



EMC

TEST REPORT

REPORT NO. : F89022207

MODEL NO. : 5090

DATE OF TEST : March 22, 2000

PREPARED FOR: BEHAVIOR TECH COMPUTER CORP.

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PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



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**1. CERTIFICATION**

Issue Date: March 27, 2000

Product : RECEIVER
Trade Name : BTC
Model No. : 5090
Applicant : BEHAVIOR TECH COMPUTER CORP.
Standard : FCC Part 15, Subpart B, Class B
ANSI C63.4-1992

We hereby certify that one sample of the designation has been tested in our facility on March 22, 2000. The test record, data evaluation and Equipment Under Test (EUT) configurations represent herein are true and accurate representation of the measurements of the sample's EMC characteristics under the conditions herein specified.

The test results show that the EUT as described in this report is in compliance with the Class B limits of conducted and radiated emission of applicable standards.

TESTED BY : Eric Chang , DATE: 3/27/2000
(Eric Chang)

CHECKED BY : Yemmy , DATE: 3/27/2000
(Yemmy Soong)

APPROVED BY : Mike Su , DATE: 3/27/2000
(Mike Su)

ADVANCE DATA TECHNOLOGY CORPORATION**NVLAP[®]**

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product : RECEIVER
 Model No. : 5090
 Power Supply : 4.5 Vdc (from PC)
 Power Cable : Nonshielded (1.8 m)

Note: The EUT is an RF/Wireless Keyboard/Mouse Receiver, which was tested together with BTC RF Keyboard/Mouse Pad, model: 5090.

The EUT has 12 channels. Below is the channel & frequency table:

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	910.2 MHz	5	914.2 MHz	9	917.2 MHz
2	910.7 MHz	6	914.7 MHz	10	917.7 MHz
3	912.2 MHz	7	915.2 MHz	11	919.2 MHz
4	912.7 MHz	8	915.7 MHz	12	919.7 MHz

The EUT was tested with 4 modes, as the following:

Mode	Receiver Module	Channel Frequency
Mode 1	Using BTC RF Receiver Module	Channel 1 (910.2 MHz)
Mode 2		Channel 12 (919.7 MHz)
Mode 3	Using RF-LINK Systems INC. RF Receiver Module	Channel 1 (910.2 MHz)
Mode 4		Channel 12 (919.7 MHz)

All four modes were tested separately and their data are recorded in this report.

For more detailed features description, please refer to manufacturer's specification or User's Manual.



2.2 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories are used to form representative test configuration during the tests.

No	Product	Brand	Model No.	FCC ID	I/O Cable
1.	PERSONAL COMPUTER	IBM	2187-12W	FCC DoC Approved	Nonshielded Power (1.8m)
2.	MONITOR	ADI	937G	BR8937G	Shielded Signal (1.8m) Nonshielded Power (1.8m)
3.	PRINTER	HP	2225C+	DSI6XU2225	Shielded Signal (1.2m) Nonshielded Power (1.9m)
4.	MODEM	ACEEX	1414	IFAXDM1414	Shielded Signal (1.2m) Nonshielded Power (1.9m)
5.	RF/WIRELESS KEYBOARD	BTC	5090	E5XKB5090TX	NA

2.3 TEST METHODOLOGY AND CONFIGURATION

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4: 1992. Radiated testing was performed at an antenna to EUT distance of 3 m on an open area test site.

Please refer to the photos of test configuration in Item 5.



3. TEST INSTRUMENTS

3.1 TEST INSTRUMENTS (EMISSION)

CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESH3	893495/006	July 7, 2000
ROHDE & SCHWARZ Spectrum Monitor	EZM	893787/013	July 8, 2000
ROHDE & SCHWARZ Artificial Mains Network	ESH3-Z5	839135/006	July 7, 2000
EMCO-L.I.S.N.	3825/2	9204-1964	July 7, 2000
Shielded Room	Site 2	ADT-C02	NA

- Note: 1. The measurement uncertainty is less than +/- 3.2dB, which is calculated as per NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	8590L	3544A01176	April 22, 2000
HP Preamplifier	8447D	2944A08485	April 21, 2000
HP Preamplifier	8449B	3008A01201	Dec. 14, 2000
ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Aug. 30, 2000
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 23, 2000
EMCO Double Ridged Guide Antenna	3115	9312-4192	April 5, 2000
CHASE BILOG Antenna	CBL6112A	2221	Aug. 4, 2000
EMCO Turn Table	1060	1115	NA
SHOSHIN Tower	AP-4701	A6Y005	NA
Open Field Test Site	Site 5	ADT-R05	July 30, 2000

- Note: 1. The measurement uncertainty is less than +/- 3.0dB, which is calculated as per NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.



3.2 LIMITS OF CONDUCTED AND RADIATED EMISSION

LIMIT OF RADIATED EMISSION

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
30 - 88	90	39.1	100	40.0
88 - 216	150	43.5	150	43.5
216 - 960	210	46.4	200	46.0
above 1000	300	49.5	500	54.0

- Note: (1) The tighter limit shall apply at the edge between two frequency bands.
 (2) Emission level (dBuV/m) = 20 log Emission level (uV/m).
 (3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

LIMIT OF CONDUCTED EMISSION

FREQUENCY (MHz)	Class A		Class B	
	uV	dBuV	uV	dBuV
0.450 - 1.705	1000	60.0	250	48.0
1.705 - 30	3000	69.5	250	48.0

- Note: (1) The tighter limit shall apply at the edge between two frequency bands.
 (2) Emission level (dBuV) = 20 log Emission level (u V).
 (3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.



4. TEST RESULTS (EMISSION)

4.1 RADIO DISTURBANCE

Frequency Range : 0.45 - 30 MHz (Conducted Emission)
30 - 1000 MHz (Radiated Emission)
Input Voltage : 4.5 Vdc (from PC)
Temperature : 20 degree C
Humidity : 70 %
Atmospheric Pressure : 1005 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -4.6 dB at 0.514 MHz Minimum passing margin of radiated emission: -6.3 dB at 177.00 MHz

4.2 EUT OPERATION CONDITION

1. Turn on the power of all equipment.
2. PC reads a test program to enable all functions.
3. PC reads and writes messages from FDD and HDD.
4. IR keyboard sends "H" character to PC via EUT.
5. PC sends "H" messages to monitor and monitor displays "H" patterns on screen.
6. PC sends "H" messages to modem.
7. PC sends "H" messages to printer, and the printer prints them on paper.
8. Repeat steps 3-8.



4.3 TEST DATA OF CONDUCTED EMISSION (A)

EUT: RECEIVERMODEL: 5090MODE: 16 dB Bandwidth: 10 kHzPHASE: LINE (L)

Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.514	0.2	41.9	-	42.1	-	48.0	-	-5.9	-
0.618	0.2	38.6	-	38.8	-	48.0	-	-9.2	-
0.925	0.2	37.9	-	38.1	-	48.0	-	-9.9	-
1.648	0.2	36.3	-	36.5	-	48.0	-	-11.5	-
2.370	0.2	35.9	-	36.1	-	48.0	-	-11.9	-
12.675	1.0	35.0	-	36.0	-	48.0	-	-12.0	-

- Remarks:
1. "*": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": Not applicable.
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



TEST DATA OF CONDUCTED EMISSION (A)

EUT: RECEIVERMODEL: 5090MODE: 16 dB Bandwidth: 10 kHzPHASE: NEUTRAL (N)

Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.514	0.2	43.2	-	43.4	-	48.0	-	-4.6	-
0.618	0.2	38.7	-	38.9	-	48.0	-	-9.1	-
0.925	0.2	36.1	-	36.3	-	48.0	-	-11.7	-
1.648	0.2	33.7	-	33.9	-	48.0	-	-14.1	-
2.370	0.2	33.8	-	34.0	-	48.0	-	-14.0	-
12.675	0.8	33.3	-	34.1	-	48.0	-	-13.9	-

- Remarks:
1. "*": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": Not applicable.
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



4.4 TEST DATA OF CONDUCTED EMISSION (B)

EUT: RECEIVERMODEL: 5090MODE: 26 dB Bandwidth: 10 kHzPHASE: LINE (L)

Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.513	0.2	41.7	-	41.9	-	48.0	-	-6.1	-
0.617	0.2	38.7	-	38.9	-	48.0	-	-9.1	-
0.926	0.2	37.9	-	38.1	-	48.0	-	-9.9	-
1.648	0.2	36.2	-	36.4	-	48.0	-	-11.6	-
2.783	0.2	35.7	-	35.9	-	48.0	-	-12.1	-
12.883	1.0	32.9	-	33.9	-	48.0	-	-14.1	-

- Remarks:
1. "*": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": Not applicable.
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



TEST DATA OF CONDUCTED EMISSION (B)

EUT: **RECEIVER**MODEL: **5090**MODE: **2**6 dB Bandwidth: **10 kHz**PHASE: **NEUTRAL (N)**

Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.513	0.2	43.0	-	43.2	-	48.0	-	-4.8	-
0.617	0.2	38.9	-	39.1	-	48.0	-	-8.9	-
0.926	0.2	36.2	-	36.4	-	48.0	-	-11.6	-
1.648	0.2	33.7	-	33.9	-	48.0	-	-14.1	-
2.783	0.2	33.7	-	33.9	-	48.0	-	-14.1	-
12.883	0.8	31.6	-	32.4	-	48.0	-	-15.6	-

- Remarks:
1. "*": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": Not applicable.
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



4.5 TEST DATA OF CONDUCTED EMISSION (C)

EUT: RECEIVERMODEL: 5090MODE: 36 dB Bandwidth: 10 kHzPHASE: LINE (L)

Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.512	0.2	41.4	-	41.6	-	48.0	-	-6.4	-
0.823	0.2	36.4	-	36.6	-	48.0	-	-11.4	-
1.234	0.2	36.1	-	36.3	-	48.0	-	-11.7	-
2.057	0.2	35.8	-	36.0	-	48.0	-	-12.0	-
2.777	0.2	35.5	-	35.7	-	48.0	-	-12.3	-
12.657	1.0	35.3	-	36.3	-	48.0	-	-11.7	-

- Remarks:
1. "*": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": Not applicable.
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



TEST DATA OF CONDUCTED EMISSION (C)

EUT: RECEIVERMODEL: 5090MODE: 36 dB Bandwidth: 10 kHzPHASE: NEUTRAL (N)

Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.512	0.2	42.8	-	43.0	-	48.0	-	-5.0	-
0.823	0.2	35.4	-	35.6	-	48.0	-	-12.4	-
1.234	0.2	34.0	-	34.2	-	48.0	-	-13.8	-
2.057	0.2	32.8	-	33.0	-	48.0	-	-15.0	-
2.777	0.2	33.8	-	34.0	-	48.0	-	-14.0	-
12.657	0.8	31.8	-	32.6	-	48.0	-	-15.4	-

- Remarks:
1. "*": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": Not applicable.
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



4.6 TEST DATA OF CONDUCTED EMISSION (D)

EUT: RECEIVERMODEL: 5090MODE: 46 dB Bandwidth: 10 kHzPHASE: LINE (L)

Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.516	0.2	41.6	-	41.8	-	48.0	-	-6.2	-
0.617	0.2	38.7	-	38.9	-	48.0	-	-9.1	-
0.928	0.2	38.2	-	38.4	-	48.0	-	-9.6	-
1.648	0.2	36.2	-	36.4	-	48.0	-	-11.6	-
3.092	0.4	35.4	-	35.8	-	48.0	-	-12.2	-
12.682	1.0	34.6	-	35.6	-	48.0	-	-12.4	-

- Remarks:
1. "*": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": Not applicable.
 4. The emission levels of other frequencies were very low against the limit.
 5. Margin value = Emission level - Limit value
 6. Emission Level = Correction Factor + Reading Value.



TEST DATA OF CONDUCTED EMISSION (D)

EUT: **RECEIVER**MODEL: **5090**MODE: **4**6 dB Bandwidth: **10 kHz**PHASE: **NEUTRAL (N)**

Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.516	0.2	42.8	-	43.0	-	48.0	-	-5.0	-
0.617	0.2	38.5	-	38.7	-	48.0	-	-9.3	-
0.928	0.2	36.3	-	36.5	-	48.0	-	-11.5	-
1.648	0.2	33.5	-	33.7	-	48.0	-	-14.3	-
3.092	0.4	33.9	-	34.3	-	48.0	-	-13.7	-
12.682	0.8	33.0	-	33.8	-	48.0	-	-14.2	-

Remarks:

1. "*": Undetectable
2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
3. "-": Not applicable.
4. The emission levels of other frequencies were very low against the limit.
5. Margin value = Emission level - Limit value
6. Emission Level = Correction Factor + Reading Value.



4.7 TEST DATA OF RADIATED EMISSION (A)

EUT: **RECEIVER**MODEL: **5090**MODE: **1**ANT. POLARITY: HorizontalDETECTOR FUNCTION: Quasi-peak6 dB BANDWIDTH: 120 kHzFREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 3 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.22	10.9	17.9	28.8	40.0	-11.2	320	312
140.10	12.6	17.9	30.5	43.5	-13.0	241	133
147.46	12.3	18.1	30.4	43.5	-13.1	244	130
154.85	11.9	15.1	27.0	43.5	-16.5	202	2
169.58	11.2	17.8	29.0	43.5	-14.5	212	358
184.33	10.6	20.4	31.0	43.5	-12.5	193	329
199.07	10.2	15.9	26.1	43.5	-17.4	115	1
206.45	10.6	18.6	29.2	43.5	-14.3	160	39
213.82	11.1	21.3	32.4	43.5	-11.1	151	73
221.18	11.7	17.1	28.8	46.0	-17.2	131	63
228.57	12.2	20.9	33.1	46.0	-12.9	130	73
235.94	12.7	15.4	28.1	46.0	-17.9	113	104
243.32	13.2	15.4	28.6	46.0	-17.4	113	278
899.53	23.4	16.1	39.5	46.0	-6.5	118	278

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB)
+ Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



TEST DATA OF RADIATED EMISSION (A)

EUT: **RECEIVER**MODEL: **5090**MODE: **1**ANT. POLARITY: VerticalDETECTOR FUNCTION: Quasi-peak6 dB BANDWIDTH: 120 kHzFREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 3 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.19	10.9	20.2	31.1	40.0	-8.9	100	77
140.09	12.6	22.4	35.0	43.5	-8.5	100	6
147.47	12.3	11.1	23.4	43.5	-20.1	100	45
154.85	11.9	19.2	31.1	43.5	-12.4	109	310
155.21	11.9	11.5	23.4	43.5	-20.1	100	358
169.58	11.2	15.8	27.0	43.5	-16.5	100	331
176.96	10.9	17.4	28.3	43.5	-15.2	100	5
184.33	10.6	17.7	28.3	43.5	-15.2	100	1
199.62	10.2	15.8	26.0	43.5	-17.5	100	358
213.83	11.1	10.2	21.3	43.5	-22.2	154	2
228.57	12.2	11.2	23.4	46.0	-22.6	100	95
899.53	23.4	15.1	38.5	46.0	-7.5	100	327

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



4.8 TEST DATA OF RADIATED EMISSION (B)

EUT: **RECEIVER**MODEL: **5090**MODE: **2**ANT. POLARITY: HorizontalDETECTOR FUNCTION: Quasi-peak6 dB BANDWIDTH: 120 kHzFREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 3 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.21	10.9	17.2	28.1	40.0	-11.9	328	289
140.09	12.6	16.3	28.9	43.5	-14.6	250	122
169.58	11.2	18.3	29.5	43.5	-14.0	173	2
176.95	10.9	19.5	30.4	43.5	-13.1	241	1
184.31	10.6	20.1	30.7	43.5	-12.8	184	317
199.05	10.2	23.4	33.6	43.5	-9.9	132	352
206.44	10.6	19.7	30.3	43.5	-13.2	147	56
213.82	11.1	22.6	33.7	43.5	-9.8	151	57
228.56	12.2	20.7	32.9	46.0	-13.1	132	72
235.94	12.7	15.4	28.1	46.0	-17.9	119	90
243.30	13.2	16.2	29.4	46.0	-16.6	113	293
257.93	14.5	12.7	27.2	46.0	-18.8	113	3
272.78	14.6	10.1	24.7	46.0	-21.3	113	358
899.53	23.4	3.8	27.2	46.0	-18.8	100	294

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



TEST DATA OF RADIATED EMISSION (B)

EUT: **RECEIVER**MODEL: **5090**MODE: **2**ANT. POLARITY: VerticalDETECTOR FUNCTION: Quasi-peak6 dB BANDWIDTH: 120 kHzFREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 3 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
44.23	10.9	4.8	15.7	40.0	-24.3	100	292
140.10	12.6	21.4	34.0	43.5	-9.5	100	4
147.46	12.3	21.5	33.8	43.5	-9.7	100	2
154.84	11.9	19.6	31.5	43.5	-12.0	100	286
169.58	11.2	17.2	28.4	43.5	-15.1	100	2
176.96	10.9	19.6	30.5	43.5	-13.0	100	10
184.33	10.6	19.5	30.1	43.5	-13.4	100	360
191.74	10.4	20.2	30.6	43.5	-12.9	100	6
199.08	10.2	16.9	27.1	43.5	-16.4	100	354
213.82	11.1	10.3	21.4	43.5	-22.1	100	359
899.53	23.4	5.2	28.6	46.0	-17.4	100	2

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



4.9 TEST DATA OF RADIATED EMISSION (C)

EUT: **RECEIVER**MODEL: **5090**MODE: **3**ANT. POLARITY: HorizontalDETECTOR FUNCTION: Quasi-peak6 dB BANDWIDTH: 120 kHzFREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 3 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
162.25	11.6	16.9	28.5	43.5	-15.0	109	329
169.65	11.2	17.4	28.6	43.5	-14.9	162	341
177.00	10.9	26.3	37.2	43.5	-6.3	194	254
184.35	10.6	19.8	30.4	43.5	-13.1	265	299
206.48	10.6	15.9	26.5	43.5	-17.0	100	260
213.83	11.1	19.2	30.3	43.5	-13.2	181	280
221.23	11.7	18.3	30.0	46.0	-16.0	182	229
228.60	12.2	20.5	32.7	46.0	-13.3	158	229
236.00	12.7	20.2	32.9	46.0	-13.1	133	209
265.45	14.6	15.3	29.9	46.0	-16.1	128	20
272.85	14.6	13.2	27.8	46.0	-18.2	112	272
309.73	15.2	17.9	33.1	46.0	-12.9	110	16
457.35	18.8	16.0	34.8	46.0	-11.2	100	321

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB)
+ Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



TEST DATA OF RADIATED EMISSION (C)

EUT: **RECEIVER**MODEL: **5090**MODE: **3**ANT. POLARITY: VerticalDETECTOR FUNCTION: Quasi-peak6 dB BANDWIDTH: 120 kHzFREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 3 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
68.30	6.5	24.1	30.6	40.0	-9.4	100	259
176.99	10.9	25.1	36.0	43.5	-7.5	100	246
189.28	10.5	10.0	20.5	43.5	-23.0	100	9
206.49	10.6	10.7	21.3	43.5	-22.2	100	336
235.98	12.7	17.7	30.4	46.0	-15.6	100	316
243.35	13.2	18.6	31.8	46.0	-14.2	100	15
250.83	13.7	21.5	35.2	46.0	-10.8	100	1
722.65	22.0	12.0	34.0	46.0	-12.0	100	245
899.50	23.4	14.7	38.1	46.0	-7.9	100	295

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



4.10 TEST DATA OF RADIATED EMISSION (D)

EUT: **RECEIVER**MODEL: **5090**MODE: **4**ANT. POLARITY: HorizontalDETECTOR FUNCTION: Quasi-peak6 dB BANDWIDTH: 120 kHzFREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 3 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
162.25	11.6	17.4	29.0	43.5	-14.5	140	318
169.63	11.2	19.2	30.4	43.5	-13.1	137	318
176.98	10.9	19.2	30.1	43.5	-13.4	119	329
184.35	10.6	22.7	33.3	43.5	-10.2	100	20
203.18	10.4	26.1	36.5	43.5	-7.0	132	90
228.65	12.2	21.6	33.8	46.0	-12.2	196	23
250.75	13.7	19.8	33.5	46.0	-12.5	202	108
270.90	14.6	15.7	30.3	46.0	-15.7	100	77
280.30	14.7	14.7	29.4	46.0	-16.6	152	69
457.25	18.8	18.2	37.0	46.0	-9.0	101	293
816.05	22.7	8.2	30.9	46.0	-15.1	104	245

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB)
+ Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



TEST DATA OF RADIATED EMISSION (D)

EUT: **RECEIVER**MODEL: **5090**MODE: **4**ANT. POLARITY: VerticalDETECTOR FUNCTION: Quasi-peak6 dB BANDWIDTH: 120 kHzFREQUENCY RANGE: 30-1000 MHzMEASURED DISTANCE: 3 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
47.95	9.1	21.6	30.7	40.0	-9.3	100	71
120.05	12.9	13.2	26.1	43.5	-17.4	100	204
168.05	11.3	11.9	23.2	43.5	-20.3	100	122
177.03	10.9	16.9	27.8	43.5	-15.7	100	5
203.15	10.4	20.3	30.7	43.5	-12.8	100	44
235.95	12.7	15.8	28.5	46.0	-17.5	110	350
250.83	13.7	15.4	29.1	46.0	-16.9	100	343
316.00	15.4	13.0	28.4	46.0	-17.6	130	3
516.20	20.1	11.0	31.1	46.0	-14.9	218	186
816.02	22.7	11.3	34.0	46.0	-12.0	122	355

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB) + Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value

5. PHOTOGRAPHS OF THE TEST CONFIGURATION WITH MINIMUM MARGIN

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST





6. APPENDIX - INFORMATION OF THE TESTING LABORATORY

Information of the testing laboratory

We, ADT Corp., are founded in 1988, to provide our best service in EMC and Safety consultation. Our laboratory is accredited by the following approval agencies according to ISO/IEC Guide 25 or EN 45001:

- | | |
|---------------|--------------------------------------|
| ● USA | FCC, UL, NVLAP |
| ● Germany | TUV Rheinland
TUV Product Service |
| ● Japan | VCCI |
| ● New Zealand | RFS |
| ● Norway | NEMKO, DNV |
| ● U.K. | INCHCAPE |
| ● R.O.C. | BSMI |

Enclosed please find some certificates of our laboratory obtained from approval agencies. If you have any comments, please feel free to contact us with the following:

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