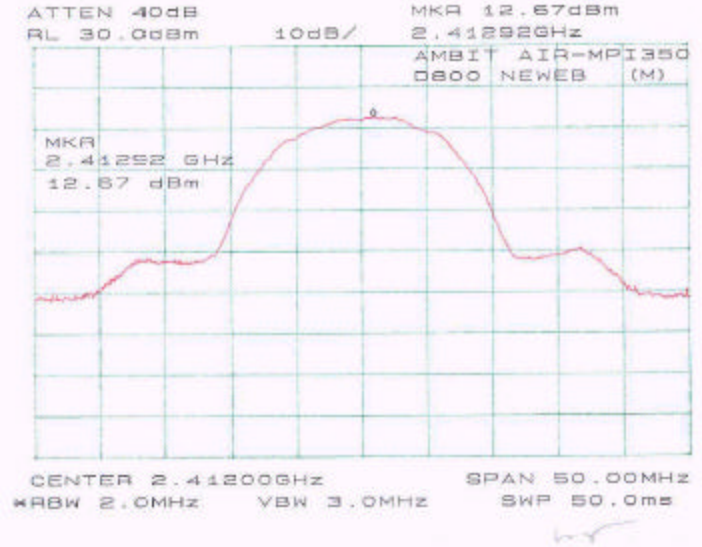
Antenna	Frequency (MHz)	Peak Output Power (dBm)	Correction Factor (dBm)	Corrected Factor (dBm)	Output Power (W)	Standard (W)	Result
Main	2412	12.67	8.0	20.67	0.117	≤ 1 W	Compliant
	2437	13.17	8.0	21.17	0.131	≤ 1 W	Compliant
	2462	13.00	8.0	21.00	0.126	≤ 1 W	Compliant
Auxiliary	2412	12.67	8.0	20.67	0.117	≤ 1 W	Compliant
	2437	13.33	8.0	21.33	0.136	≤ 1 W	Compliant
	2462	13.00	8.0	21.00	0.126	≤ 1 W	Compliant

Note: The power output may depend on the intended use of the EUT. For all tests, the EUT was set to maximum conditions.

The data shows that the maximum output power variance between EUT's exceed the 5% guideline. The applicant provided 7 complete WLAN laptop EUT devices in order to expedite testing and processing. Normal manufacturing variances is of this modules show output power variation of 16 mW out of the maximum 136 mW. The absolute maximum percentage variance is 11.1% while the averaged standard deviation (times two) is 6.50%. See attached computation file, " standard deviation computation.xls".

5.3 Measurement Plots

Please refer to the plots hereinafter.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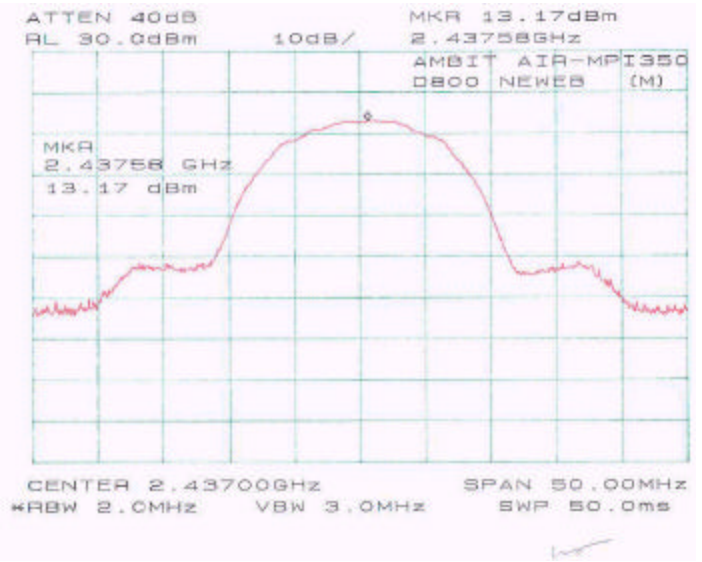
10dB/
MKR 12.67dBm
2.41292GHz
AMBIT AIR-MPI350
0800 NEWEB (M)
MKR
2.41252 GHz
12.67 dBm
CENTER 2.41200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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10dB/
MKR 13.17dBm
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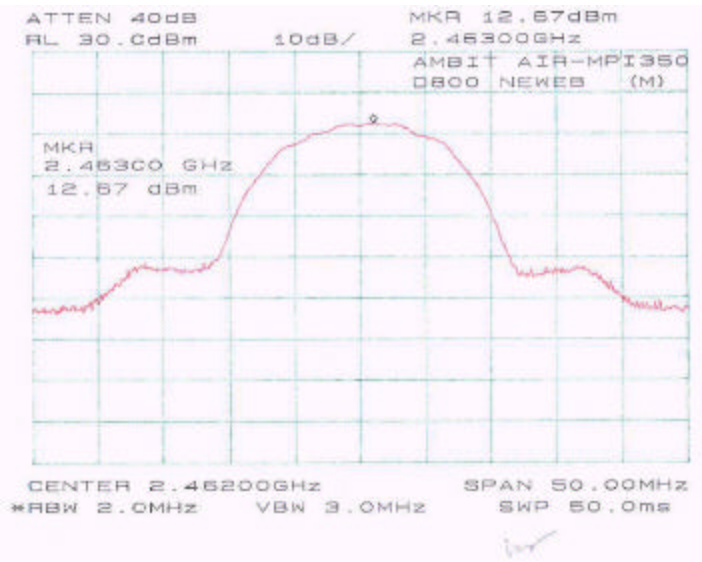
AMBIT AIR-MPI350
0800 NEWEB (M)
MKR
2.43758 GHz
13.17 dBm
CENTER 2.43700GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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10dB/
MKR 12.67dBm
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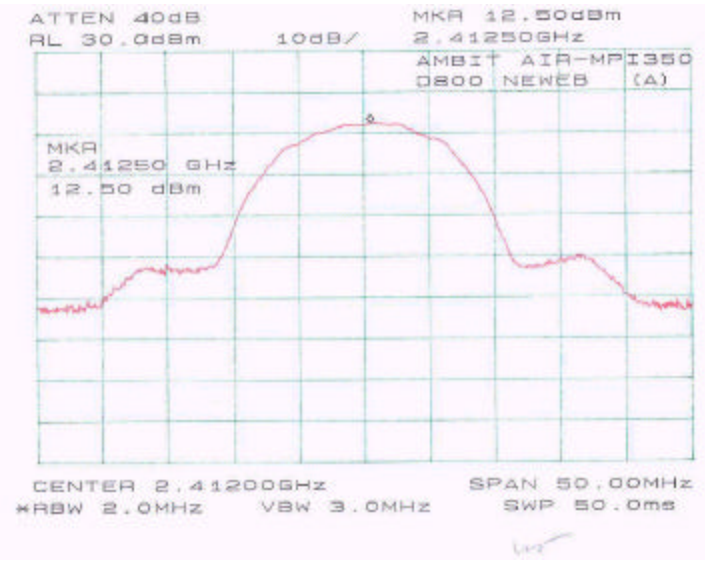
AMBIT AIR-MPI350
0800 NEWEB (M)
MKR
2.46300 GHz
12.67 dBm
CENTER 2.46200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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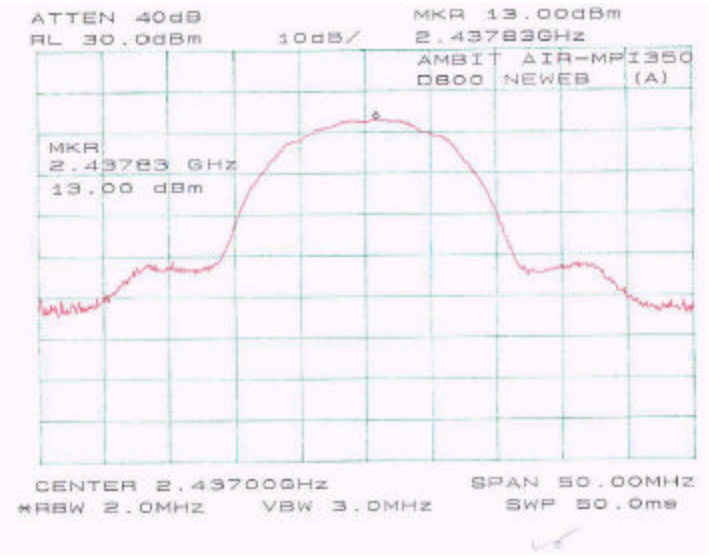
10dB/
MKR 12.50dBm
2.41250GHz
AMBIT AIR-MPI350
D800 NEWEB (A)
MKR
2.41250 GHz
12.50 dBm
CENTER 2.41200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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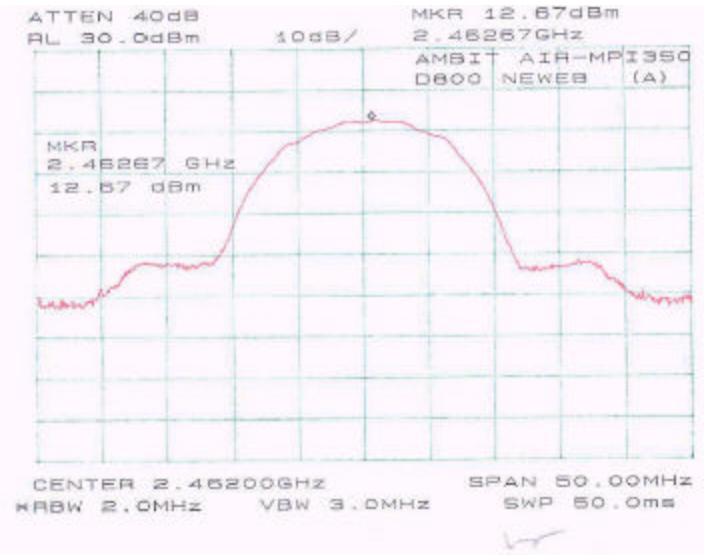
10dB/
MKR 13.00dBm
2.43783GHz
AMBIT AIR-MPI350
D800 NEWEB (A)
MKR
2.43783 GHz
13.00 dBm
CENTER 2.43700GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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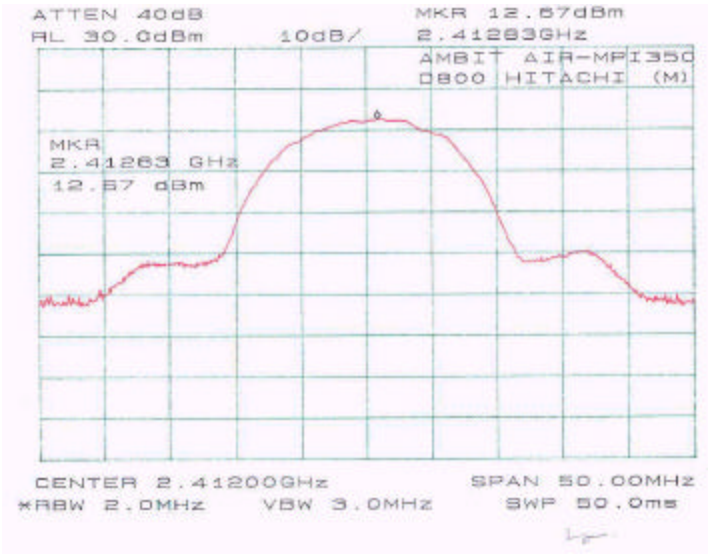
10dB/
MKR 12.67dBm
2.46267GHz
AMBIT AIR-MPI350
D800 NEWEB (A)
MKR
2.46267 GHz
12.67 dBm
CENTER 2.46200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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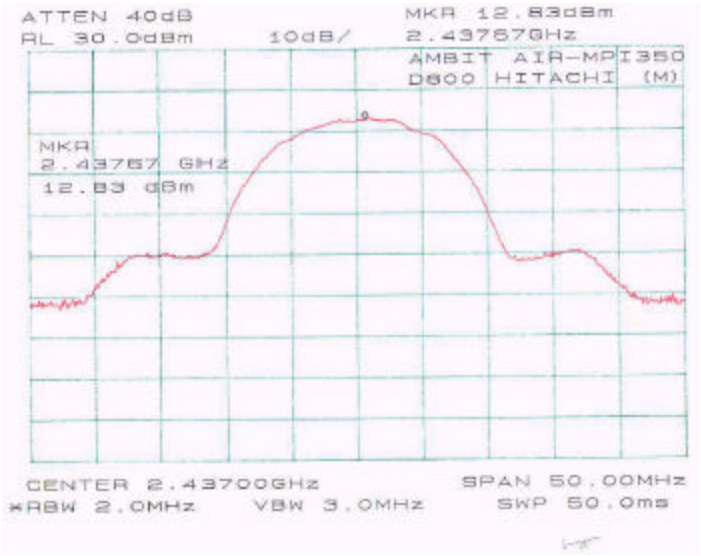
10dB/
MKR 12.67dBm
2.41283GHz
AMBIT AIR-MPI350
D800 HITACHI (M)
MKR
2.41283 GHz
12.67 dBm
CENTER 2.41200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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10dB/
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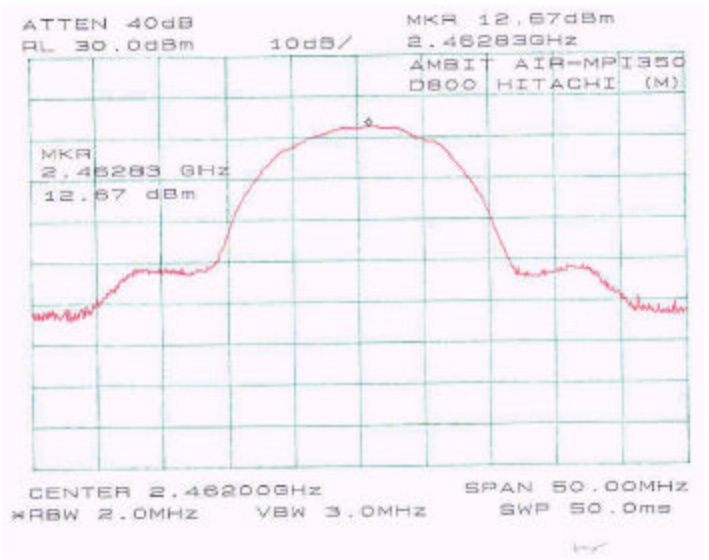
AMBIT AIR-MPI350
D800 HITACHI (M)
MKR
2.43767 GHz
12.83 dBm
CENTER 2.43700GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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10dB/
MKR 12.67dBm
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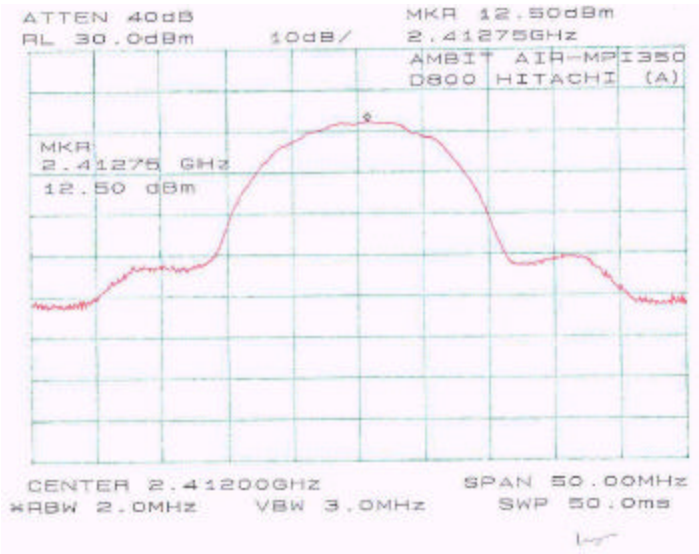
AMBIT AIR-MPI350
D800 HITACHI (M)
MKR
2.46283 GHz
12.67 dBm
CENTER 2.46200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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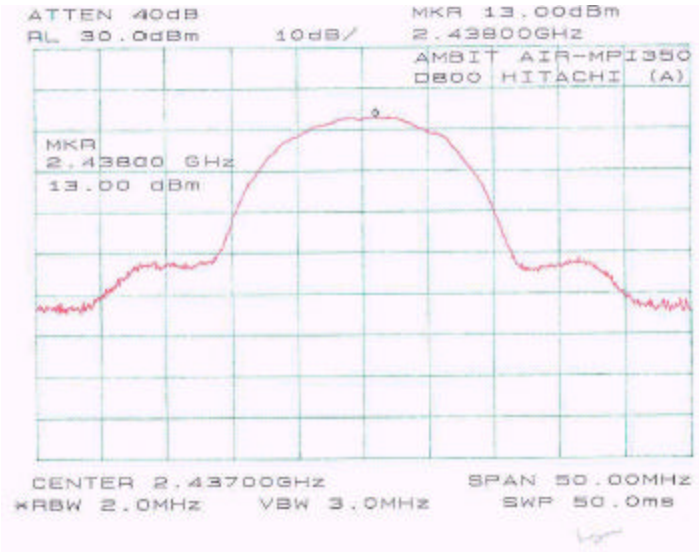
10dB/
MKR 12.50dBm
2.41275GHz
AMBIT AIR-MPI350
D800 HITACHI (A)
MKR
2.41275 GHz
12.50 dBm
CENTER 2.41200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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10dB/
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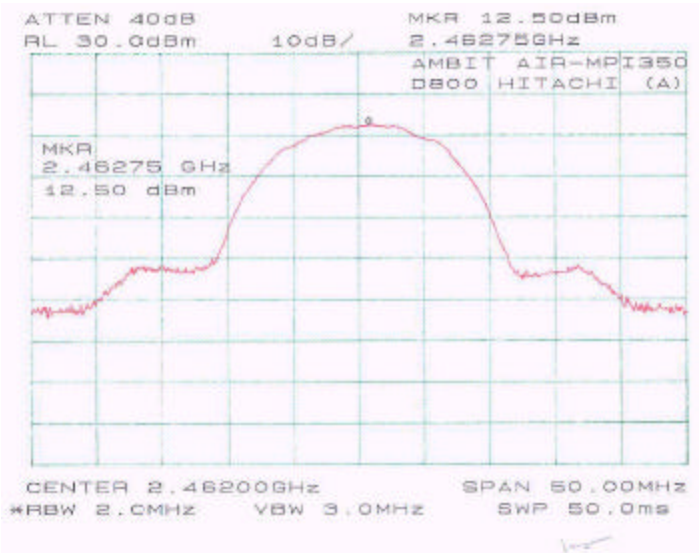
AMBIT AIR-MPI350
D800 HITACHI (A)
MKR
2.43800 GHz
13.00 dBm
CENTER 2.43700GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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D800 HITACHI (A)
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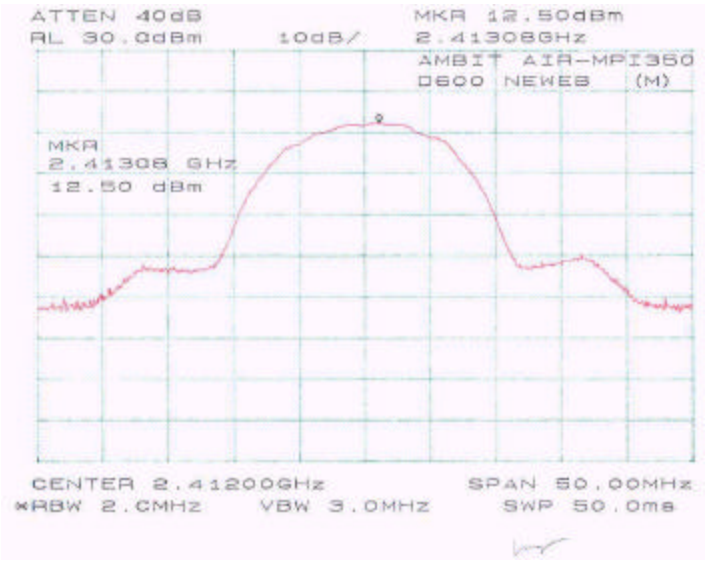
VBW 3.0MHz
SWP 50.0ms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2.41308GHz
AMBIT AIR-MPI350
D600 NEWEB (M)
MKR
2.41308 GHz
12.50 dBm
CENTER 2.41200GHz
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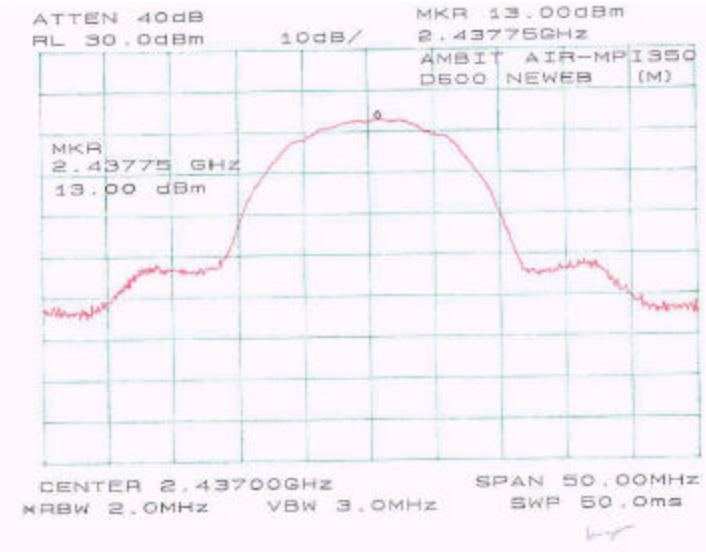
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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10dB/
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D600 NEWEB (M)
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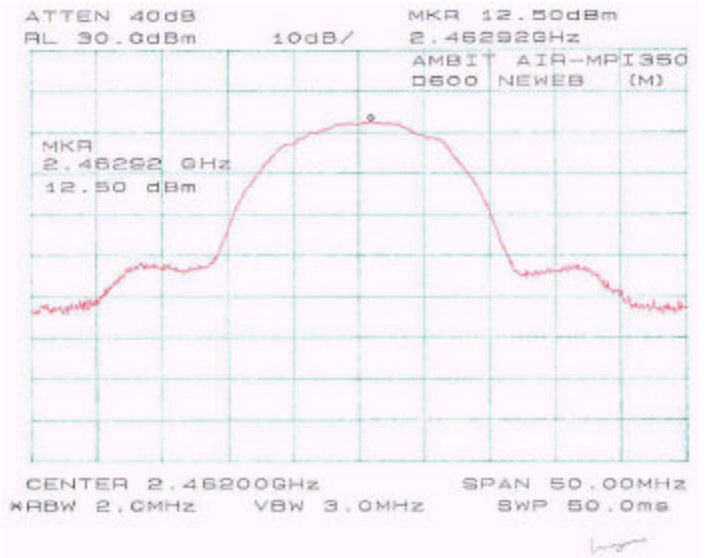
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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10dB/
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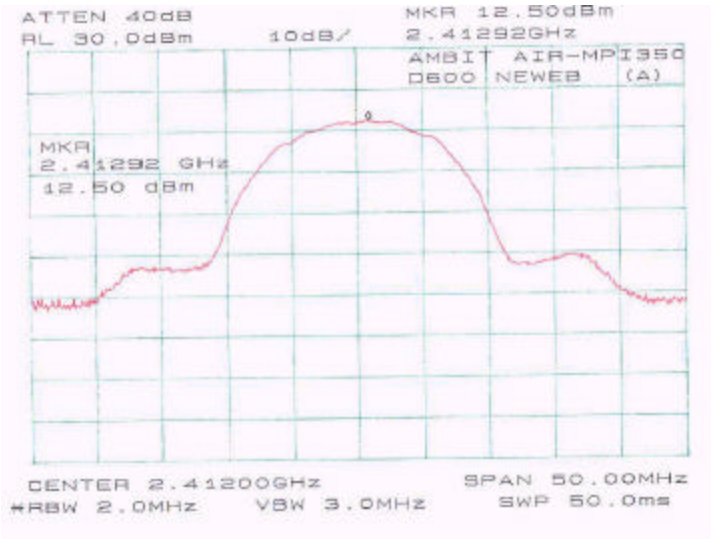
AMBIT AIR-MPI350
D600 NEWEB (M)
MKR
2.46292 GHz
12.50 dBm
CENTER 2.46200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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10dB/
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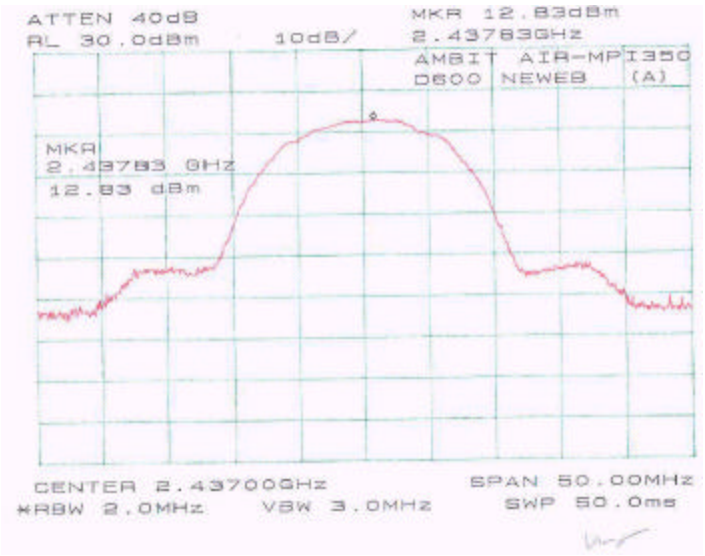
AMBIT AIR-MPI350
D600 NEWEB (A)
MKR
2.41292 GHz
12.50 dBm
CENTER 2.41200GHz
SPAN 50.00MHz
#RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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D600 NEWEB (A)
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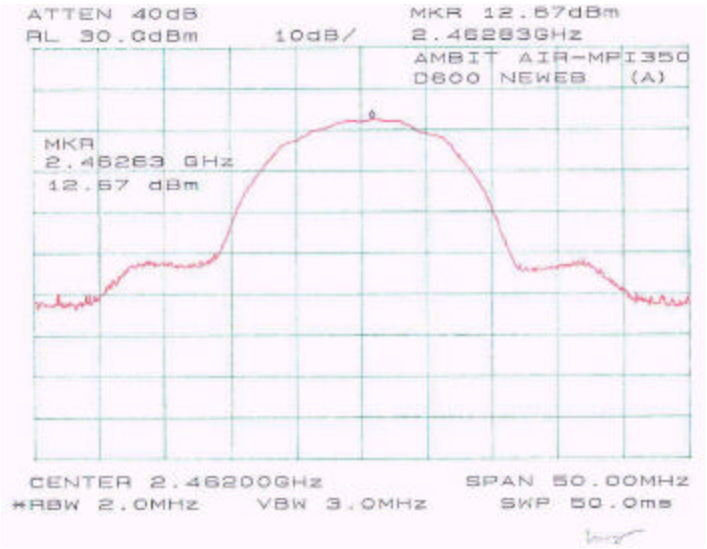
12.83 dBm
CENTER 2.43700GHz
SPAN 50.00MHz
#RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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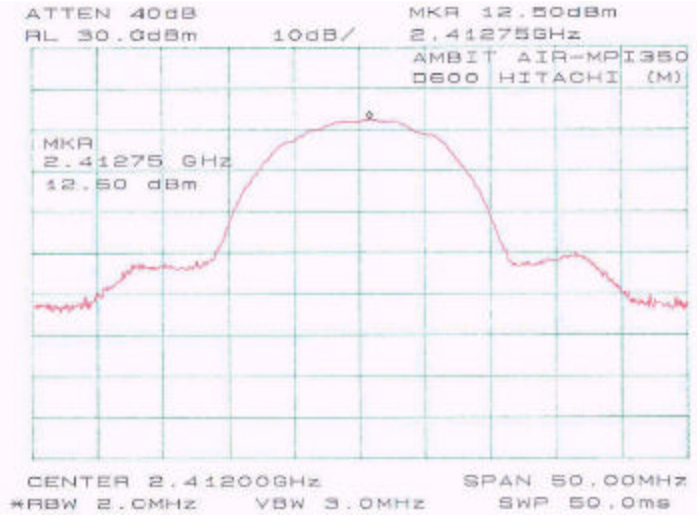
10dB/
MKR 12.67dBm
2.46263GHz
AMBIT AIR-MPI350
D600 NEWEB (A)
MKR
2.46263 GHz
12.67 dBm
CENTER 2.46200GHz
SPAN 50.00MHz
#RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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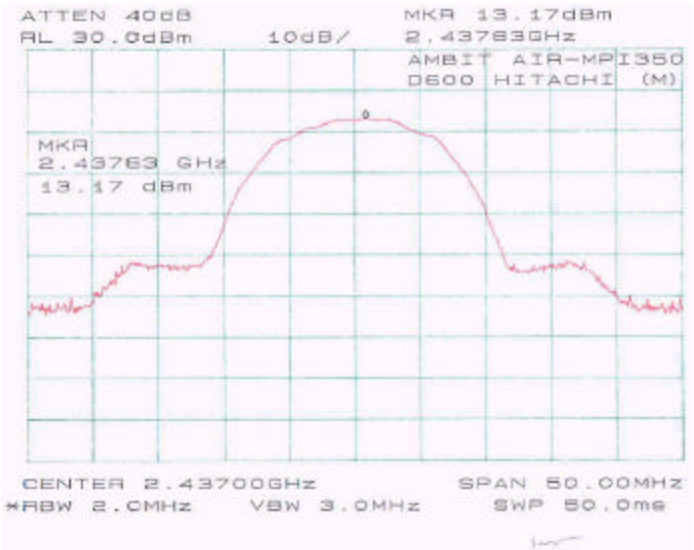
10dB/
MKR 12.50dBm
2.41275GHz
AMBIT AIR-MPI350
D600 HITACHI (M)
MKR
2.41275 GHz
12.50 dBm
CENTER 2.41200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms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MKR 13.17dBm
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D600 HITACHI (M)
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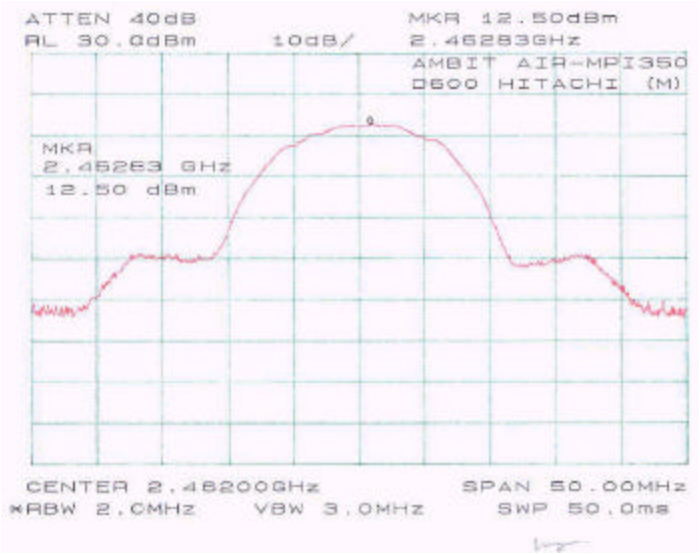
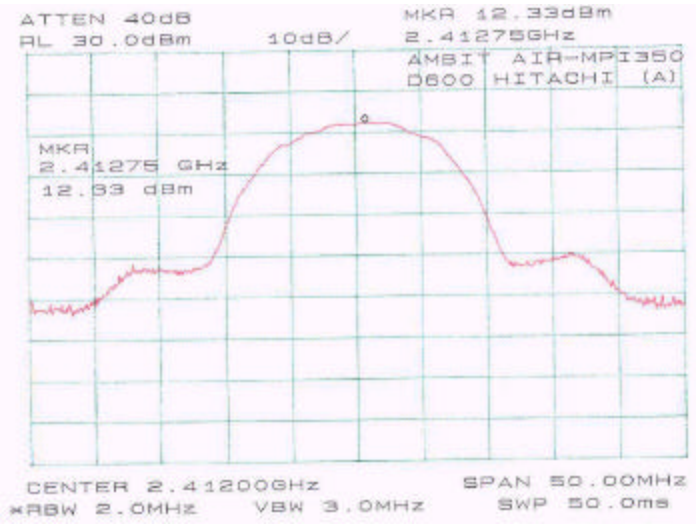
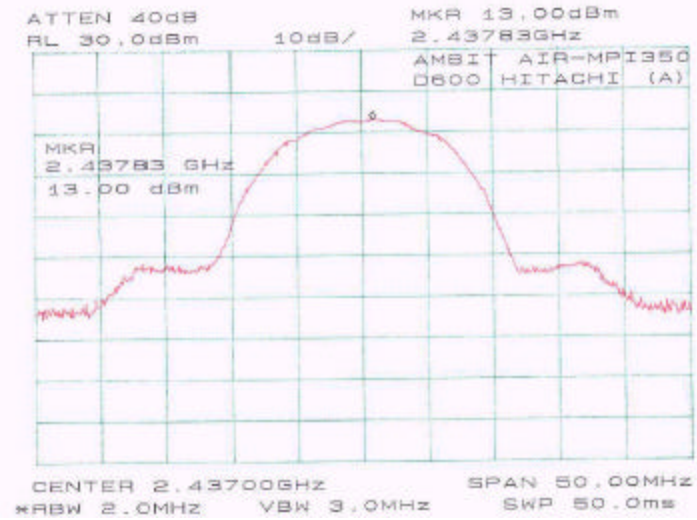
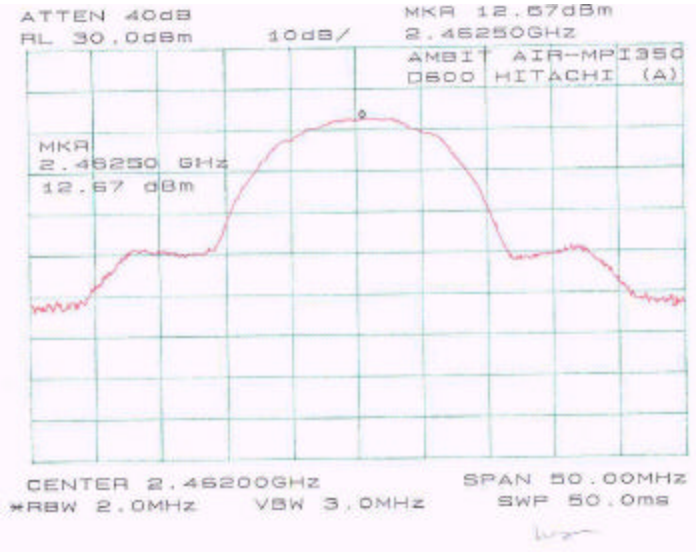
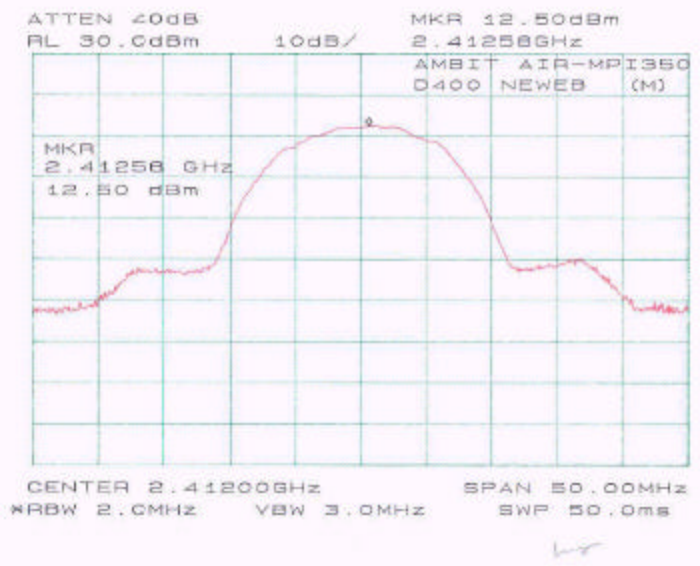
13.17 dBm
CENTER 2.43700GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms

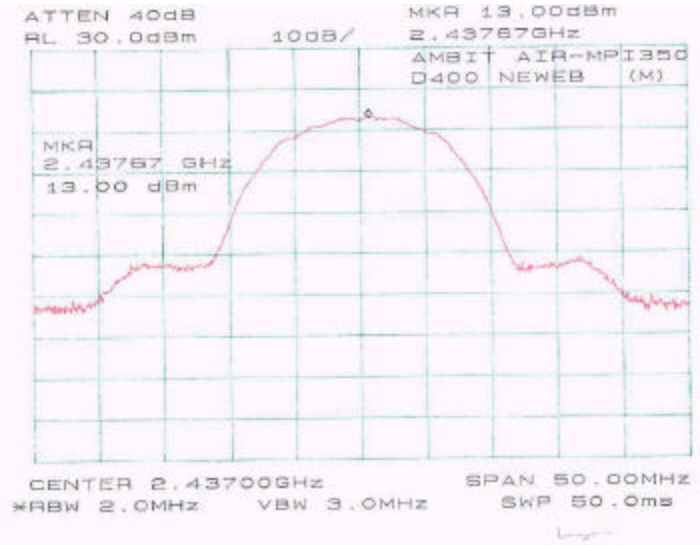

ATTEN 40dB
RL 30.0dBm
10dB/
MKR 12.50dBm
2.46283GHz
AMBIT AIR-MPI350
D600 HITACHI (M)
MKR
2.46263 GHz
12.50 dBm
CENTER 2.48200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms

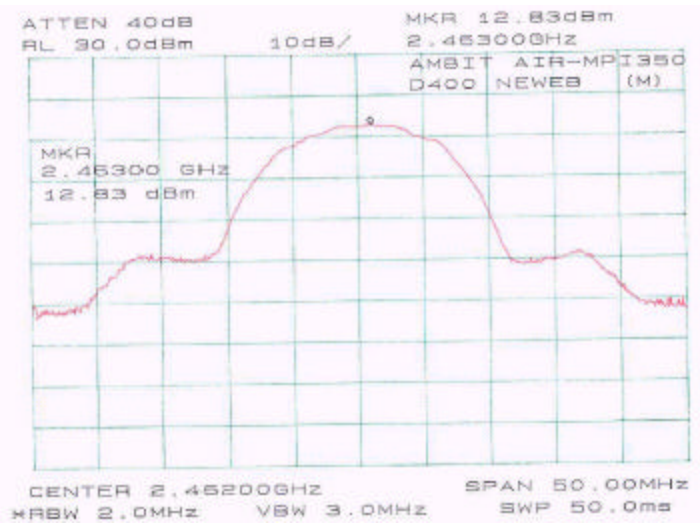

ATTEN 40dB
RL 30.0dBm
10dB/
MKR 12.33dBm
2.41275GHz
AMBIT AIR-MPI350
D600 HITACHI (A)
MKR
2.41275 GHz
12.33 dBm
CENTER 2.41200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms

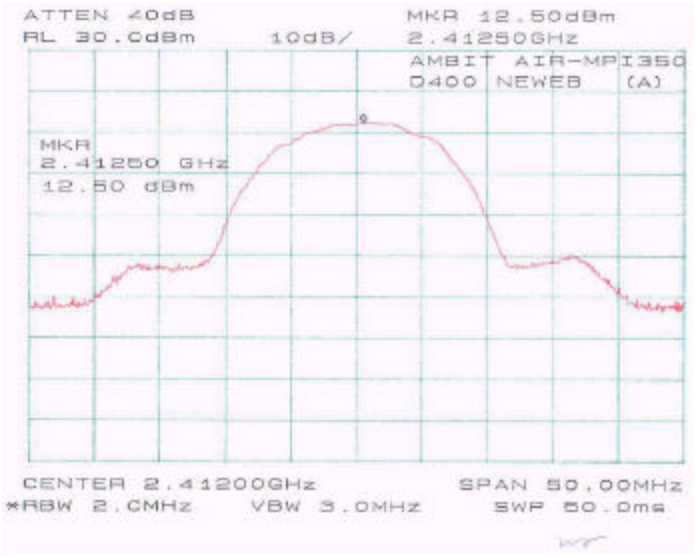

ATTEN 40dB
RL 30.0dBm
10dB/
MKR 13.00dBm
2.43783GHz
AMBIT AIR-MPI350
D600 HITACHI (A)
MKR
2.43783 GHz
13.00 dBm
CENTER 2.43700GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms

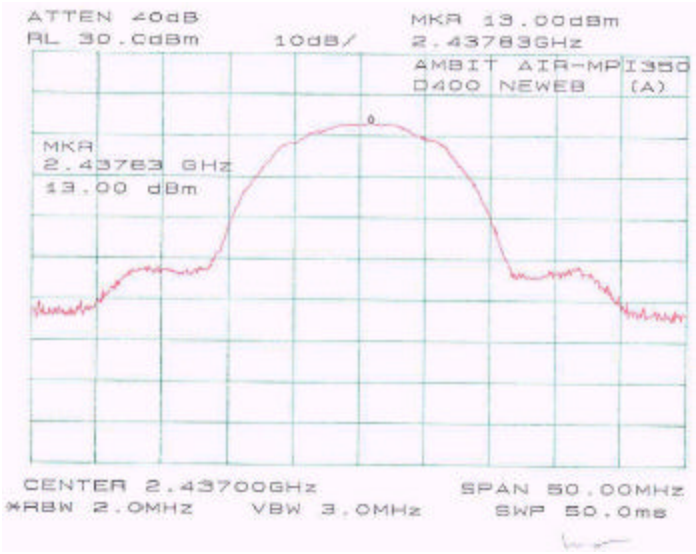

ATTEN 40dB
RL 30.0dBm
10dB/
MKR 12.67dBm
2.46250GHz
AMBIT AIR-MPI350
D600 HITACHI (A)
MKR
2.46250 GHz
12.67 dBm
CENTER 2.46200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms

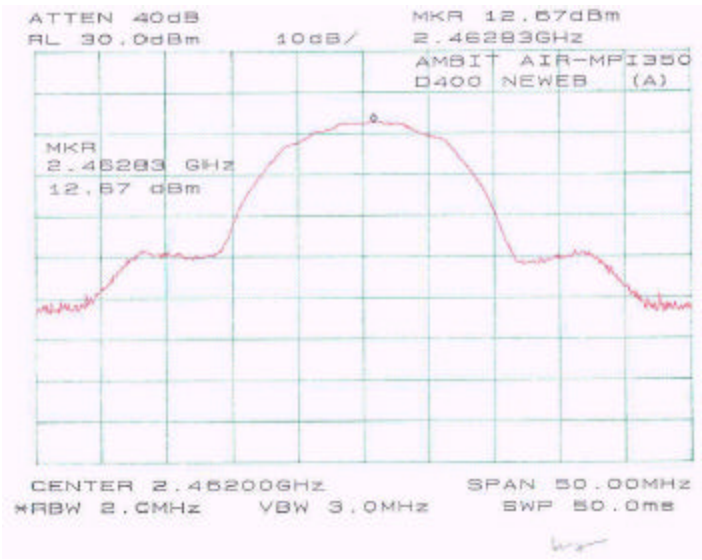

ATTEN 20dB
RL 30.0dBm
10dB/
MKR 12.50dBm
2.41258GHz
AMBIT AIR-MPI350
D400 NEWEB (M)
MKR
2.41258 GHz
12.50 dBm
CENTER 2.41200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms

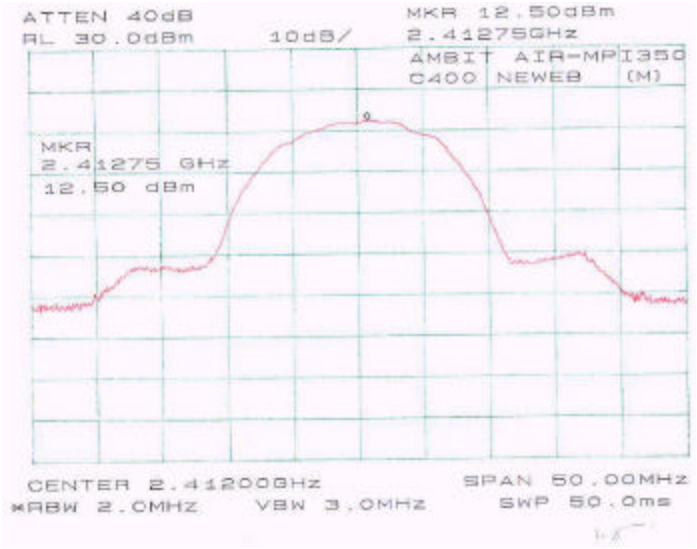

ATTEN 40dB
RL 30.0dBm
10dB/
MKR 13.00dBm
2.43767GHz
AMBIT AIR-MPI350
D400 NEWEB (M)
MKR
2.43767 GHz
13.00 dBm
CENTER 2.43700GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms

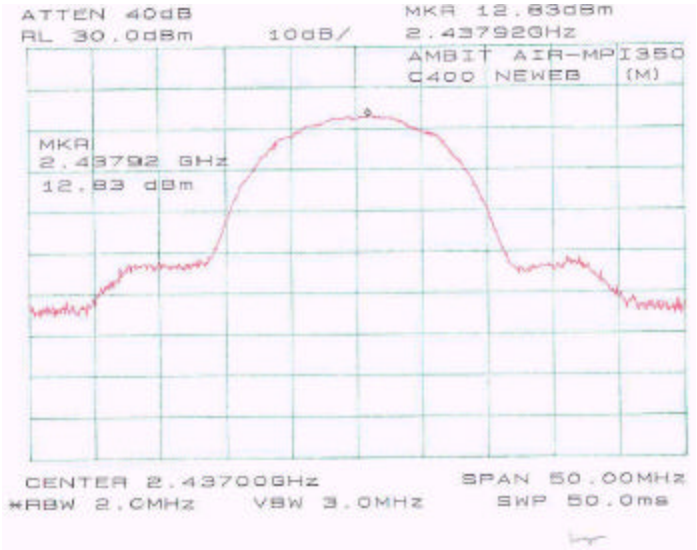

ATTEN 40dB
RL 30.0dBm
10dB/
MKR 12.83dBm
2.46300GHz
AMBIT AIR-MPI350
D400 NEWEB (M)
MKR
2.46300 GHz
12.83 dBm
CENTER 2.46200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms

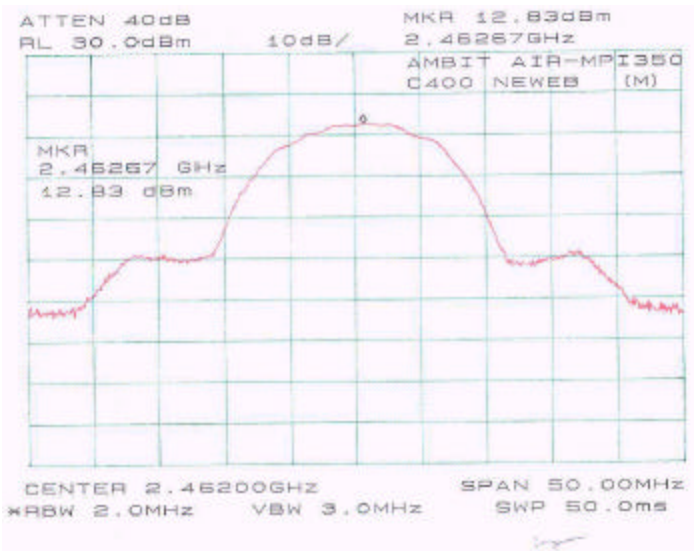

ATTEN 40dB
RL 30.0dBm
10dB/
MKR 12.50dBm
2.41250GHz
AMBIT AIR-MPI350
D400 NEWEB (A)
MKR
2.41250 GHz
12.50 dBm
CENTER 2.41200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
MKR 13.00dBm
2.43783GHz
AMBIT AIR-MPI350
D400 NEWEB (A)
MKR
2.43783 GHz
13.00 dBm
CENTER 2.43700GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
MKR 12.67dBm
2.46283GHz
AMBIT AIR-MPI350
D400 NEWEB (A)
MKR
2.46283 GHz
12.67 dBm
CENTER 2.46200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
MKR 12.50dBm
2.41275GHz
AMBIT AIR-MPI350
C400 NEWEB (M)
MKR
2.41275 GHz
12.50 dBm
CENTER 2.41200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
MKR 12.83dBm
2.43792GHz
AMBIT AIR-MPI350
C400 NEWEB (M)
MKR
2.43792 GHz
12.83 dBm
CENTER 2.43700GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms


ATTEN 40dB
RL 30.0dBm
10dB/
MKR 12.83dBm
2.46267GHz
AMBIT AIR-MPI350
C400 NEWEB (M)
MKR
2.46267 GHz
12.83 dBm
CENTER 2.46200GHz
SPAN 50.00MHz
*RBW 2.0MHz
VBW 3.0MHz
SWP 50.0ms