APPENDIX 2: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE	2006/11/01 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	RE	2006/10/07 * 12
MLA-01	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2006/10/07 * 12
MAT-06	Attenuator(6dB)	Weinschel Corp	2	RE	2005/12/16 * 12
MCC-01	Coaxial Cable 0.1-3000MHz	Suhner/storm/Agilent/TSJ	-	RE	2006/02/20 * 12
MSA-05	Spectrum Analyzer	Advantest	R3273	RE	2006/05/20 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	RE	2006/11/27 * 12
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE	-
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2006/04/10 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2006/01/09 * 12
MCC-47	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2006/08/29 * 12
MCC-16	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2006/02/02 * 12
MPA-10	Pre Amplifier	Agilent	8449B	RE	2006/09/11 * 12
MRENT-39	Spectrum Analyzer	Advantest	R3273	RE	2006/07/25 * 12
MBF-08	Band Pass Filter	M-City	BPF1800-01	RE	2006/05/15 * 12
MBF-09	Band Pass Filter	M-City	BPF4250-01	RE	2006/05/15 * 12
MHF-06	High Pass Filter 3.5-24GHz	Tokimec	TF323DCA	RE	2006/05/20 * 12
MOS-02	Digital Humidity Indicator	N.T	NT-1800	RE	2006/11/27 * 12
MJM-05	Measure	PROMART	SEN1955	RE	-
MURC-01	Universal Radio communication Tester	Rohde & Schwarz	CMU200	RE / AT	Pre Check
MSTW-22	Universal Radio communication	Rohde & Schwarz	V3.54	RE / AT	-
MSA-04	Spectrum Analyzer	Agilent	E4448A	AT	2006/06/02 * 12
MPM-08	Power Meter	Anritsu	ML2495A	AT	2006/09/20 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	AT	2006/09/20 * 12
MPSC-01	Power splitters/Combiners	Mini-Circuit	ZFSC-2-2500	AT	2006/09/20 * 12
MPSC-02	Power Splitters/Combiners	Mini-Circuit	ZFSC-2-10G	AT	2006/09/25 * 12
MCC-15	Microwave Cable 1G-26.5GHz 1m	Suhner	SUCOFLEX 104	AT	2006/02/02 * 12
MCC-30	coaxial cable	ULApex	-	AT	2006/05/29 * 12
MAT-17	Attenuator(20dB)_9k-12.4GHz_N	Weinschel Corp	MODEL 1	AT	2006/01/10 * 12
MAT-33	Attenuator(10dB)	JFW	50FP-010-H2	AT	2006/03/11 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	AT	2006/11/27 * 12
MDPS-12	DC Power Supply	Kikusui	PAK35-10A	AT	Pre Check
MOS-14	Thermo-Hygrometer	Custom	CTH-180	AT	2006/01/19 * 24
MCH-04	Temperature and Humidity Chamber	Espec	PL-2KP	AT	2006/09/06 * 12

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

Test Item:

RE: Radiated Emission

AT: Antenna Terminal Conducted test

APPENDIX 3: Data of EMI test

Peak Output Power (Conducted)

D UL Apex Co., Ltd.
Head Office EMC Lab. No.7 Shielded Room

COMPANY	SHARP CORPORATION	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Part22 Section 22.913(a)
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1046
S/N	PVT2-88	TEST DISTANCE	-
POWER	DC3.9V(AC120V/60Hz)	DATE	11/27/2006
MODE	Tx 824.2MHz (128ch)/PCL=5(MAX Pow)	TEMPERATURE	23℃
	Tx 836.6MHz (190ch)/PCL=5(MAX Pow)	HUMIDITY	58%
	Tx 848.8MHz (251ch)/PCL=5(MAX Pow)	ENGINEER	Takumi Shimada

<GSM850>

Ch	Frequency [MHz]	P/M Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit (7W) [dBm]	Margin [dB]
Low	824.2	-2.8	30.2	4.1	31.6	38.5	6.9
Mid	836.6	-2.6	30.2	4.2	31.8	38.5	6.7
High	848.8	-2.5	30.2	4.2	31.9	38.5	6.6

<GSM850+GPRS>

Ch	Frequency [MHz]	P/M Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit (7W) [dBm]	Margin [dB]
Low	824.2	-2.9	30.2	4.1	31.5	38.5	6.9
Mid	836.6	-2.7	30.2	4.2	31.7	38.5	6.8
High	848.8	-2.7	30.2	4.2	31.8	38.5	6.7

Sample Calculation : Result = Reading + Atten. + Cable Loss

Peak Output Power (Radiated)

UL Apex Co., Ltd.
Head Office EMC Lab. Semi Anechoic Chamber : No1

COMPANY	Sharp corporation	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Prat22 Section 22.913(a)
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1046
S/N	PVT2-88	TEST DISTANCE	3m
POWER	AC120V / 60Hz (AC Adapter)	DATE	11/17/2006
MODE	Tx	TEMPERATURE	22 deg.C
	Tx 824.2MHz (128ch)/PCL=5(MAX Pow)	HUMIDITY	31%
	Tx 836.6MHz (190ch)/PCL=5(MAX Pow)	CALIBRATION	OK
	Tx 848.8MHz (251ch)/PCL=5(MAX Pow)	ENGINEER	Takumi Shimada
POSITION	H: Y-axis / V: Z-axis		
Tx Antenna Height	1.5m		

<GSM850>

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (ERP) [dBm]		LIMIT [dBm] (ERP)	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
1	824.20	127.6	126.6	41.6	41.5	3.8	2.2	10.0	27.7	27.6	38.5	10.8	10.9	Operating	No1	GSM
2	836.60	130.1	126.5	44.4	41.6	3.8	2.2	10.0	30.6	27.7	38.5	7.9	10.8	Operating	No1	GSM
3	848.80	131.6	126.8	46.3	42.1	3.8	2.2	10.0	32.4	28.2	38.5	**6.1**	10.3	Operating	No1	GSM

<GSM850+GPRS>

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (ERP) [dBm]		LIMIT [dBm] (ERP)	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
1	824.20	127.8	125.7	41.8	40.6	3.8	2.2	10.0	27.9	26.7	38.5	10.6	11.8	Operating	No1	GSM+GPRS
2	836.60	130.4	126.7	44.7	41.8	3.8	2.2	10.0	30.9	27.9	38.5	7.6	10.6	Operating	No1	GSM+GPRS
3	848.80	131.0	126.9	45.7	42.2	3.8	2.2	10.0	31.8	28.3	38.5	**6.7**	10.2	Operating	No1	GSM+GPRS

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain - Tx Ant. ATT. Loss -2.15
Rx-ANTENNA : Biconical Antenna(30-300MHz), Logperriodic Antenna(300-1000MHz), Horn Antenna(1-12.75GHz)
Tx-ANTENNA : Shorted Dipole Antenna(30-120MHz), Dipole Antenna(120-1000MHz), Horn Antenna(1-12.75GHz)
All other emissions were at least 20dB below the specification limit.
The noise was measured at each position of all three axes X, Y and Z to compare the level, and the maximum noise.
With the result above, the effective radiated power was calculated on the basis of the reference value
- for the calibration data on the substitution measurement.
Result is calculated to two places of decimals. Therefore, there may be 0.1 difference for the result.
Detector : S/A PK (RBW: 3MHz , VBW: 3MHz)

Emission Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No.7 Shielded Room

COMPANY	SHARP CORPORATION	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Part22 Section 22.917(b)
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1049
S/N	PVT2-88	TEST DISTANCE	-
POWER	DC3.9V (AC120V/60Hz)	DATE	11/27/2006
MODE	Tx 824.2MHz (128ch)/PCL=5(MAX Pow)	TEMPERATURE	23℃
	Tx 836.6MHz (190ch)/PCL=5(MAX Pow)	HUMIDITY	58%
	Tx 848.8MHz (251ch)/PCL=5(MAX Pow)	ENGINEER	Takumi Shimada

<GSM850>

CH	FREQ [MHz]	Bandwidth [kHz]	Limit [kHz]
Low	824.2	339.5	-
Mid	836.6	339.4	-
High	848.8	341.3	-

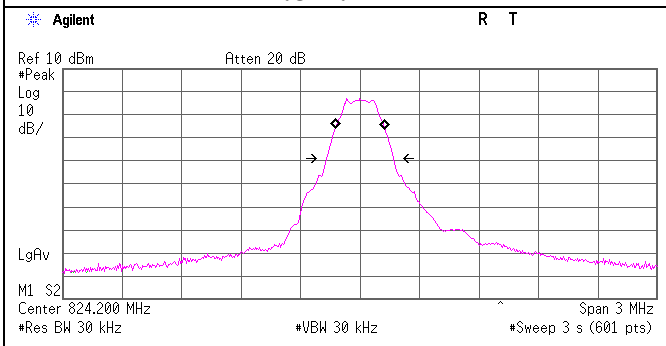
<GSM850+GPRS>

CH	FREQ [MHz]	Bandwidth [kHz]	Limit [kHz]
Low	824.2	339.0	-
Mid	836.6	339.0	-
High	848.8	340.0	-

Emission Bandwidth

<GSM850>

Tx:824.2MHz

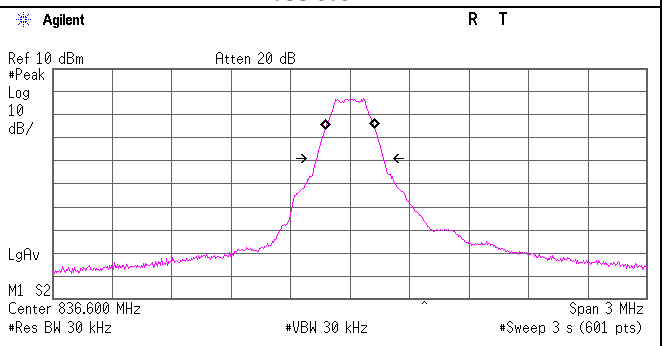


Occupied Bandwidth
254.4488 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 30.925 Hz
x dB Bandwidth 339.497 kHz

Tx:836.6MHz

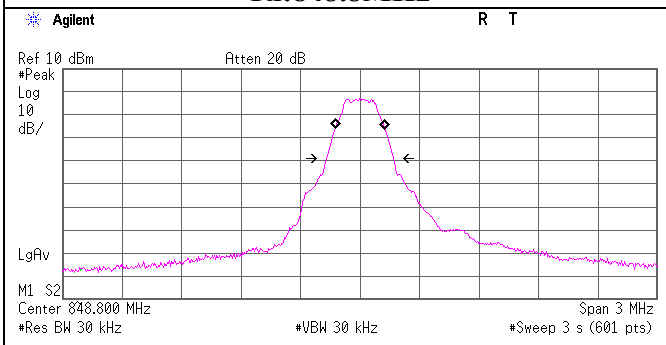


Occupied Bandwidth
253.1608 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 332.968 Hz
x dB Bandwidth 339.436 kHz

Tx:848.8MHz



Occupied Bandwidth
253.6365 kHz

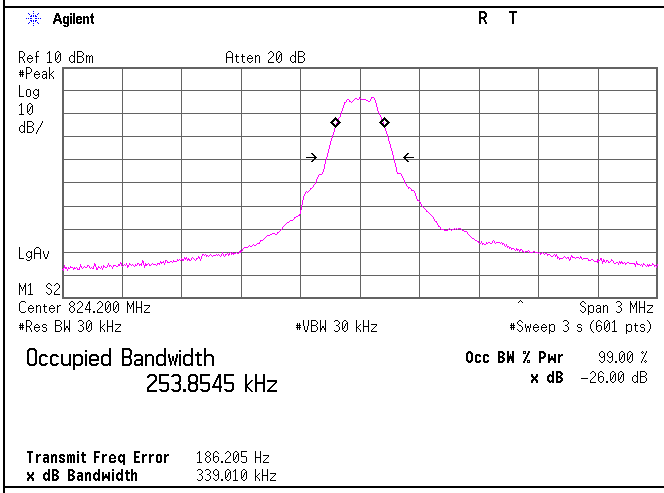
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -29.051 Hz
x dB Bandwidth 341.345 kHz

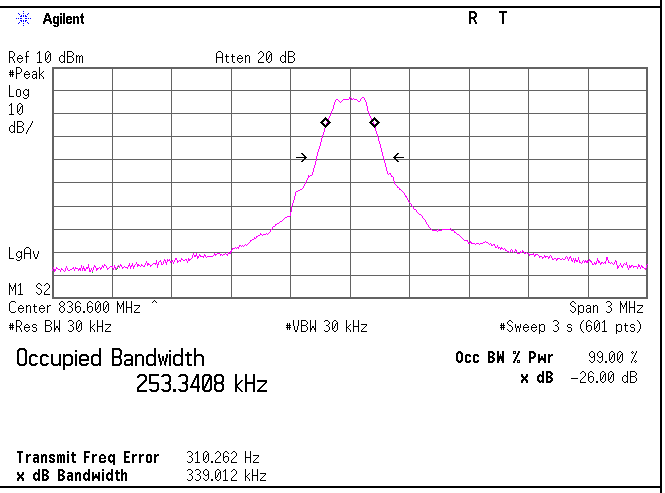
Emission Bandwidth

<GSM850+GPRS>

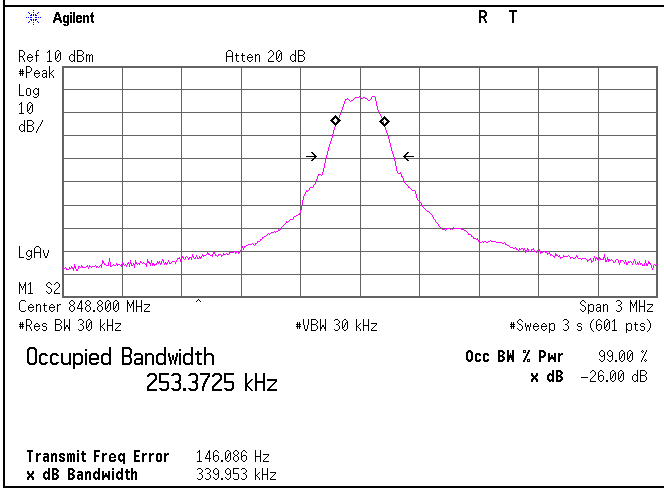
Tx:824.2MHz



Tx:836.6MHz



Tx:848.8MHz



99%Occupied Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No.7 Shielded Room

COMPANY	SHARP CORPORATION	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Part22 Section 22.917(b)
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1049
S/N	PVT2-88	TEST DISTANCE	-
POWER	DC3.9V (AC120V/60Hz)	DATE	11/27/2006
MODE	Tx 824.2MHz (128ch)/PCL=5(MAX Pow)	TEMPERATURE	23℃
	Tx 836.6MHz (190ch)/PCL=5(MAX Pow)	HUMIDITY	58%
	Tx 848.8MHz (251ch)/PCL=5(MAX Pow)	ENGINEER	Takumi Shimada

<GSM>

CH	FREQ [MHz]	Bandwidth [kHz]	Limit [kHz]
Low	824.2	254.4	-
Mid	836.6	253.2	-
High	848.8	253.6	-

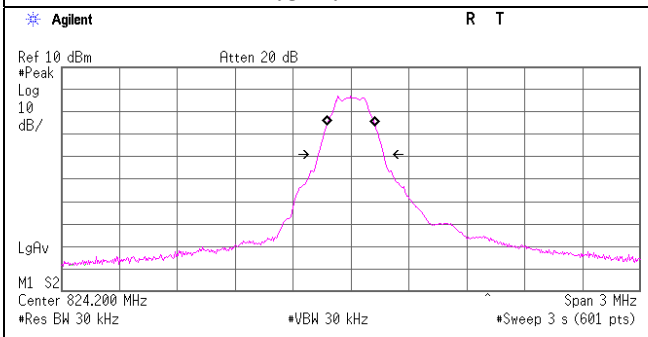
<GSM+GPRS>

CH	FREQ [MHz]	Bandwidth [kHz]	Limit [kHz]
Low	824.2	253.9	-
Mid	836.6	253.3	-
High	848.8	253.4	-

99%Occupied Bandwidth

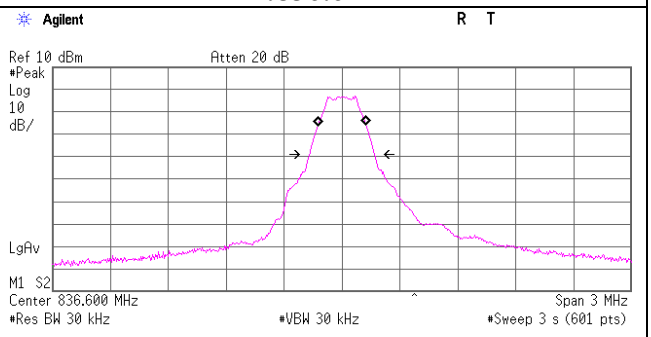
<GSM850>

Tx:824.2MHz



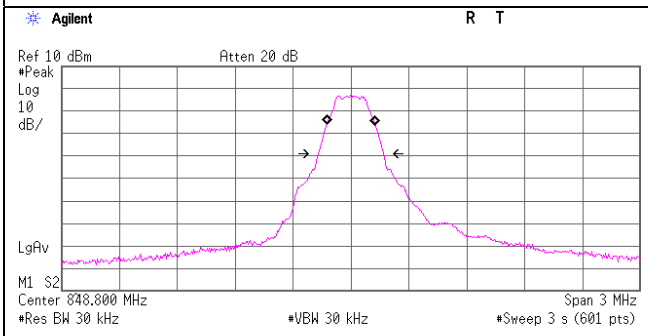
Transmit Freq Error	30.925 Hz
x dB Bandwidth	339.497 kHz

Tx:836.6MHz



Transmit Freq Error	332.968 Hz
x dB Bandwidth	339.436 kHz

Tx:848.8MHz

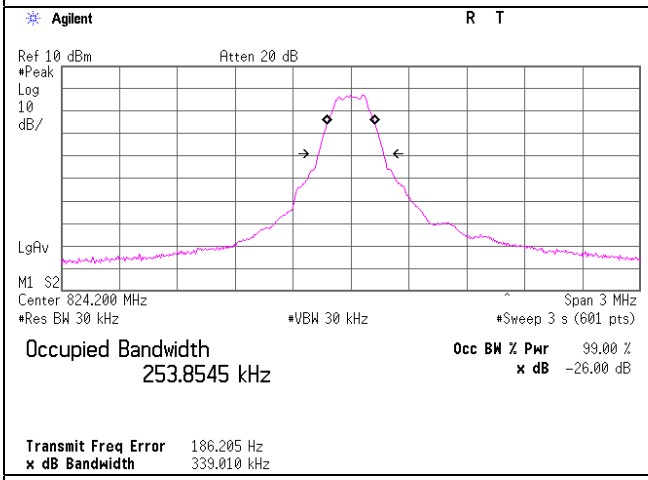


Transmit Freq Error	-29.051 Hz
x dB Bandwidth	341.345 kHz

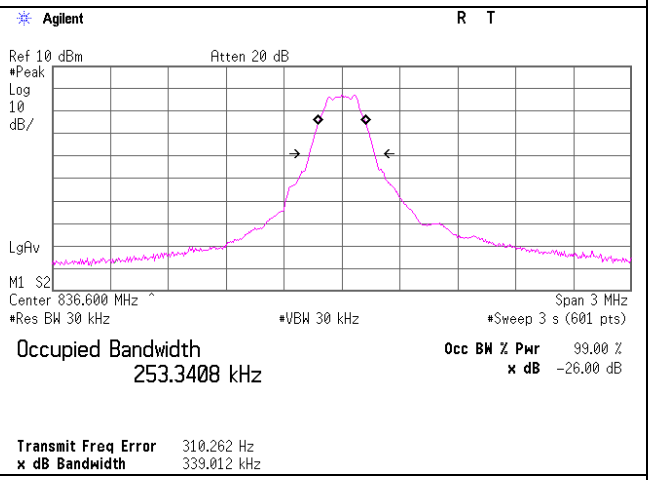
99%Occupied Bandwidth

<GSM850+GPRS>

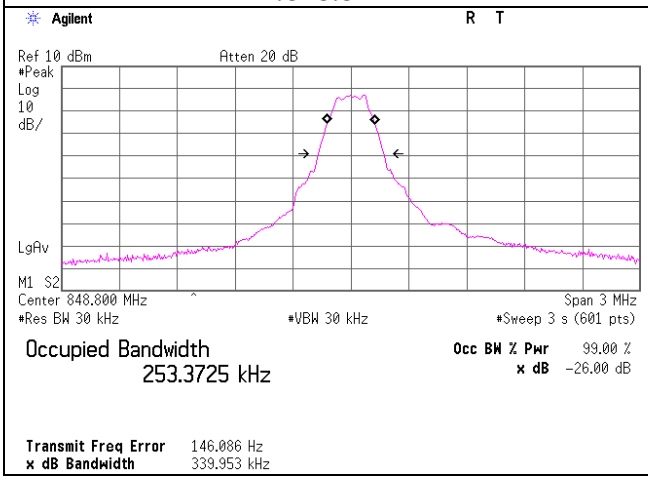
Tx:824.2MHz



Tx:836.6MHz



Tx:848.8MHz



Band Edge(Conducted)

UL Apex Co., Ltd.
Head Office EMC Lab. No.7 Shielded Room

COMPANY	SHARP CORPORATION	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Part22 Section 22.917(b)
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1049
S/N	PVT2-88	TEST DISTANCE	-
POWER	DC3.9V (AC120V/60Hz)	DATE	11/27/2006
MODE	Tx 824.2MHz (128ch)/PCL=5(MAX Pow)	TEMPERATURE	23℃
	Tx 848.8MHz (251ch)/PCL=5(MAX Pow)	HUMIDITY	58%
		ENGINEER	Takumi Shimada

VIDEO AV 30 times

<GSM>

Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]
824.20	-49.2	30.2	4.1	-14.8	-13.0
848.80	-47.8	30.2	4.2	-13.4	-13.0

<GSM+GPRS>

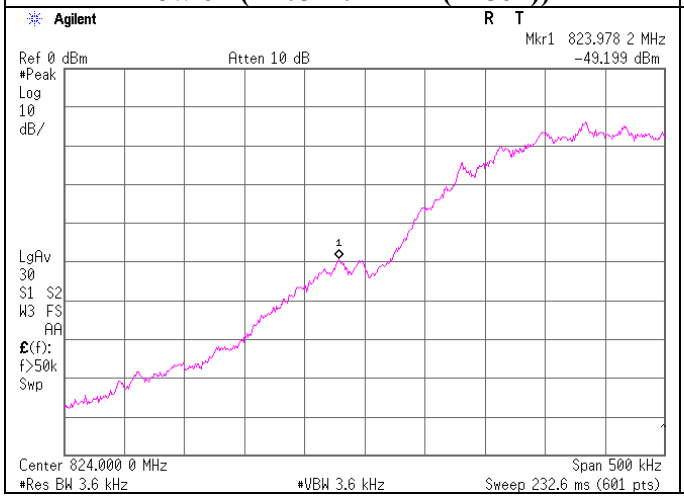
Frequency [MHz]	Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Result [dBm]	Limit [dBm]
824.20	-49.2	30.2	4.1	-14.8	-13.0
848.80	-49.2	30.2	4.2	-14.8	-13.0

Sample Calculation : Result = Reading + Atten. + Cable Loss(including customer cable)

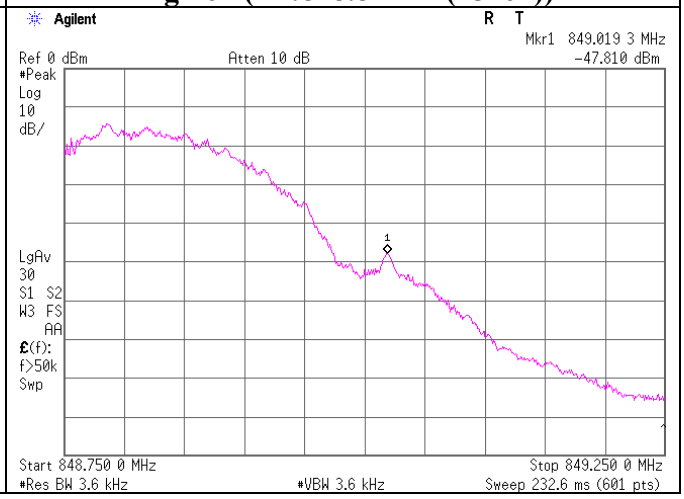
Band Edge(Conducted)

<GSM850>

Low ch (Tx:824.2MHz (128ch))

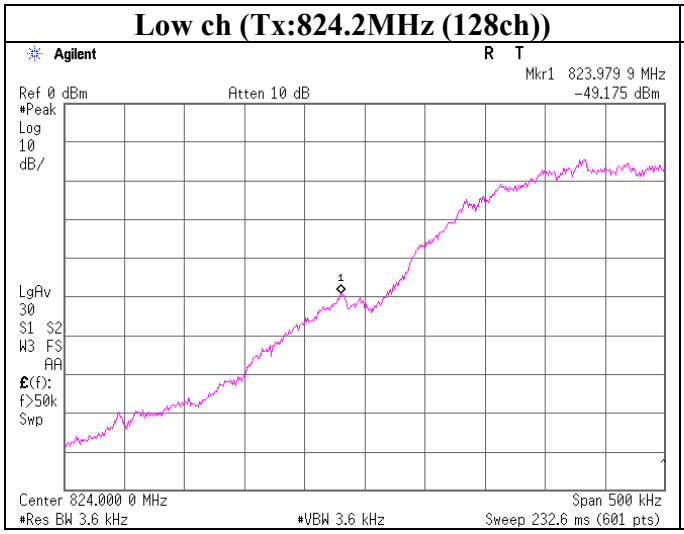


High ch (Tx:848.8MHz (251ch))

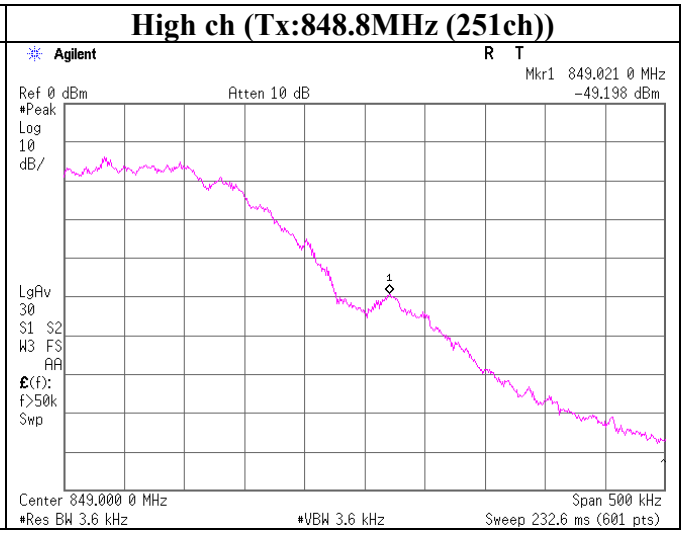


<GSM850+GPRS>

Low ch (Tx:824.2MHz (128ch))



High ch (Tx:848.8MHz (251ch))



Band Edge (Radiated)

UL Apex Co., Ltd.
Head Office EMC Lab. Semi Anechoic Chamber : No1

COMPANY	Sharp corporation	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Prat22 Section 22.917(b)
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1049
S/N	PVT2-88	TEST DISTANCE	3m
POWER	AC120V / 60Hz (AC Adapter)	DATE	11/17/2006
MODE	Tx	TEMPERATURE	22 deg.C.
	Tx 824.2MHz (128ch)/PCL=5(MAX Pow)	HUMIDITY	31%
	Tx 848.8MHz (251ch)/PCL=5(MAX Pow)	CALIBRATION	OK
POSITION	H: Y-axis / V: Z-axis	ENGINEER	Takumi Shimada
Tx Antenna Height	1.5m		

<GSM850>

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (ERP) [dBm]		LIMIT [dBm] (ERP)	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
1	823.99	81.0	81.7	-5.0	-3.4	3.8	2.2	10.0	-18.9	-17.3	-13.0	5.9	4.3	Operating	No1	GSM
2	849.02	85.0	82.0	-0.3	-2.7	3.8	2.2	10.0	-14.2	-16.6	-13.0	**1.2**	3.6	Operating	No1	GSM

<GSM850+GPRS>

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (ERP) [dBm]		LIMIT [dBm] (ERP)	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
1	823.99	81.4	81.0	-4.6	-4.1	3.8	2.2	10.0	-18.5	-18.0	-13.0	5.5	5.0	Operating	No1	GSM+GPRS
2	849.02	84.6	80.8	-0.7	-3.9	3.8	2.2	10.0	-14.6	-17.8	-13.0	**1.6**	4.8	Operating	No1	GSM+GPRS

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain - Tx Ant. ATT. Loss -2.15
Rx-ANTENNA : Biconical Antenna(30-300MHz), Logperriodic Antenna(300-1000MHz), Horn Antenna(1-12.75GHz)
Tx-ANTENNA : Shorted Dipole Antenna(30-120MHz), Dipole Antenna(120-1000MHz), Horn Antenna(1-12.75GHz)
All other emissions were at least 20dB below the specification limit.
The noise was measured at each position of all three axes X, Y and Z to compare the level, and the maximum noise.
With the result above, the effective radiated power was calculated on the basis of the reference value
- for the calibration data on the substitution measurement.
Result is calculated to two places of decimals. Therefore, there may be 0.1 difference for the result.
Detector : S/A PK (RBW: 3.6kHz , VBW: 3.6kHz)

Spurious Emission (Conducted)

UL Apex Co., Ltd.
Head Office EMC Lab. No.7 Shielded Room

COMPANY	SHARP CORPORATION	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	Fcc Part 22 Section 22.917(a)
MODEL	PV150	TEST METHOD	Fcc Part 2 Section 2.1051
S/N	PVT2-88	TEST DISTANCE	-
POWER	DC3.7V (AC120V/60Hz)	DATE	11/27/2006
MODE	Tx 824.2MHz (128ch)/PCL=5(MAX Pow)	TEMPERATURE	23℃
	Tx 836.6MHz (190ch)/PCL=5(MAX Pow)	HUMIDITY	58%
	Tx 848.8MHz (251ch)/PCL=5(MAX Pow)	ENGINEER	Takumi Shimada

Limit Line

Limit [dBm]	Atten. [dB]	Cable Loss [dB]	Limit Line [dBm]
-13.0	30.2	4.2	-47.4

Sample Calculation : Limit Line = Limit - Atten. - Cable Loss

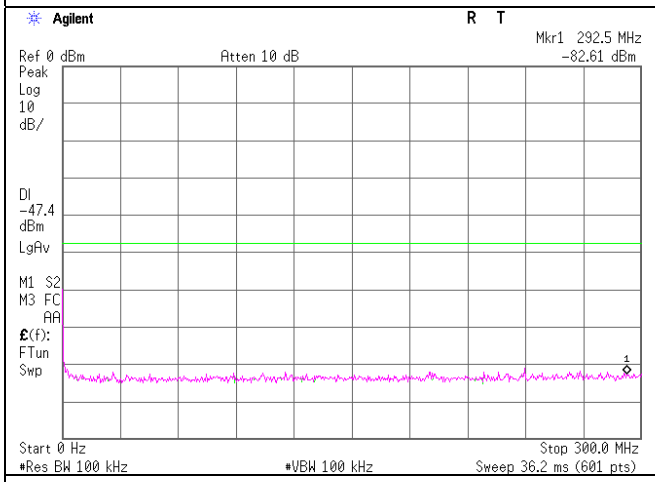
Result OK

*All the spurious noises were below the above limit line.

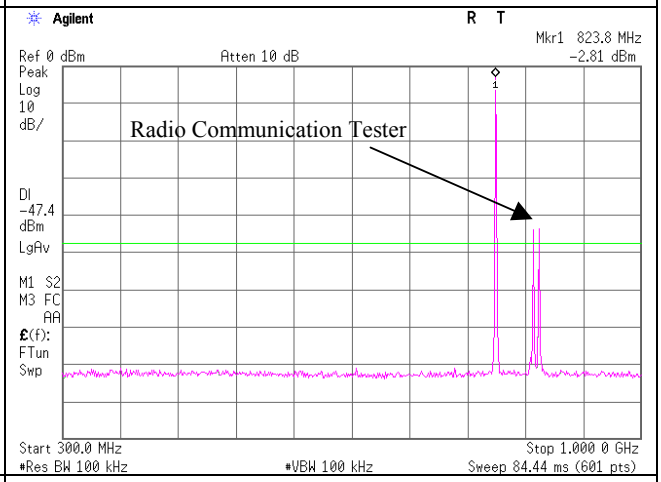
Spurious Emission (Conducted)

GSM850 / Tx:824.2MHz

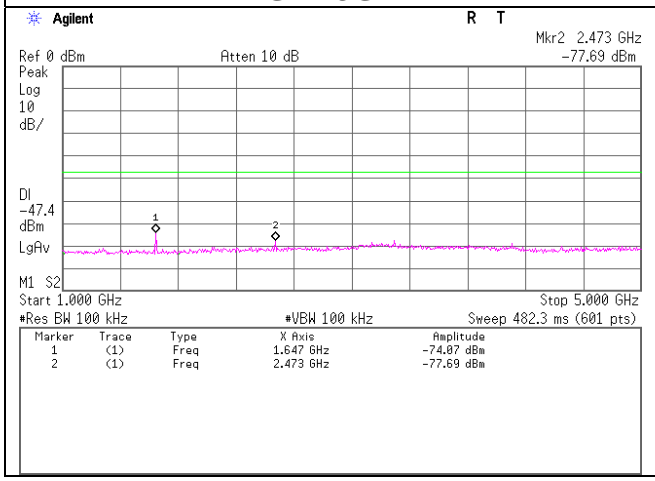
0Hz-300MHz



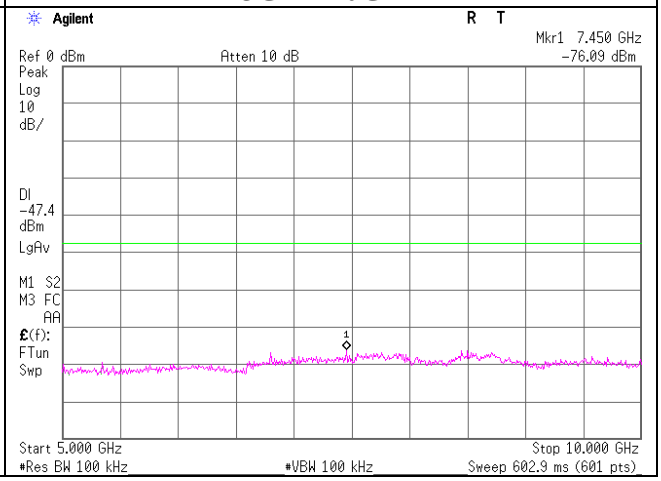
300MHz-1GHz



1GHz-5GHz



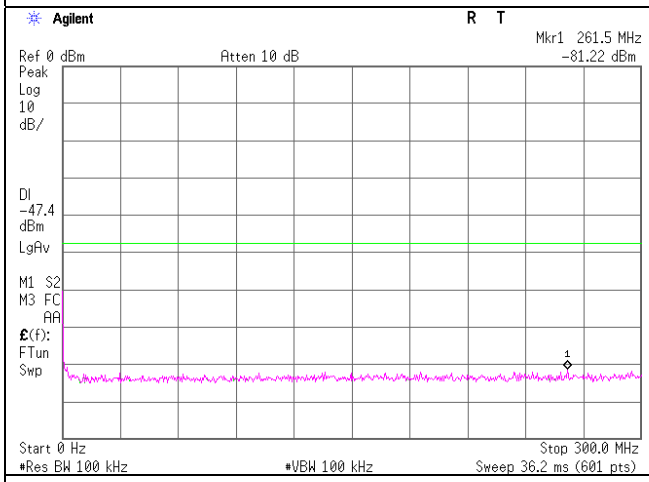
5GHz-10GHz



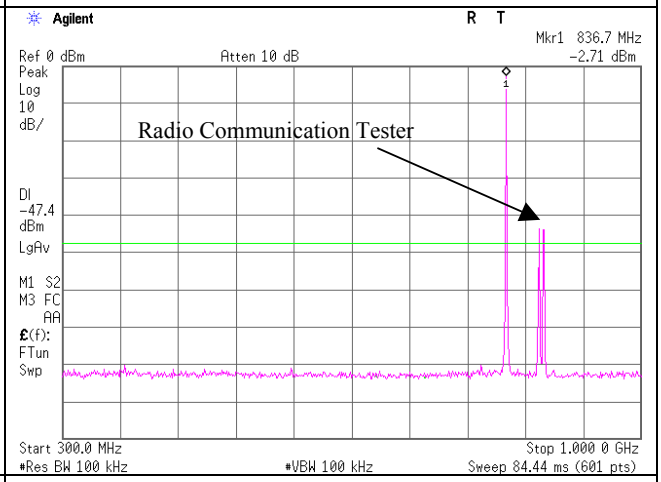
Spurious Emission (Conducted)

GSM850 / Tx:836.6MHz

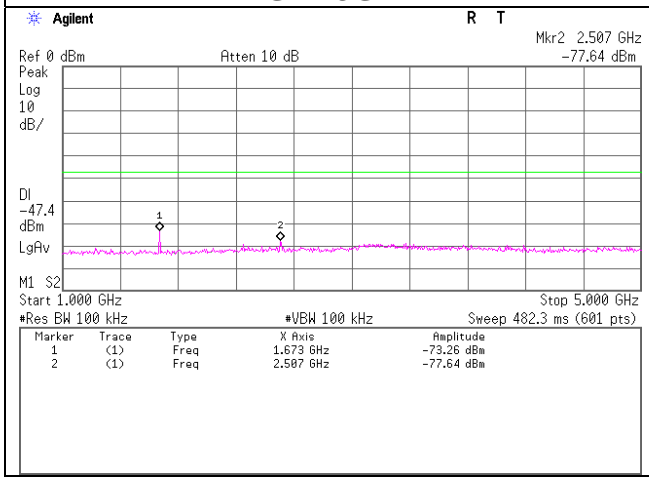
0Hz-300MHz



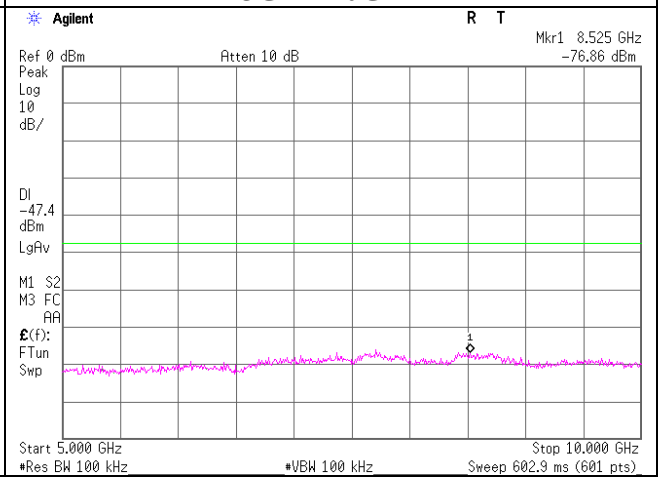
300MHz-1GHz



1GHz-5GHz



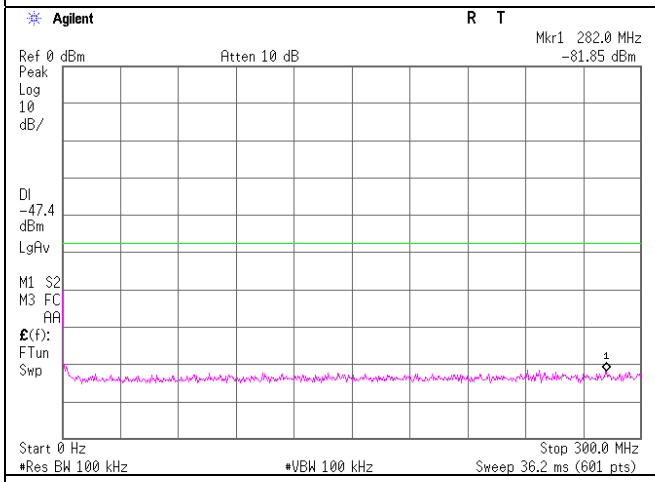
5GHz-10GHz



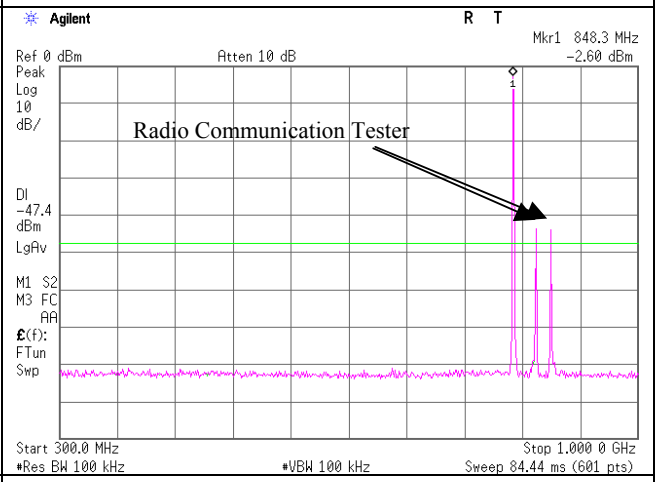
Spurious Emission (Conducted)

GSM850 / Tx:848.8MHz

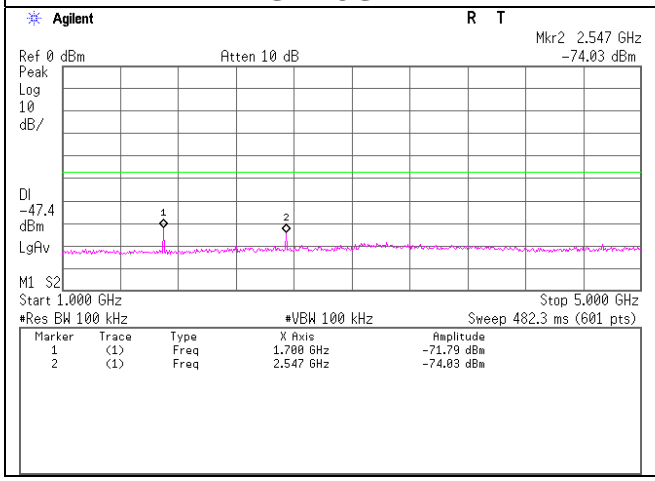
0Hz-300MHz



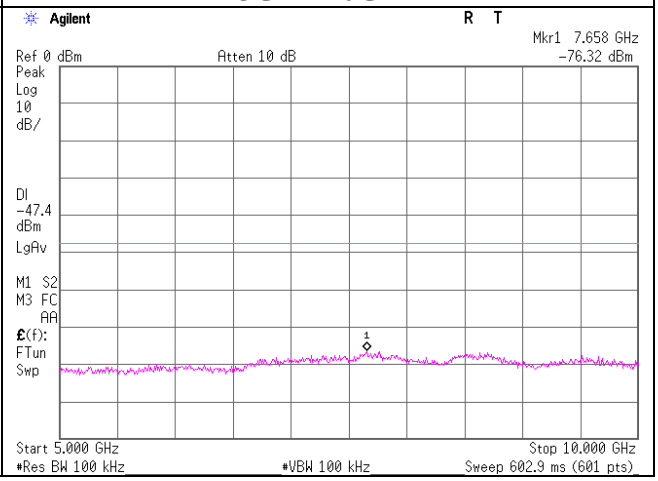
300MHz-1GHz



1GHz-5GHz

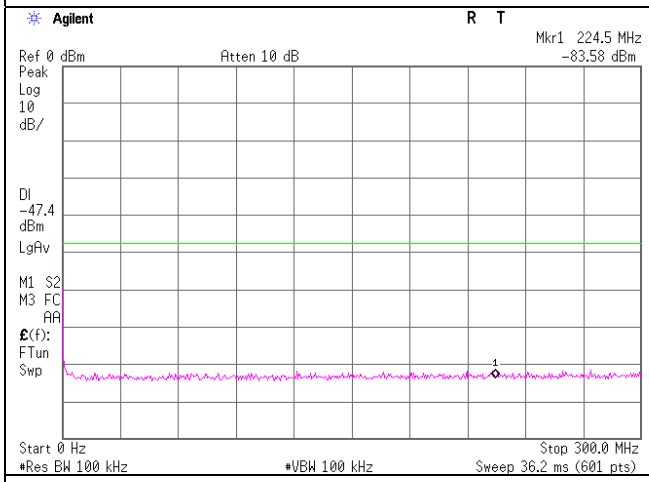


5GHz-10GHz

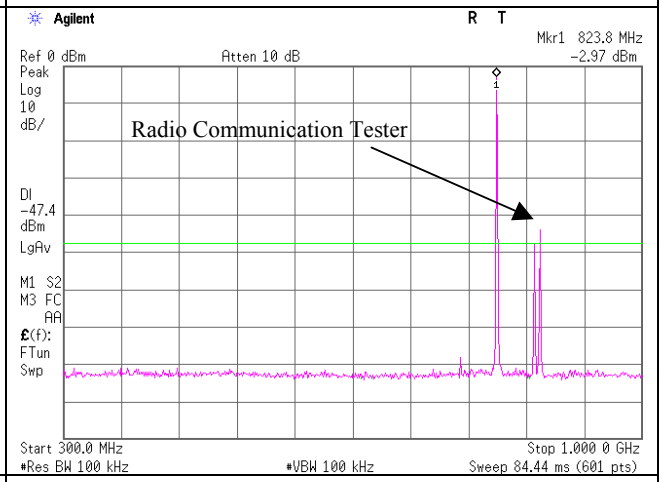


Spurious Emission (Conducted)
GSM850+GPRS / Tx:824.2MHz

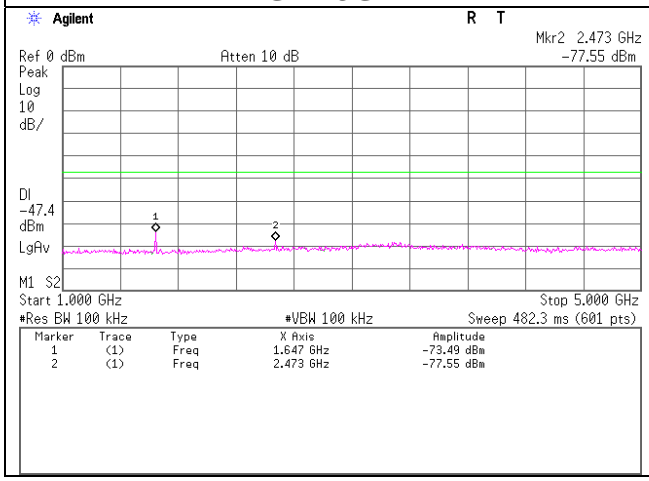
0Hz-300MHz



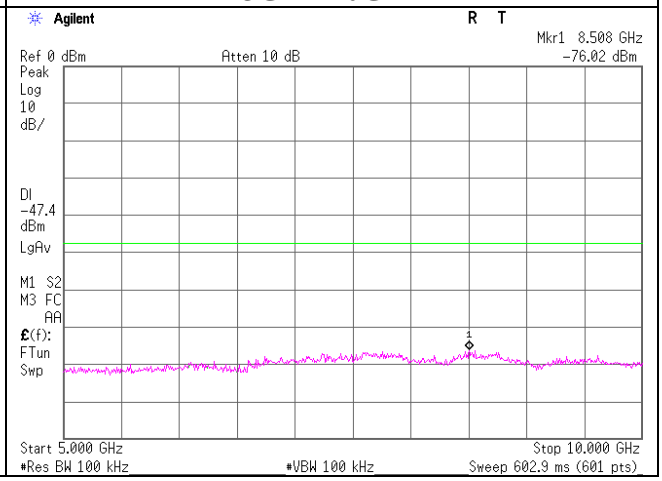
300MHz-1GHz



1GHz-5GHz

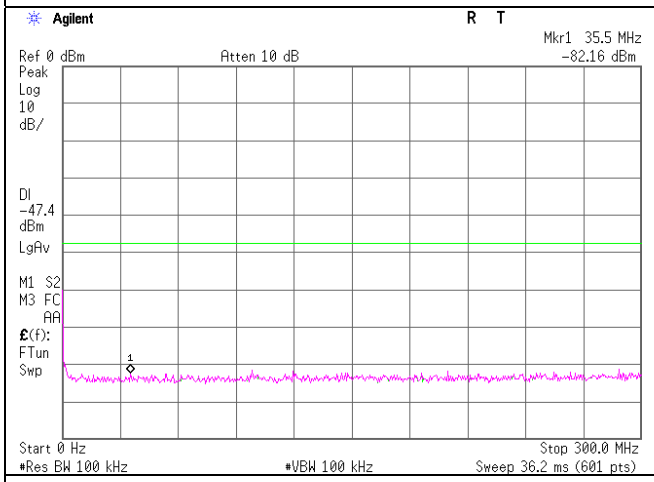


5GHz-10GHz

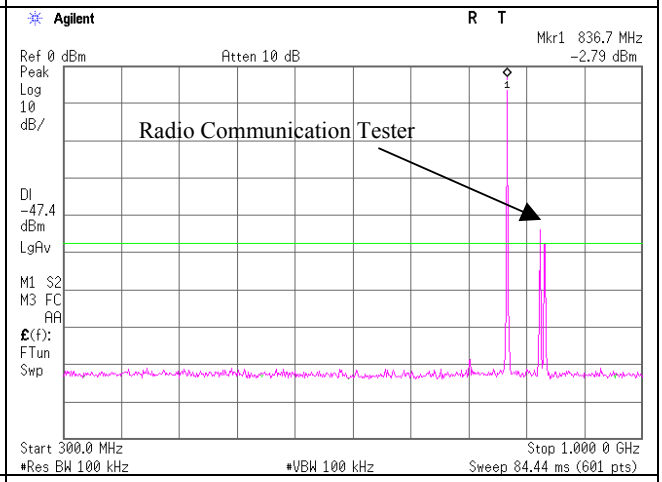


Spurious Emission (Conducted)
GSM850+GPRS / Tx:836.6MHz

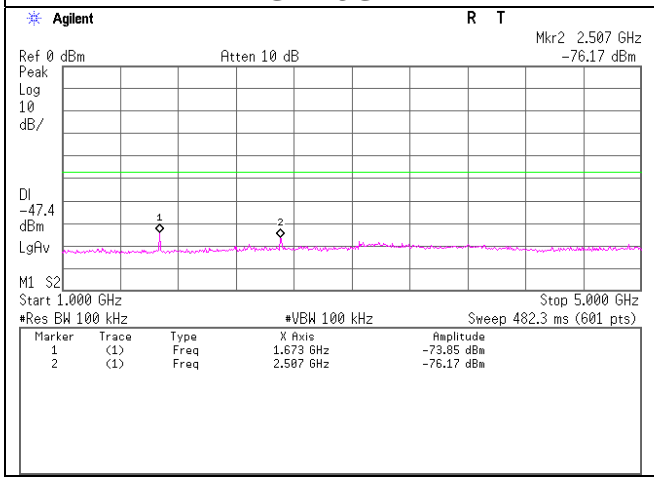
0Hz-300MHz



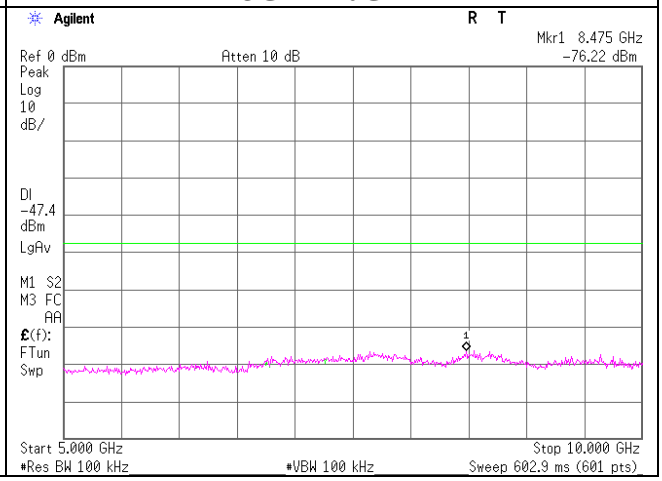
300MHz-1GHz



1GHz-5GHz

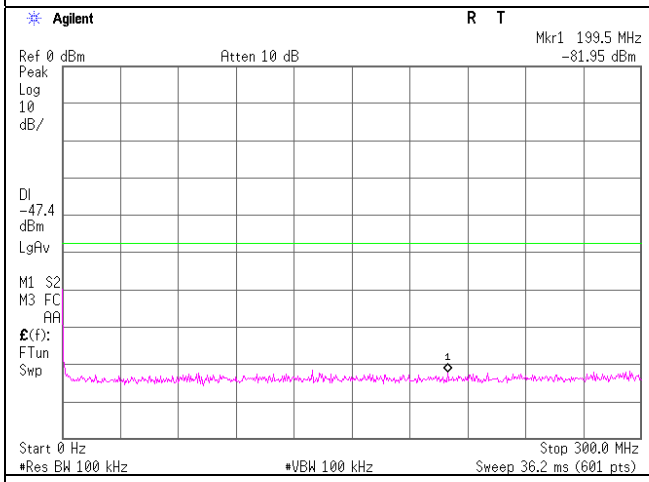


5GHz-10GHz

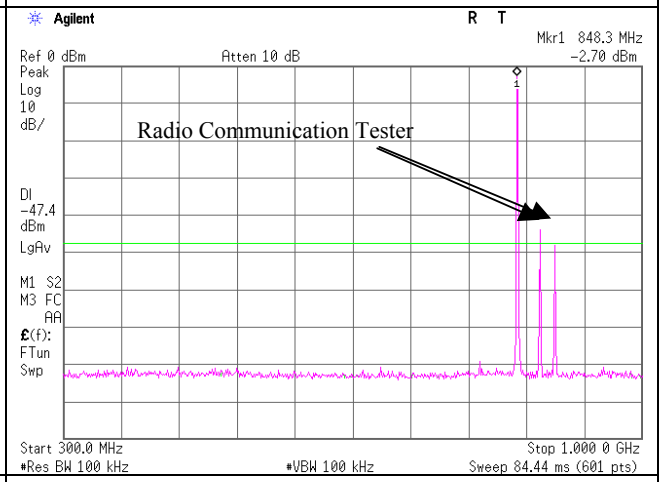


Spurious Emission (Conducted)
GSM850+GPRS / Tx:848.8MHz

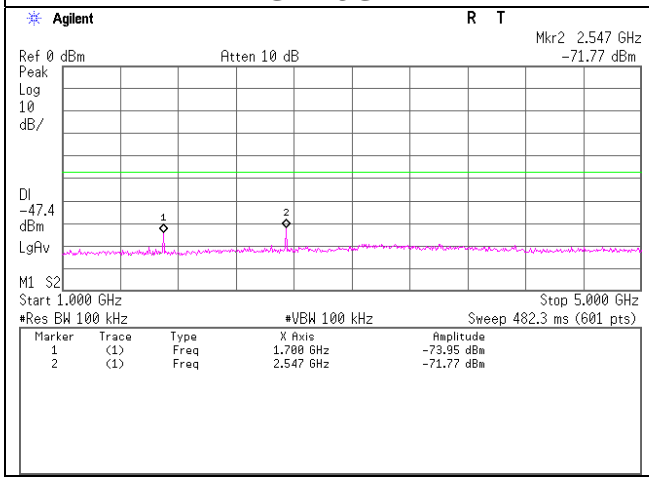
0Hz-300MHz



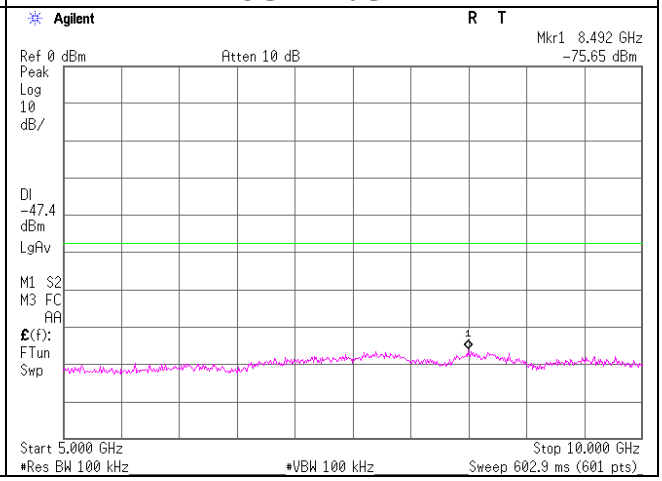
300MHz-1GHz



1GHz-5GHz



5GHz-10GHz



Spurious Radiation

UL Apex Co., Ltd.
Head Office EMC Lab. Semi Anechoic Chamber : No1 , No2

COMPANY	Sharp corporation	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Prat22 Section 22.917(a)
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1053
S/N	PVT2-88	TEST DISTANCE	3m
POWER	AC120V / 60Hz (AC Adapter)	DATE	11/17/2006, 11/21/2006
MODE	Tx 824.2 MHz	TEMPERATURE	22 deg.C., 21deg.C.
POSITION	H: Y-axis / V: Z-axis	HUMIDITY	31%, 52%
Tx Antenna Height	1.5m	CALIBRATION	OK
		ENGINEER	Takumi Shimada

<GSM850>

No.	Frequency	Electric Field Strength (After Factor Calculation)		SG Reading		Tx Cable Loss	Tx Ant. Gain	Tx Ant. ATT. Loss	RESULT (ERP)		LIMIT	MARGIN		Mode	A/C	Remarks
	[MHz]	[dBuV/m]		[dBm]					[dBm]		[dBm]	[dB]				
		HOR	VER	HOR	VER	[dB]	[dBi]	[dB]	HOR	VER	(ERP)	HOR	VER			
1	63.99	24.2	36.4	-49.7	-37.1	0.3	-13.0	9.9	-75.0	-62.5	-13.0	62.0	49.5	Operating	No1	
2	72.00	23.8	33.9	-53.3	-42.2	0.4	-10.4	9.9	-76.1	-65.0	-13.0	63.1	52.0	Operating	No1	
3	152.62	30.7	28.6	-61.2	-58.4	1.0	2.2	9.9	-72.1	-69.3	-13.0	59.1	56.3	Operating	No1	
4	1648.40	44.2	47.7	-59.0	-55.9	2.2	8.6	0.0	-54.7	-51.6	-13.0	41.7	38.6	Operating	No2	
5	2472.60	45.0	43.0	-61.8	-64.3	2.7	10.6	0.0	-56.1	-58.5	-13.0	43.1	45.5	Operating	No2	
6	3296.80	41.5	41.9	-66.1	-66.2	3.1	11.5	0.0	-59.8	-59.9	-13.0	46.8	46.9	Operating	No2	
7	4121.00	45.9	47.0	-61.8	-61.1	3.4	12.5	0.0	-54.9	-54.1	-13.0	41.9	41.1	Operating	No2	
8	4945.20	43.2	45.9	-64.7	-62.1	3.9	12.7	0.0	-58.0	-55.4	-13.0	45.0	42.4	Operating	No2	
9	5769.40	48.4	48.7	-59.7	-59.9	4.8	13.4	0.0	-53.3	-53.4	-13.0	40.3	40.4	Operating	No2	
10	6593.60	49.3	48.2	-57.1	-58.2	5.2	12.4	0.0	-52.0	-53.1	-13.0	39.0	40.1	Operating	No2	
11	7417.80	44.3	44.8	-59.9	-59.1	5.5	11.2	0.0	-56.4	-55.5	-13.0	43.4	42.5	Operating	No2	
12	8242.00	48.6	44.8	-53.8	-58.2	5.9	10.9	0.0	-51.0	-55.3	-13.0	**38.0**	42.3	Operating	No2	

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain - Tx Ant. ATT. Loss -2.15
Rx-ANTENNA : Biconical Antenna(30-300MHz), Logperriodic Antenna(300-1000MHz), Horn Antenna(1-12.75GHz)
Tx-ANTENNA : Shorted Dipole Antenna(30-120MHz), Dipole Antenna(120-1000MHz), Horn Antenna(1-12.75GHz)
All other emissions were at least 20dB below the specification limit.
The noise was measured at each position of all three axes X, Y and Z to compare the level, and the maximum noise.
With the result above, the effective radiated power was calculated on the basis of the reference value
- for the calibration data on the substitution measurement.
Result is calculated to two places of decimals. Therefore, there may be 0.1 difference for the result.
Detector : S/A PK (RBW: 100kHz , VBW: 100kHz)

Spurious Radiation

UL Apex Co., Ltd.
Head Office EMC Lab. Semi Anechoic Chamber : No1 , No2

COMPANY	Sharp corporation	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Prat22 Section 22.917(a)
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1053
S/N	PVT2-88	TEST DISTANCE	3m
POWER	AC120V / 60Hz (AC Adapter)	DATE	11/17/2006, 11/21/2006
MODE	Tx 836.6 MHz	TEMPERATURE	22 deg.C., 21deg.C.
POSITION	H: Y-axis / V: Z-axis	HUMIDITY	31%, 52%
Tx Antenna Height	1.5m	CALIBRATION	OK
		ENGINEER	Takumi Shimada

<GSM850>

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (ERP) [dBm]		LIMIT [dBm] (ERP)	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
1	64.01	24.1	33.7	-49.8	-39.8	0.3	-13.0	9.9	-75.1	-65.2	-13.0	62.1	52.2	Operating	No1	
2	71.99	22.8	35.2	-54.3	-40.9	0.4	-10.4	9.9	-77.1	-63.7	-13.0	64.1	50.7	Operating	No1	
3	148.43	28.9	27.6	-63.1	-59.2	1.0	2.2	9.9	-74.0	-70.1	-13.0	61.0	57.1	Operating	No1	
4	1673.20	44.9	41.5	-58.5	-62.3	2.2	8.7	0.0	-54.1	-57.9	-13.0	41.1	44.9	Operating	No2	
5	2509.80	47.5	48.7	-59.4	-58.6	2.8	10.7	0.0	-53.6	-52.9	-13.0	40.6	39.9	Operating	No2	
6	3346.40	42.8	44.4	-64.8	-63.7	3.1	11.6	0.0	-58.4	-57.4	-13.0	45.4	44.4	Operating	No2	
7	4183.00	45.6	45.9	-62.1	-62.2	3.4	12.5	0.0	-55.2	-55.2	-13.0	42.2	42.2	Operating	No2	
8	5019.60	46.4	47.3	-61.5	-60.7	3.9	12.7	0.0	-54.9	-54.1	-13.0	41.9	41.1	Operating	No2	
9	5856.20	49.6	50.4	-58.6	-58.3	4.9	13.5	0.0	-52.1	-51.8	-13.0	39.1	**38.8**	Operating	No2	
10	6692.80	48.6	48.2	-57.5	-57.8	5.3	12.2	0.0	-52.6	-52.9	-13.0	39.6	39.9	Operating	No2	
11	7529.40	45.3	44.6	-58.7	-59.1	5.5	11.1	0.0	-55.3	-55.7	-13.0	42.3	42.7	Operating	No2	
12	8366.00	47.1	44.0	-55.0	-59.1	5.9	11.0	0.0	-52.1	-56.2	-13.0	39.1	43.2	Operating	No2	

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain - Tx Ant. ATT. Loss -2.15
Rx-ANTENNA : Biconical Antenna(30-300MHz), Logperriodic Antenna(300-1000MHz), Horn Antenna(1-12.75GHz)
Tx-ANTENNA : Shorted Dipole Antenna(30-120MHz), Dipole Antenna(120-1000MHz), Horn Antenna(1-12.75GHz)
All other emissions were at least 20dB below the specification limit.
The noise was measured at each position of all three axes X, Y and Z to compare the level, and the maximum noise.
With the result above, the effective radiated power was calculated on the basis of the reference value
- for the calibration data on the substitution measurement.
Result is calculated to two places of decimals. Therefore, there may be 0.1 difference for the result.
Detector : S/A PK (RBW: 100kHz , VBW: 100kHz)

Spurious Radiation

UL Apex Co., Ltd.
Head Office EMC Lab. Semi Anechoic Chamber : No1 , No2

COMPANY	Sharp corporation	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Prat22 Section 22.917(a)
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1053
S/N	PVT2-88	TEST DISTANCE	3m
POWER	AC120V / 60Hz (AC Adapter)	DATE	11/17/2006, 11/21/2006
MODE	Tx 848.8 MHz	TEMPERATURE	22 deg.C., 21deg.C.
POSITION	H: Y-axis / V: Z-axis	HUMIDITY	31%, 52%
Tx Antenna Height	1.5m	CALIBRATION	OK
		ENGINEER	Takumi Shimada

<GSM850>

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (ERP) [dBm]		LIMIT [dBm] (ERP)	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
1	64.00	23.7	35.6	-50.2	-37.9	0.3	-13.0	9.9	-75.5	-63.3	-13.0	62.5	50.3	Operating	No1	
2	70.93	22.1	34.4	-54.6	-41.4	0.4	-10.8	9.9	-77.8	-64.6	-13.0	64.8	51.6	Operating	No1	
3	152.17	29.2	27.4	-62.7	-59.5	1.0	2.2	9.9	-73.6	-70.5	-13.0	60.6	57.5	Operating	No1	
4	1697.60	50.6	47.4	-53.0	-56.6	2.3	8.8	0.0	-48.6	-52.2	-13.0	35.6	39.2	Operating	No2	
5	2546.40	54.1	52.5	-52.8	-54.9	2.8	10.7	0.0	-47.0	-49.1	-13.0	**34.0**	36.1	Operating	No2	
6	3395.20	43.8	43.1	-63.8	-65.0	3.1	11.7	0.0	-57.4	-58.6	-13.0	44.4	45.6	Operating	No2	
7	4244.00	44.9	41.1	-62.8	-67.0	3.5	12.5	0.0	-55.9	-60.1	-13.0	42.9	47.1	Operating	No2	
8	5092.80	41.9	43.8	-66.0	-64.3	4.0	12.8	0.0	-59.4	-57.7	-13.0	46.4	44.7	Operating	No2	
9	5941.60	47.1	50.3	-61.1	-58.5	5.0	13.5	0.0	-54.7	-52.0	-13.0	41.7	39.0	Operating	No2	
10	6790.40	43.3	46.5	-62.4	-59.1	5.3	12.0	0.0	-57.9	-54.5	-13.0	44.9	41.5	Operating	No2	
11	7639.20	47.1	44.1	-56.7	-59.4	5.6	11.0	0.0	-53.4	-56.1	-13.0	40.4	43.1	Operating	No2	
12	8488.00	50.3	48.2	-51.5	-54.9	6.0	11.0	0.0	-48.6	-52.0	-13.0	35.6	39.0	Operating	No2	

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain - Tx Ant. ATT. Loss -2.15
Rx-ANTENNA : Biconical Antenna(30-300MHz), Logperriodic Antenna(300-1000MHz), Horn Antenna(1-12.75GHz)
Tx-ANTENNA : Shorted Dipole Antenna(30-120MHz), Dipole Antenna(120-1000MHz), Horn Antenna(1-12.75GHz)
All other emissions were at least 20dB below the specification limit.
The noise was measured at each position of all three axes X, Y and Z to compare the level, and the maximum noise.
With the result above, the effective radiated power was calculated on the basis of the reference value
- for the calibration data on the substitution measurement.
Result is calculated to two places of decimals. Therefore, there may be 0.1 difference for the result.
Detector : S/A PK (RBW: 100kHz , VBW: 100kHz)

Spurious Radiation

UL Apex Co., Ltd.
Head Office EMC Lab. Semi Anechoic Chamber : No1 ,No2

COMPANY	Sharp corporation	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Prat22 Section 22.917(a)
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1053
S/N	PVT2-88	TEST DISTANCE	3m
POWER	AC120V / 60Hz (AC Adapter)	DATE	11/17/2006, 11/22/2006
MODE	Tx 824.2 MHz	TEMPERATURE	22 deg.C., 20 deg.C
POSITION	H: Y-axis / V: Z-axis	HUMIDITY	31%, 50%
Tx Antenna Height	1.5m	CALIBRATION	OK
		ENGINEER	Takumi Shimada

<GSM850+GPRS>

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (ERP) [dBm]		LIMIT [dBm] (ERP)	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
1	64.04	24.3	35.1	-49.6	-38.5	0.3	-13.0	9.9	-74.9	-63.8	-13.0	61.9	50.8	Operating	No1	
2	72.00	24.9	33.9	-52.2	-42.2	0.4	-10.4	9.9	-75.0	-65.0	-13.0	62.0	52.0	Operating	No1	
3	153.69	31.4	27.6	-60.5	-59.5	1.0	2.2	9.9	-71.4	-70.4	-13.0	58.4	57.4	Operating	No1	
4	1648.40	45.8	47.2	-57.4	-56.4	2.2	8.6	0.0	-53.1	-52.1	-13.0	40.1	39.1	Operating	No2	
5	2472.60	51.7	48.8	-55.1	-58.5	2.7	10.6	0.0	-49.4	-52.7	-13.0	**36.4**	39.7	Operating	No2	
6	3296.80	43.9	43.8	-63.7	-64.3	3.1	11.5	0.0	-57.4	-58.0	-13.0	44.4	45.0	Operating	No2	
7	4121.00	48.1	46.0	-59.6	-62.1	3.4	12.5	0.0	-52.7	-55.1	-13.0	39.7	42.1	Operating	No2	
8	4945.20	45.3	46.2	-62.6	-61.8	3.9	12.7	0.0	-55.9	-55.1	-13.0	42.9	42.1	Operating	No2	
9	5769.40	48.8	49.2	-59.3	-59.4	4.8	13.4	0.0	-52.9	-52.9	-13.0	39.9	39.9	Operating	No2	
10	6593.60	48.5	47.4	-57.9	-59.0	5.2	12.4	0.0	-52.8	-53.9	-13.0	39.8	40.9	Operating	No2	
11	7417.80	47.2	47.0	-57.0	-56.9	5.5	11.2	0.0	-53.5	-53.3	-13.0	40.5	40.3	Operating	No2	
12	8242.00	46.1	47.0	-56.3	-56.0	5.9	10.9	0.0	-53.5	-53.1	-13.0	40.5	40.1	Operating	No2	

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain - Tx Ant. ATT. Loss -2.15
Rx-ANTENNA : Biconical Antenna(30-300MHz), Logperriodic Antenna(300-1000MHz), Horn Antenna(1-12.75GHz)
Tx-ANTENNA : Shorted Dipole Antenna(30-120MHz), Dipole Antenna(120-1000MHz), Horn Antenna(1-12.75GHz)
All other emissions were at least 20dB below the specification limit.
The noise was measured at each position of all three axes X, Y and Z to compare the level, and the maximum noise.
With the result above, the effective radiated power was calculated on the basis of the reference value
- for the calibration data on the substitution measurement.
Result is calculated to two places of decimals. Therefore, there may be 0.1 difference for the result.
Detector : S/A PK (RBW: 100kHz , VBW: 100kHz)

Spurious Radiation

UL Apex Co., Ltd.
Head Office EMC Lab. Semi Anechoic Chamber : No1 ,No2

COMPANY	Sharp corporation	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Prat22 Section 22.917(a)
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1053
S/N	PVT2-88	TEST DISTANCE	3m
POWER	AC120V / 60Hz (AC Adapter)	DATE	11/17/2006, 11/22/2006
MODE	Tx 836.6 MHz	TEMPERATURE	22 deg.C., 20 deg.C
POSITION	H: Y-axis / V: Z-axis	HUMIDITY	31%, 50%
Tx Antenna Height	1.5m	CALIBRATION	OK
		ENGINEER	Takumi Shimada

<GSM850+GPRS>

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (ERP) [dBm]		LIMIT [dBm] (ERP)	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
1	63.98	24.9	35.5	-49.0	-38.0	0.3	-13.0	9.9	-74.3	-63.4	-13.0	61.3	50.4	Operating	No1	
2	72.00	25.1	34.7	-52.0	-41.4	0.4	-10.4	9.9	-74.8	-64.2	-13.0	61.8	51.2	Operating	No1	
3	149.14	28.8	25.0	-63.2	-61.8	1.0	2.2	9.9	-74.1	-72.6	-13.0	61.1	59.6	Operating	No1	
4	1673.20	48.1	44.7	-55.3	-59.1	2.2	8.7	0.0	-50.9	-54.7	-13.0	37.9	41.7	Operating	No2	
5	2509.80	55.4	45.9	-51.5	-61.4	2.8	10.7	0.0	-45.7	-55.7	-13.0	**32.7**	42.7	Operating	No2	
6	3346.40	42.6	44.1	-65.0	-64.0	3.1	11.6	0.0	-58.6	-57.7	-13.0	45.6	44.7	Operating	No2	
7	4183.00	45.4	43.1	-62.3	-65.0	3.4	12.5	0.0	-55.4	-58.0	-13.0	42.4	45.0	Operating	No2	
8	5019.60	46.6	48.0	-61.3	-60.0	3.9	12.7	0.0	-54.7	-53.4	-13.0	41.7	40.4	Operating	No2	
9	5856.20	48.9	49.1	-59.3	-59.6	4.9	13.5	0.0	-52.8	-53.1	-13.0	39.8	40.1	Operating	No2	
10	6692.80	47.0	46.8	-59.1	-59.2	5.3	12.2	0.0	-54.2	-54.3	-13.0	41.2	41.3	Operating	No2	
11	7529.40	48.4	47.5	-55.6	-56.2	5.5	11.1	0.0	-52.2	-52.8	-13.0	39.2	39.8	Operating	No2	
12	8366.00	47.1	47.4	-55.0	-55.7	5.9	11.0	0.0	-52.1	-52.8	-13.0	39.1	39.8	Operating	No2	

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain - Tx Ant. ATT. Loss -2.15
Rx-ANTENNA : Biconical Antenna(30-300MHz), Logperriodic Antenna(300-1000MHz), Horn Antenna(1-12.75GHz)
Tx-ANTENNA : Shorted Dipole Antenna(30-120MHz), Dipole Antenna(120-1000MHz), Horn Antenna(1-12.75GHz)
All other emissions were at least 20dB below the specification limit.
The noise was measured at each position of all three axes X, Y and Z to compare the level, and the maximum noise.
With the result above, the effective radiated power was calculated on the basis of the reference value
- for the calibration data on the substitution measurement.
Result is calculated to two places of decimals. Therefore, there may be 0.1 difference for the result.
Detector : S/A PK (RBW: 100kHz , VBW: 100kHz)

Spurious Radiation

UL Apex Co., Ltd.
Head Office EMC Lab. Semi Anechoic Chamber : No1 ,No2

COMPANY	Sharp corporation	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Prat22 Section 22.917(a)
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1053
S/N	PVT2-88	TEST DISTANCE	3m
POWER	AC120V / 60Hz (AC Adapter)	DATE	11/17/2006, 11/22/2006
MODE	Tx 848.8 MHz	TEMPERATURE	22 deg.C., 20 deg.C
POSITION	H: Y-axis / V: Z-axis	HUMIDITY	31%, 50%
Tx Antenna Height	1.5m	CALIBRATION	OK
		ENGINEER	Takumi Shimada

<GSM850+GPRS>

No.	Frequency [MHz]	Electric Field Strength (After Factor Calculation) [dBuV/m]		SG Reading [dBm]		Tx Cable Loss [dB]	Tx Ant. Gain [dBi]	Tx Ant. ATT. Loss [dB]	RESULT (ERP) [dBm]		LIMIT [dBm] (ERP)	MARGIN [dB]		Mode	A/C	Remarks
		HOR	VER	HOR	VER				HOR	VER		HOR	VER			
1	64.00	20.6	34.1	-53.3	-39.4	0.3	-13.0	9.9	-78.6	-64.8	-13.0	65.6	51.8	Operating	No1	
2	72.02	22.5	31.8	-54.6	-44.3	0.4	-10.4	9.9	-77.4	-67.1	-13.0	64.4	54.1	Operating	No1	
3	153.02	29.7	26.2	-62.2	-60.8	1.0	2.2	9.9	-73.1	-71.8	-13.0	60.1	58.8	Operating	No1	
4	1697.60	47.5	47.5	-56.1	-56.5	2.3	8.8	0.0	-51.7	-52.1	-13.0	38.7	39.1	Operating	No2	
5	2546.40	61.1	57.8	-45.8	-49.6	2.8	10.7	0.0	-40.0	-43.8	-13.0	**27.0**	30.8	Operating	No2	
6	3395.20	42.8	44.5	-64.8	-63.6	3.1	11.7	0.0	-58.4	-57.2	-13.0	45.4	44.2	Operating	No2	
7	4244.00	43.9	40.0	-63.8	-68.1	3.5	12.5	0.0	-56.9	-61.2	-13.0	43.9	48.2	Operating	No2	
8	5092.80	42.6	42.8	-65.3	-65.3	4.0	12.8	0.0	-58.7	-58.7	-13.0	45.7	45.7	Operating	No2	
9	5941.60	47.9	49.3	-60.3	-59.5	5.0	13.5	0.0	-53.9	-53.0	-13.0	40.9	40.0	Operating	No2	
10	6790.40	43.6	43.3	-62.1	-62.3	5.3	12.0	0.0	-57.6	-57.7	-13.0	44.6	44.7	Operating	No2	
11	7639.20	45.1	46.5	-58.7	-57.0	5.6	11.0	0.0	-55.4	-53.7	-13.0	42.4	40.7	Operating	No2	
12	8488.00	46.4	45.8	-55.4	-57.3	6.0	11.0	0.0	-52.5	-54.4	-13.0	39.5	41.4	Operating	No2	

CALCULATION RESULT = SG Reading - Tx Loss + Tx Ant. Gain - Tx Ant. ATT. Loss -2.15
Rx-ANTENNA : Biconical Antenna(30-300MHz), Logperriodic Antenna(300-1000MHz), Horn Antenna(1-12.75GHz)
Tx-ANTENNA : Shorted Dipole Antenna(30-120MHz), Dipole Antenna(120-1000MHz), Horn Antenna(1-12.75GHz)
All other emissions were at least 20dB below the specification limit.
The noise was measured at each position of all three axes X, Y and Z to compare the level, and the maximum noise.
With the result above, the effective radiated power was calculated on the basis of the reference value
- for the calibration data on the substitution measurement.
Result is calculated to two places of decimals. Therefore, there may be 0.1 difference for the result.
Detector : S/A PK (RBW: 100kHz , VBW: 100kHz)

Frequency Stability(Temperature/Voltage Variation)

UL Apex Co., Ltd.
Head Office Measurement Room

COMPANY	Sharp Corporation	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Part22 Section 22.355
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1055(a)(1) and(b)
S/N	PVT2-88		FCC Part2 Section 2.1055(d)(1) and(b)
POWER	DC3.9V (AC120V/60Hz)	TEST DISTANCE	-
MODE	Tx 836.6MHz (190ch)/PCL=5(MAX Pow)	DATE	11/28/2006
		TEMPERATURE	23℃
		HUMIDITY	59%
		ENGINEER	Takumi Shimada

<GSM850>

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
-30.0	3.9	836.538874	-69	-0.083	1.5
-20.0	3.9	836.538035	770	0.920	1.5
-10.0	3.9	836.539382	-578	-0.691	1.5
0.0	3.9	836.538184	621	0.742	1.5
10.0	3.9	836.538678	127	0.152	1.5
20.0	3.9	836.538805	0	0.000	1.5
30.0	3.9	836.538735	70	0.083	1.5
40.0	3.9	836.538489	316	0.378	1.5
50.0	3.9	836.538653	152	0.181	1.5

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
20.0	3.6	836.538678	126	0.151	1.5
20.0	3.9	836.538805	0	0.000	1.5
20.0	4.2	836.538631	173	0.207	1.5

Frequency Stability(Temperature/Voltage Variation)

UL Apex Co., Ltd.
Head Office Measurement Room

COMPANY	Sharp Corporation	REPORT NO	26LE0301-HO
EQUIPMENT	Wireless PDA	REGULATION	FCC Part22 Section 24.355
MODEL	PV150	TEST METHOD	FCC Part2 Section 2.1055(a)(1) and(b)
S/N	PVT2-88		FCC Part2 Section 2.1055(d)(1) and(b)
POWER	DC3.9V (AC120V/60Hz)	TEST DISTANCE	-
MODE	Tx 836.6MHz (190ch)/PCL=5(MAX Pow)	DATE	11/28/2006
		TEMPERATURE	23℃
		HUMIDITY	59%
		ENGINEER	Takumi Shimada

<GSM850+GPRS>

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
-30.0	3.9	836.650825	7	0.008	1.5
-20.0	3.9	836.651073	-241	-0.288	1.5
-10.0	3.9	836.650334	498	0.595	1.5
0.0	3.9	836.650633	199	0.238	1.5
10.0	3.9	836.650458	374	0.447	1.5
20.0	3.9	836.650832	0	0.000	1.5
30.0	3.9	836.651437	-605	-0.723	1.5
40.0	3.9	836.650240	592	0.708	1.5
50.0	3.9	836.651532	-700	-0.837	1.5

Temp. [deg.C]	Volt. [V]	Frequency Reading [MHz]	Frequency Error [Hz]	Frequency Error [ppm]	Limit [ppm]
20.0	3.6	836.650889	-57	-0.069	1.5
20.0	3.9	836.650832	0	0.000	1.5
20.0	4.2	836.651046	-214	-0.256	1.5