SCP-4500 Adjustment Discription for Mass production.

APPROVE	CHECK	ISSUE

1-163-268-00	SCP-4500S/H.US
1-163-268-01	SCP-4500S/H.US.MJ

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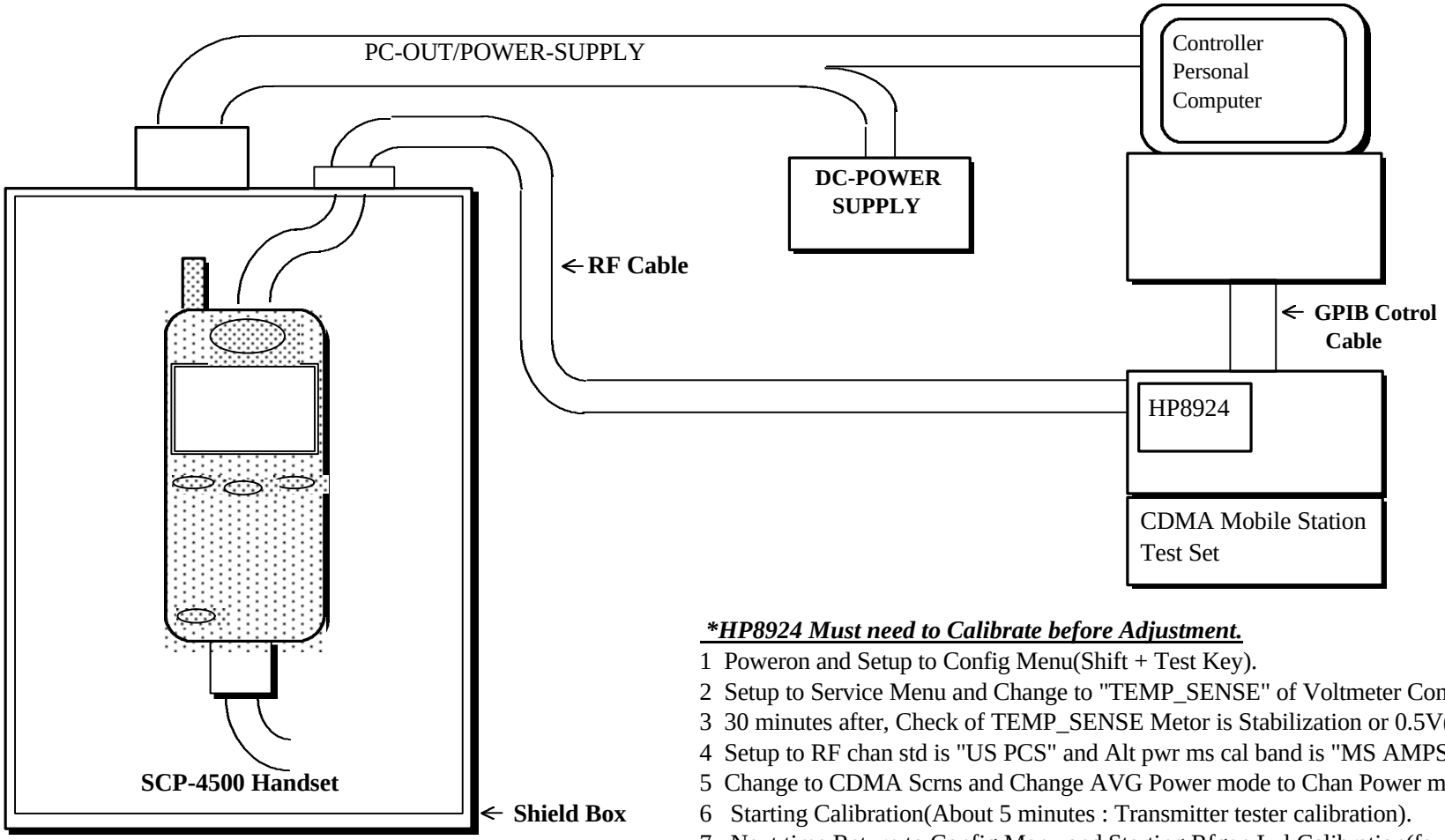
No.	Contents
1	**Set-Up for Tune-Up and Adjustment of Transmitter**
2	**Alignment Procedure**
3	**Adjust Value**
4	**Measurement Specification of Adjustment**

Minor Change Version

1. Set-Up for Tune-Up and Adjustment of Transmitter



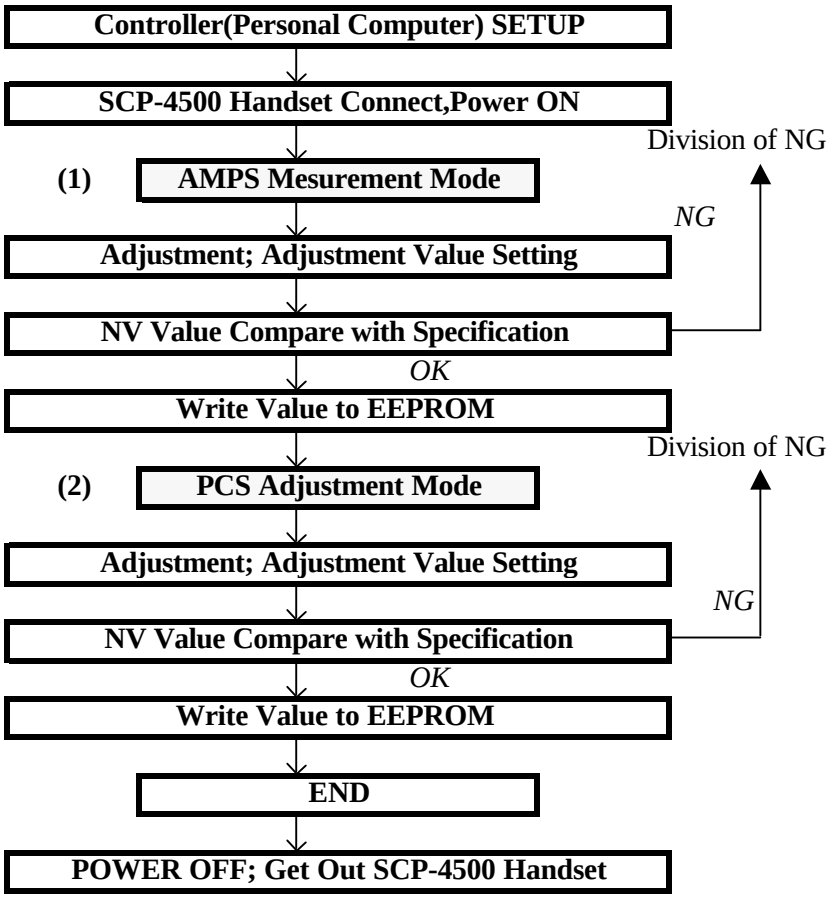
HP8924 Must need to Calibrate before Adjustment.

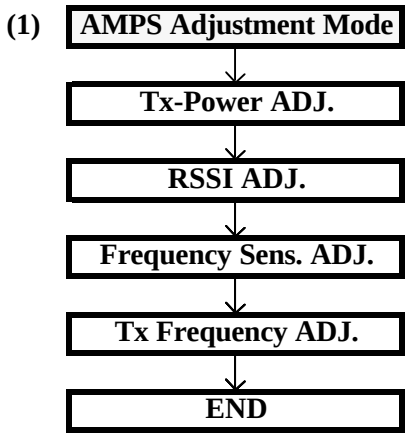
1 Poweron and Setup to Config Menu(Shift + Test Key).
2 Setup to Service Menu and Change to "TEMP_SENSE" of Voltmeter Connection .
3 30 minutes after, Check of TEMP_SENSE Metor is Stabilization or 0.5V(=50 degree C).
4 Setup to RF chan std is "US PCS" and Alt pwr ms cal band is "MS AMPS".
5 Change to CDMA Scrns and Change AVG Power mode to Chan Power mode.
6 Starting Calibration(About 5 minutes : Transmitter tester calibration).
7 Next time,Return to Config Menu and Starting Rfgen Lvl Calibration(few Seconds).

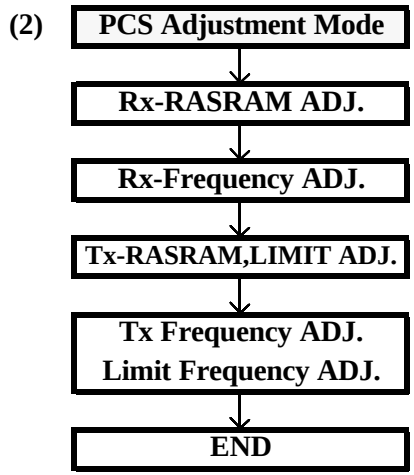
**** Added HP Documents of calibration Nextpage.***

2 Alignment Procedure

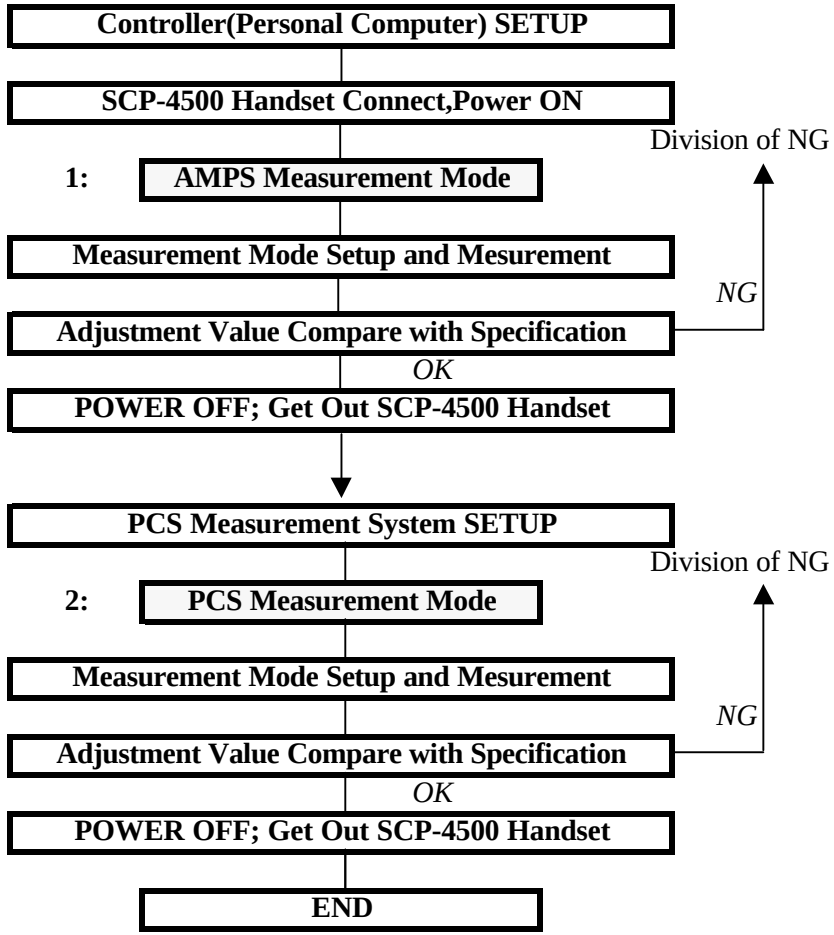
(1)Adjustment Procedure

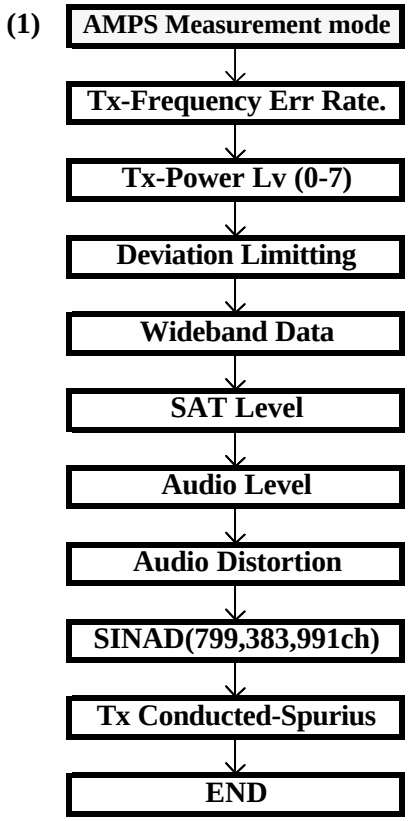


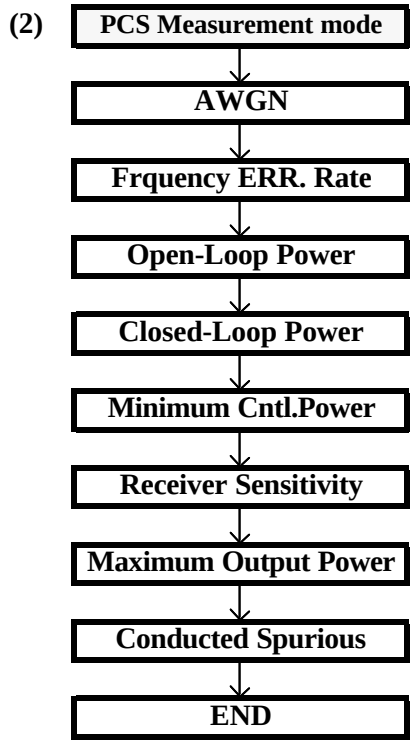




(2) Measurement Procedure







3. Adjustment Value

1. AMPS Adjustment

ITEM	Sub-ITEM	Handset Setup (Internal Setup)	HP8924 Setup	Adj. Value	Accuracy of NV-Value
Tx-Power Adjustment	PL=0,1,2	Normal Test Mode	AMPS Mode	+25.0dBm	
	PL=3	Tx AGC SET : 3-2-3-2	Txpower : dBm Mode	+23.0dBm	
	PL=4			+19.0dBm	
	PL=5			+15.0dBm	
	PL=6			+11.0dBm	
	PL=7			+ 7.0dBm	
Tx-Power Frequency Adjustment	Bk 0=1017ch	FCC Test Mode	PL=0	+25.0dBm	
	Bk 1=46ch			+25.0dBm	
	Bk 2=98ch			+25.0dBm	
	Bk 3=150ch			+25.0dBm	
	Bk 4=202ch			+25.0dBm	
	Bk 5=254ch			+25.0dBm	
	Bk 6=306ch			+25.0dBm	
	Bk 7=358ch			+25.0dBm	
	Bk 8=410ch			+25.0dBm	
	Bk 9=462ch			+25.0dBm	
	Bk10=514ch			+25.0dBm	
	Bk11=566ch			+25.0dBm	
	Bk12=618ch			+25.0dBm	
	Bk13=670ch			+25.0dBm	
	Bk14=722ch			+25.0dBm	
	Bk15=774ch			+25.0dBm	
Frequency Sensibility Adjustment		FCC Test Mode : AMPS Tx : ST,CH : 358	AF ANL Mode Detector : Pk±Max DE-EMPH :750 us Fil1: >20hz, Fil2: <99khz pass	8KHz dev.	dev. 8Khz±0.1Khz ↓ NV_FM_FREQ_SENSE_GAIN_I
RSSI Adjustment	-60dBm In -113dBm In	FCC TEST Mode RSSI=Filter*116+AgcRSSI*47	-60dBm RF input ; -113dBm RF inpu	-60dBm : BAR4 BAR1	NV_FM_RSSI_I

***Handset SETUP & HP8923 SETUP is Auto Set by Controller(Personal Computer).**

2. PCS RX Adjustment

ITEM	Sub-ITEM	Handset Setup(Internal Setup)	HP8924 Setup	Adj. Value	Accuracy of NV-Value
Rx-RASRAM Adjustment	Table 1	Normal Mode	PCS Ch=563 : SG LV=-106.0dBm	-106.0dBm	
	Table 2	OFF Line Mode	SG LV=-100.6dBm	-100.6dBm	
	Table 3		SG LV=-95.3dBm	-95.3dBm	
	Table 4		SG LV=-90.0dBm	-90.0dBm	
	Table 5		SG LV=-84.7dBm	-84.7dBm	
	Table 6		SG LV=-79.4dBm	-79.4dBm	
	Table 7		SG LV=-74.1dBm	-74.1dBm	
	Table 8		SG LV=-68.8dBm	-68.8dBm	
	Table 9		SG LV=-63.5dBm	-63.5dBm	
	Table 10		SG LV=-58.1dBm	-58.1dBm	
	Table 11		SG LV=-52.8dBm	-52.8dBm	
	Table 12		SG LV=-47.5dBm	-47.5dBm	
	Table 13		SG LV=-42.2dBm	-42.2dBm	
	Table 14		SG LV=-36.9dBm	-36.9dBm	
	Table 15		SG LV=-31.6dBm	-31.6dBm	
	Table 16		SG LV=-26.3dBm	-26.3dBm	
	Table 17		SG LV=-21.0dBm	-21.0dBm	
RX AGC Frequency Adjustment	Bk 0=38ch	Normal Mode	RF INPUT(SG) LV=-63.5dBm	AGC DIFF.	
	Bk 1=113ch	Reference ch : 563ch	Change to Channel 16 Time.	AGC DIFF.	
	Bk 2=188ch	Deference of Center ch AGCsym.		AGC DIFF.	
	Bk 3=263ch	Change to Channel 16 Time.		AGC DIFF.	
	Bk 4=338ch	OFF Line Mode		AGC DIFF.	
	Bk 5=413ch			AGC DIFF.	
	Bk 6=488ch			AGC DIFF.	
	Bk 7=563ch			Center CH	
	Bk 8=638ch			AGC DIFF.	
	Bk 9=713ch			AGC DIFF.	
	Bk10=788ch			AGC DIFF.	
	Bk11=863ch			AGC DIFF.	
	Bk12=938ch			AGC DIFF.	
	Bk13=1013c			AGC DIFF.	
	Bk14=1088c			AGC DIFF.	
	Bk15=1163c			AGC DIFF.	

3. PCS TX & TX-LIMIT Adjustment

ITEM	Sub-ITEM	Handset Setup(Internal Setup)	HP8924 Setup	Adj. Value	Accuracy of NV-Value
Tx-RASRAM Adjustment		Nomal Test Mode	PCS Ch=1163ch		
				+24.6dBm	
				~	
				-50.0dBm	
&		TOTAL : 36Parametor			
		Symbol			
		-50.0dBm +24.6dBm			
Tx-Limit Adjustment	Table 1		PCS Ch=1163ch	+8.75dBm	
	Table 2			+10.1dBm	
	Table 3			+11.4dBm	
	Table 4			+12.7dBm	
	Table 5			+14.1dBm	
	Table 6			+15.4dBm	
	Table 7			+16.7dBm	
	Table 8			+18.1dBm	
	Table 9			+19.4dBm	
	Table 10			+20.7dBm	
	Table 11			+22.1dBm	
	Table 12			+23.4dBm	
	Table 13			+24.7dBm	
	Table 14			+26.0dBm	
	Table 15			+27.4dBm	
	Table 16			+28.7dBm	
	OFFSET	Offset : 16.7dB(Table 7)		+16.7dBm	
	SPN	Spn : 26dBm(Table 14)		+26.0dBm	

4. Tx AGC Frequency Adjustment and Tx Limit Frequency Adjustment. 8PAGE

TX AGC Frequency Adjustment	**Bk 0=38ch**	**Nomal Test Mode**	**RF INPUT(SG) LV=-92.0dBm**	**Tx-Pow diff.**	
	Bk 1=113ch	**Reference ch : 1163ch**	**Change to Channel 16 Time.**	**Tx-Pow diff.**	
	Bk 2=188ch	**Difference of Center ch AGCsym.**		**Tx-Pow diff.**	
	Bk 3=263ch	**Change to Channel 16 Time.**		**Tx-Pow diff.**	
	Bk 4=338ch			**Tx-Pow diff.**	
	Bk 5=413ch			**Tx-Pow diff.**	
	Bk 6=488ch			**Tx-Pow diff.**	
	Bk 7=563ch			**Tx-Pow diff.**	
&	**Bk 8=638ch**			**Tx-Pow diff.**	
	Bk 9=713ch			**Tx-Pow diff.**	
	Bk10=788ch			**Tx-Pow diff.**	
	Bk11=863ch			**Tx-Pow diff.**	
	Bk12=938ch			**Tx-Pow diff.**	
	Bk13=1013c			**Tx-Pow diff.**	
	Bk14=1088c			**Tx-Pow diff.**	
	Bk15=1163c			**REF. CH**	
TX Limit Frequency Adjustment	**Bk 0=38ch**	**Nomal Test Mode**	**RF INPUT(SG) LV=-92.0dBm**	*****	
	Bk 1=113ch	**Reference ch : 1163ch**	**Change to Channel 16 Time.**	*****	
	Bk 2=188ch	**Difference of Center ch AGCsym.**		*****	
	Bk 3=263ch	**Change to Channel 16 Time.**		*****	
	Bk 4=338ch			*****	
	Bk 5=413ch			*****	
	Bk 6=488ch			*****	
	Bk 7=563ch	**12Symb=1.0dB**		*****	
	Bk 8=638ch			*****	
	Bk 9=713ch			*****	
	Bk10=788ch			*****	
	Bk11=863ch			*****	
	Bk12=938ch			*****	
	Bk13=1013c			*****	
	Bk14=1088c			*****	
	Bk15=1163c			**REF. CH**	

***TX-Power Diffrencial + ADC Diffrencial * Limit Table Value**

4. Mesurment Specification of Adjustment

1. AMPS Mesurement Specification

Measurement Item	Standard Item	IS98A Standard Spec	Measurement Spec	Measurement Condition	Measurement Channel	Others
Tx-Frequency Err	IS-98-A : 3.1.2	< ±2.5ppm	< ±2.0ppm	Measurement Equipment Accuray < 0.1ppm	799ch	
Tx-Power Level(0,1,2)	IS-98-A : 3.2.1	24dBm to 30dBm	24.5dBm to 26.5dBm	Measurement Equipment	991(L),383(M),799(H)	
Tx-Power Level(3)	IS-98-A : 3.2.1	20dBm to 26dBm	20dBm to 26dBm	Accuray < 0.2dB	991(L),383(M),799(H)	
Tx-Power Level(4)	IS-98-A : 3.2.1	16dBm to 22dBm	16dBm to 22dBm		991(L),383(M),799(H)	
Tx-Power Level(5)	IS-98-A : 3.2.1	12dBm to 18dBm	12dBm to 18dBm		991(L),383(M),799(H)	
Tx-Power Level(6)	IS-98-A : 3.2.1	8dBm to 14dBm	8dBm to 14dBm		991(L),383(M),799(H)	
Tx-Power Level(7)	IS-98-A : 3.2.1	4dBm to 10dBm	4dBm to 10dBm		991(L),383(M),799(H)	
Deviation Limitting	IS-98-A : 3.3.2.3	< ±12Khz dev.	< ±12Khz dev.	Comp=ON,SAT=OFF HF Mode,Mic=6.3V IN	799ch	
Wideband Data	IS-98-A : 3.3.3	±8Khz dev. ± 10% (±7.2 to 8.8Khz dev.)	±8Khz dev. ± 10% (±7.2 to 8.8Khz dev.)	Wideband Mode		
SAT Level	IS-98-A : 3.3.4	±2Khz±0.2Khz dev.	±2Khz±0.2Khz dev.	SAT Mode		
Audio Distortion	IS-98-A : 2.2.2.5	< 5%	<5%	Voice Mode 8KHZdev -50dBm	799ch	
SINAD	IS-98-A : 2.3.1	> 12dB	> 12dB	RF IN = -116dBm	799(H),383(M),991(L)	
Tx-Conducted Spurious	IS-98-A : 3.4.2	> 43+10*Log(W) W : Tx-Power	< -14dBm		799ch	

2. PCS Measurement Specification

Measurement Item	Standard Item	JSTD018 Standard Spec	Measurement Spec	Measurement Condition	Measurement Channel	Others
RTC Demod. of FW.ch	TIA/EIA-98-C			Rateset2 SVC opt9		
	3.3.3					
AWGN Test10(Eb/Nt=4.1)		1%(0.010)	1%(0.010)	7200(TEST10)	25ch	
Waveform Quality	TIA/EIA-98-C			Rateset2 SVC opt9		
RHO	4.3.2	>0.944	>0.944	14400bps	25ch	
Frequency Err Rate	4.1.1	±150Hz	±150Hz		25ch	
Time Offset	4.3.1	±1uS	±1uS		25ch	
TTC Range of Openloop	TIA/EIA-98-C	dBm	dBm	Rateset2 SVC opt9		
Openloop Power Test1	4.4.1	-51±9.5(CLASSII)	-51±9.5(CLASS II)	14400bps	25ch	
Openloop Power Test2		-11±9.5(CLASS II)	-11±9.5(CLASS II)		25ch	
Openloop Power Test3		20±9.5(CLASS II)	20±9.5(CLASS II)		25ch	
TTC Range of Closedloop	TIA/EIA-98-C			Rateset2 SVC opt9		
Closedloop Full Power	4.4.4	RF Output = -13dBm	-14±3dBm	14400bps	25ch	
Closedloop Max Power		>+24dB	>+24dB			
Closedloop Min Power		<-24dB	<-24dB			
TTC Min.Controlled Pow	TIA/EIA-98-C			Rateset2 SVC opt9		
Minimum Controlled Pow	4.4.6	-50dBm/1.23Mhz	-50dBm/1.23Mhz	14400bps	25ch	
RTC Receiver Sensitivity	TIA/EIA-98-C	0.5%(Confidence95%)	1.0%(Confidence95%)	Rate2 Full -106.3dBm	600ch, 1175ch	
Receiver Sensitivity FER	3.4.1	0.5%(Confidence95%)	0.5%(Confidence95%)	Rate2 Full -105.0dBm	25ch	
Single Tone Desensitization	TIA/EIA-98-C	1.0%(Confidence95%)	1.0%(Confidence95%)	Rate2 Full -101.0dBm	25ch(-), 1175ch(+)	
	3.4.2	-15dBW (+15dBm)	-15dBW(+15dBm)	Undesired <-30dBm		
TTC Max RF Output Pow	TIA/EIA-98-C	> 0.2W	23.00dBm~24.4dBm		1175ch	
Max Power Output	4.4.5	> 0.2W	23.00dBm~25.0dBm		25ch,600ch,	
TTC Conducted Spurious	TIA/EIA-98-C			SVC Opt9(14400)		
>1.25MHz	3.5.1	< -42dBc	< -45dBc	Max Power Output	1175ch	
>1.98MHz		< -50dBc	< -50dBc	Max Power Output	1175ch	
>2.25MHz		<-13dBm	<-13dBm	Max Power Output	1175ch	