

Description Information

Subsection	Description	
2.983 (a)	Applicant	: SANYO ELECTRIC CO., LTD. 1-1 Keihan hondori 2-chome, Moriguchi City Osaka, Japan
	Manufacture	: SANYO ELECTRIC CO., LTD.
2.983 (b)	FCC ID	: AEZSCP3000
2.983 (c)	Quantity	: Quantity production is planned.
2.983 (d)	Technical Description: See Exhibit xx	
2.983 (d)(l)	Emission Type :	
	AMPS wide band mode:	40KF8W and 40K0F1 D
	PCS wide band CDMA mode:	1 M25F9W
2.983 (d)(2)	Frequency Range:	
	AMPS wide band mode:	824.04 to 848.97 MHz
	PCS wide band CDMA mode:	1851.25 to 1908.75 MHz
2.983 (d)(3)	Range of Operating Power:	
	AMPS wide band mode: +7.8dBm to +26.0dBm with the Capacity of reducing the maximum power in five steps of 4 dB each on command from a land station. Each power level is maintained with in +2/-4dB of its normal level over the temperature range of -30 to +60 degrees Centigrade and -0.5 V/+0.5 V change of the Battery voltage.	
	PCS wide band CDMA mode: -50dBm to +23dBm with the capacity of reducing the maximum power in 73 steps of 1dB each on command from land station. A Transmitter transmits a power in two (2) state. One is an access state, another is a traffic channel state. In an access state, a power level is in proportion to an estimated receiving signal strength and is maintained with -8dB/+7dB of it normal level. In traffic channel state, a power level is determined by a 1 dB up or down command from a land station, that is , a power level of next transmit timing is a current power level added or submitted 1 dB according to a command. Each power level is maintained over the temperature range of -30 to +60 degrees Centigrade and -0.5 V/+0.5 V change of the Battery voltage.	

Description Information (Continued)			
Subsection	Description		
2.983 (d)(4)	Maximum Power Rating: 0.4 Watts (AMPS wide band mode) 0.2 Watts (PCS wide band CDMA mode)		
2.983 (d)(5)	DC Voltage and Current to the Final Amplifier Module:		
AMPS	Supply Voltage	: 5.0 V	
	Drain Voltage	: 5.0 V	
	Drain Current	: 430 mA	
CDMA	Supply Voltage	: 5.0 V	
	Drain Voltage	: 5.0 V	
	Drain Current	: 450 mA	
2.983 (d)(6)	Function of Active Devices: See Exhibit 7.		
	<u>Reference</u> <u>No.</u>	<u>Function</u>	<u>Part</u> <u>No.</u>
		Base Band Circuit	
		<u>MSM (Mobile Station Modem)</u>	
	IC401	MSM	MSM2300
		<u>FLASH/SRAM</u>	
	IC402	□MFLASH,2MSRAM	M6MFB
		<u>EEPROM</u>	
	IC403	16K×8bit EEPROM	×84129
		<u>RESET</u>	
	IC404	Power Observation (3.1V)	S-80831
		<u>REGULATOR</u>	
	IC405	Regulator (3.0V)	TK11230
	IC412	Regulator (3.0V)	TK11230
		<u>CODEC</u>	
	IC411	CODEC	MB86437
		<u>CODEC CLK/SYNC I/F</u>	
	IC413	D-Flip Flop	TC7W74FC

Subsection	Description Information (Continued)	
	Description	
	<u>A/D CONVERTER SELECT CIRCUIT</u>	
IC416	2CH-MPX	TC4W53FU
IC417	2CH-MPX	TC4W53FU
Q4011	Switch	DTC 124XE
Q4012	Switch	DTC 124XE
Q4013	Switch	DTC 124XE
	<u>AUTOMATIC POWER ON</u>	
IC418	Power Observation (3.2V)	S-80832
IC420	Single 2-AND	TC7SQ8FU
	<u>INVERTER</u>	
IC413	Schmit Trigger Inverter	TC7S14FU
	<u>RINGER BUZZER DRIVER</u>	
IC424	Schmit Trigger Inverter	TC7S14FU
IC425	Dual 2-AND	TC7WQ8FU
Q4006		2SC4555
Q4017		2SC4555
	<u>PA-ON CONTROL</u>	
IC426	Schmit Trigger Inverter	TC7S14FU
IC427	Dual 2-AND	TC7WQ8FU
	<u>CHARGE CURRENT DETECTOR</u>	
IC901	OP Amplifier	LMC 71Q1
	<u>REGULATOR AND QUICK CHARGE CIRCUIT</u>	
IC902	Li-ion Battery Control	MM1333
Q903	Switch	2SB1386
Q904	Switch	2SA1774
Q905	Switch	2SA1774
Q907	Switch	DTC124XE
Q908	Switch	DTC124XE
Q909	Switch	DTC124XE
	<u>REGULATOR AND CHARGE CONTROL</u>	
IC903	Regulator (4.1V)	TK11241
Q901	Switch	2SB1424
Q902	Switch	2SA1774
Q903	Switch	2SC4617
IC904	DC-DC Converter	SI9161BQ
Q912	P-ch, N-ch Dual MOS FET	SI68Q1DQ

Subsection	Description Information (Continued)		
	Description		
	<u>DC-DC CONVERTER 2</u>		
IC905	DC-DC Converter		SI9161BQ
Q913	P-ch, N-ch Dual MOS FET		SI68Q1DQ
	<u>DC-DC CONVERTER CONTROL</u>		
IC907	Single 2-NAND		TC7SQQFU
IC908	Single 2-NAND		TC7SQQFU
Q915	Switch		DTC124XE
Q916	Switch		DTC124XE
	<u>POWER KEY IN</u>		
Q4002	Switch		DTC124XE
	<u>CALL LED SWITCH</u>		
Q4003	Switch		2SC4555
	<u>VOLTAGE SWITCH</u>		
Q4007	Switch		DTC124XE
Q4026	Switch		DTC124XE
	<u>CALL LED DRIVER</u>		
Q4019	Driver		DTC124XE
	<u>VIBRATOR DRIVER</u>		
Q4021	Driver		2SB815
Q4022	Driver		2SC4984
Q4023	Driver		DTC124XE
	<u>POWER SWITCH</u>		
Q910	Switch		DTC124XE
Q911	P-ch MOS FET		SI6433DQ
Q914	Switch		DTC124XE
	<u>LED POWER, BACK LIGHT CONTROL</u>		
Q4004	Driver		2SC4555
Q4005	Driver		2SC4555
Q4024	Driver		DTC124XE
Q4025	Driver		2SB815

Subsection	Description Information (Continued)	
	Description	
	RF Module	
	<u>TCXO Block</u>	
	CM1 TCXO	VC-TCXO-205CT (19.68MHz)
	<u>PLL Synthesizer</u>	
	IC23 Synthesizer	MB15S93
	IC24 DUAL Synthesizer	MB15F03PV-G-EF
	D5 Switch	DAN235E
	CM4 PCS VCO	URAA8X423A
	CM5 AMPS VCO	UCVA3X122A
	<u>RF Power Amplifier</u>	
	IC1 PCS Power Amplifier	R121007
	IC5 Switch	uPG153TB
	IC6 Switch	uPG153TB
	TR2 Driver	AT-32011
	TR3 Driver	AT-32011
	RT6 Temperature Sensor	NTCCM10054LH683J
	D1 HDET	B30K03WS
	IC7 AMPS Power Amplifier	RF2132
	IC21 Driver	uPC2710T
	IC22 Buffer Amp.	UPC2726T-E3
	IC12 Buffer Amp.	HN2C12FU
	TR4 LNA	BFP420
	IC11 Mixer	GN2011
	TR5 IF Amp.	2SC5015
	TR6 LNA	2SC5015
	IC13 Mixer	GN02023B
	<u>Base Band Circuit for RF</u>	
	IC15 Base Band IC (Filters, D/A converters A/D converters)	ALP215D

Subsection	Description Information (Continued)	
	Description	
	<u>AGC Circuit</u>	
	IC20 TXAGC IC	ALP230
	(AGC, QPSK Modulation UP Mixer)	
	IC16 RX AC IC	RF2667
	(AGC, QPSK Demodulation)	
	<u>Antenna Switching Circuit</u>	
	IC25 Switch	CXG1028

Description Information (Continued)	
Subsection	Description
2.983 (d)(7)	Circuit Diagrams : Transceiver Block Diagram: See Exhibit (Block.tif) Transceiver schematic Diagram: See Exhibit (Circuitbb.tif and Circuitrf.tif)
2.983 (d)(8)	Operating Instruction Book: See Exhibit (SCP-3000_US.pdf)
2.983 (d)(9)	Tune-Up Procedure: See Exhibit (Alighment&Tuneup.doc)
2.983 (d)(10)	Description of Frequency Stabilization System: (TCXO System) The TCXO System consists of VCXO Circuit (CM1) and Mobile station modem (IC401) included uprocessor, DAC and AFC block. With regard to the Frequency Stability: The frequency of the TCXO module (CM1) is 19.68 MHz with stability less than ± 2 ppm over the temperature range of -30 to $+80$ degrees Centigrade. The frequency of TCXO module can be controlled by AFC (Auto Frequency Control) circuit block which Mobile station Modem (IC401) includes, so that the receiving frequency agrees with the base station transmit frequency. The frequency stability of TCXO system is maintained within ± 150 Hz over the temperature range of -30 to $+60$ degrees Centigrade.

Subsection	Description Information (Continued)
2.983 (d)(11)	Description
	Description of Circuits for Suppression of Spurious Radiation, for Limiting Modulation, and for Limiting Power:
AMPS mode	Means for Attenuation of Spurious Emissions: Spurious and Harmonic Suppression is obtained by proper shielding techniques and the use of filters. Means of Limiting Modulation: This transmitter is equipped with a device, which automatically prevents Modulation in excess of 100%. This device an instantaneous deviation control circuit precedes the modulation of the transmitter. It is instantaneous in action for controlling the modulating wave introduced into the transmitter's frequency modulator. The modulation limiter is incorporated in the Mobil Station Modem LSI (IC401). IC401 includes DSP (Digital Signal Processor) and modulation signals, voice, WBD, SAT and ST is shaped by Digital Filter which DSP performs and DSP calculates modulation signals to limit modulation. The deviation limit can be set to the Channel width Requirement of $\pm 12\text{KHz}$ with DSP incorporated in IC401. The deviation of wide Band Data and Signaling Tone can be set to a maximum of $\pm 8\text{KHz}$ in IC401. Means for Limiting Power Power limiting is obtained via the Automatic Power Control (APC) Circuit. APC Circuit contains HDET, IC20, IC401 and EEPROM. The adjustment of the transmitter's power for each of the 6 levels is made according to data stored in EEPROM IC403.
CDMA Mode	Means for Attenuation of Spurious Emissions: Spurious and Harmonic Suppression is obtained by proper shielding techniques and the use of filters. Means of Limiting Modulation: Modulation signals are voice signal and signaling message. CODEC IC411 digitalizes voice signal and uprocessor which MSM IC401 includes generates signaling message. Each signal is a digital signal. IC401 generates the CDMA modulation signal. Digital Filter in iC401 shapes the CDMA modulation signal to limit modulation. Means for Limiting Power Maximum power limiting is obtained via the Automatic Power Control (APC) Circuit. APC Circuit contains HDET, IC20, IC401 and EEPROM. The adjustment of the transmitter's power for maximum power level is made according to data stored in EEPROM IC403.

Subsection	Description Information (Continued) Description															
2.983 (d)(12)	Not applicable															
2.983 (e)	Standard Test Conditions: The following conditions and procedures were followed during testing of this transmitter: Room temperature: 23 - 27 Degrees Celsius Room Humidity: 30 - 50% Supply Voltage: 3.6 V DC (Normal Battery Voltage) Prior to testing, the unit was tuned-up according to the manufacture's alignment procedure. Test procedures were according to EIA/TIA specification IS 98A (AMPS) and ANSI/EIA/TIA specification JSTD-018 (CDMA). The following equipments were used for testing: <table><tr><th>Equipment</th><th>Manufacture</th><th>Type No.</th></tr><tr><td>Audio in</td><td></td><td></td></tr><tr><td>IN IN</td><td></td><td></td></tr></table>	Equipment	Manufacture	Type No.	Audio in			IN IN								
Equipment	Manufacture	Type No.														
Audio in																
IN IN																
2.983 (f)	Equipment Identification: Equipment's Identification Label and its intended Location are shown in Exhibit (rating.gif)(FCC Label), and in Exhibit mm (Photograph of Back View of Transceiver showing FCC Label).															
2.983 (g)Photographs:	A complete set of the photographs showing external and internal views of circuit details and construction are provided. See Exhibit xx to xx.															
2.983 (h)	Not Applicable															
2.983 (i)	Not Applicable															
2.983 (j)	Not Applicable															
2.985 (a)(c)	RF Power Output: The test set-up for RF Power Output is as per Page x of Exhibit xx. The Power Output was then measured. Supply Voltage: 3.6 V DC Modulation: None AMPS wide band Results: <table><tr><th>Channel No.</th><th>Nominal Frequency (MHz)</th><th>Power Output (Watts)</th></tr><tr><td></td><td></td><td>Hi Low</td></tr><tr><td>991</td><td>824.04</td><td></td></tr><tr><td>383</td><td>836.49</td><td></td></tr><tr><td>799</td><td>848.97</td><td></td></tr></table> Note: Channel capacity = 832	Channel No.	Nominal Frequency (MHz)	Power Output (Watts)			Hi Low	991	824.04		383	836.49		799	848.97	
Channel No.	Nominal Frequency (MHz)	Power Output (Watts)														
		Hi Low														
991	824.04															
383	836.49															
799	848.97															

Subsection	Description Information (Continued)		
	Description		
2.985 (a)(c)	(Continued)		
	PCS wide band CDMA mode:		
	Channel No.	Nominal Frequency (MHz)	Power Output (Watts)
			Hi Low
	25	1851.25	
	600	1880.00	
	1175	1908.75	
	Note: Channel capacity = 1151 (Channel No. 0 to 24 and 1176 to 1200 are not available.)		

Subsection	Description Information (Continued) Description
2.987 (a)	Transmitter Audio Frequency Response:
2.987 (b)	Modulation Limiting: The results are shown in Exhibit xx.
2.987 (d)	Other types of equipment:
2.989 (c)(1)	Occupied Band width: The set-up for thee Occupied bandwidth is as per Page xx of Exhibit xx.
22.915	Modulation Requirement
22.915 (a)	Non-voice modulation signals The results are shown in Exhibit xx.
22.915 (b)	Modulation levels The results are shown in Exhibit xx.
22.915 (c)	Deviatio limitation circuitry The results are shown in Exhibit xx.
22.915 (d)	Audio filter characteristics The results are shown in Exhibit xx.

Subsection	Description Information (Continued) Description			
22.917	Spurious Emission at Antenna Terminal: The test set-up for the Spurious Emission at the Antenna terminal is as per Page xx of Exhibit xx. The level of the carrier and the various conducted spurious and harmonic frequencies were measured by means of a calibrated Spectrum analyzer. The spectrum was scanned from the lowest frequency generated in the equipment to 10 GHz. (AMPS wide band CDMA) Out put Power: 0.4 Watts Modulation Condition: Audio Plus SAT Audio: Frequency: 2,500 Hz Input level: 16 dB greater than the level to produced 6 kHz deviation. SAT: Frequency: 6,000 Hz Deviation: 2 kHz Harmonics Spurious Level below Carrier (dBc) (Normal Frequency in MHz) <table><tr><td>824.04</td><td>836.49</td><td>848.97</td></tr></table> 2nd 3rd to 6th 7th to 11th All other Spurious Readings were below -xx dBc. Limit: - (43 + 10 log 0.6) dBc = -40.8 dBc. The graphs measured by the spectrum analyzer are show in Exhibit xx .	824.04	836.49	848.97
824.04	836.49	848.97		
22.917 (f)	Spurious emission at Antenna TERMINAL: The test set-up for the spurious emission in the receiving frequency band is as per the following figure. The mean power of any emissions appearing in the base station frequency range from the transmitter was measured by means of a calibrated spectrum analyzer.			

Subsection	Description Information (Continued) Description								
24.238	The test set-up for the Spurious Emission at the Antenna terminal is as per Page xx of Exhibit xx. The level of the carrier and the various conducted spurious and harmonic frequencies were measured by means of a calibrated Spectrum analyzer. The spectrum was scanned from the lowest frequency generated in the equipment to 20 GHz. (PCS wide band CDMA) <table><tr><th>Harmonics</th><th colspan="3">Spurious Level below Carrier (dBc) (Normal Frequency in MHz)</th></tr><tr><td></td><td>1851.25</td><td>1880.00</td><td>1908.75</td></tr></table> 2nd 3rd to 6th 7th to 11th All other Spurious Readings were below –xx dBc. Limit: - (43 + 10 log 0.2) dBc = -36.0 dBc. The graphs measured by the spectrum analyzer are show in Exhibit xx.	Harmonics	Spurious Level below Carrier (dBc) (Normal Frequency in MHz)				1851.25	1880.00	1908.75
Harmonics	Spurious Level below Carrier (dBc) (Normal Frequency in MHz)								
	1851.25	1880.00	1908.75						
24.238	Spurious emission at Antenna TERMINAL: The test set-up for the spurious emission in the receiving frequency band is as per the following figure. The mean power of any emissions appearing in the base station frequency range from the transmitter was measured by means of a calibrated spectrum analyzer.								

DESCRIPTIVE INFORMATION (Continued)

Subsection

Description

22.919 (a)(b)(c) Electronic Serial Number:

The transceiver FCC ID: AEZSCP3000 has an Electronic Serial Number (ESN) of 32 bit, which is uniquely written at the factory. The host component of ESN (EEPROM) is soldered to the main circuit board of the transceiver and contains encoded information of memory.

The memory includes ESN (32 bit), checksum, and an additional information. The additional information includes a random data, which depends on an individual transceiver unit.

The checksum will be used for checking whether the written ESN is correct or not. The ESN is encoded by particular method. And encoded ESN, checksum and additional information are written into the host component (EEPROM) in the transceiver unit at the factory.

The method of encoding ESN is a kind of cyclic code. The operating software within the transceiver decodes the encoded ESN and check whether the decoded ESN is correct or not. If the ESN is not correct, the software make the transceiver inoperative. Therefore, the ESN is not alterable in the field without the information of encoding method performed in the factory and the checking method. And any attempt to remove, tamper with or change ESN will render the transceiver inoperative.

FCC 96-326

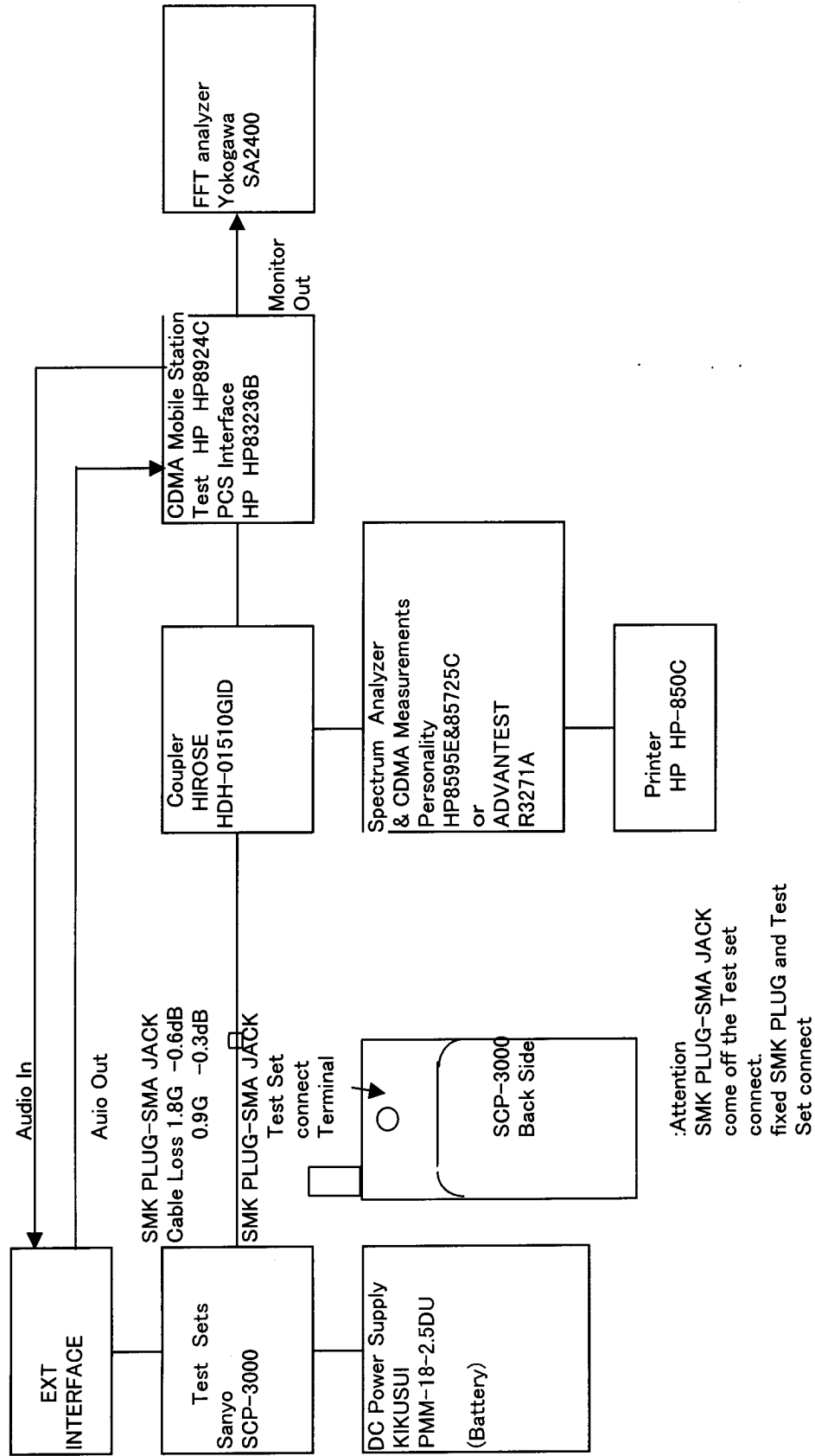
The SAR (Specific Absorption Rate) measurement was performed by IDX EMC Laboratory.

The report of measurement by IDX EMC Laboratory is attached as Exhibit xx.

Measurement Item	PCS	AMPS
2.985(a)		
Test Condition	Chan Std USPCS Protocol J-STD-008	TEST Mode
RF OUTPUT	Std	Std
	Ch No	Ch No
	Frequency (MHz)	Frequency(MHz)
	Ch 25	Ch 991
	1851.25	824.04
	Ch 600	Ch 383
	1880.00	836.49
	Ch 1175	Ch 799
	1908.75	848.97
Maximum RF Output	Maximum RF Output Power(-104dBm) Class 2 Standard 30dBm>X>23dBm 1W>X>0.2W	Maximum RF Output Power Class 3 PL=0 Standard 30dBm>X>24dBm 1W>X>0.25W
Minimum RF Output	Minimum Controlled Output Power (-25dBm) Standard <-50dBm <0.01uW	Minimum Controlled Output Power PL=7 Standard 10dBm>X>4dBm 0.1W>X>0.004W
Measurement Channel Std & protocol Measurement order	Chan Std USPCS Protocol J-STD-008 A)Maximum Output Measurement Order(HP8924C) 1.Setup Measurement RF Channel 2.Test Set Power On 3.Setup Service Option 2 4.Setup Traffic Ec./lor (-7.4dB) 5.Measurement ch lor Set up(-104dBm) 6. Make a call 7.Position the cursor at the Closed Loop Pwr Control field and select Always Up. (Send continuous '0' power Control bits) 8.Measure average power 9.Repeatedly other RF Channel measure	TEST Mode A)Maximum Output Measurement Order(HP8924C) 1. Setup Measurement RF Voice Channel (ex. Ch. No. 383) 2. Setup Control Channel (ex. Ch No. 383) 3. Set to DPX Mode 4. Control ch SG Level Set up(-50dBm) 5. Test Set Power On (Push "Power" Key and "7" key simultaneously) 6. Push "2" Key and right side "~up" Key. Into AMPS TEST Mode 7. Push "TALK" Key. Into Tx/Rx Mode. 8. To set Channel Number, Push "*" Key. 9. To set a Power level, push Vol. "up" or "down" Key. 10. Repeatedly step 8 and 9, measure the output power each channel and each power level.

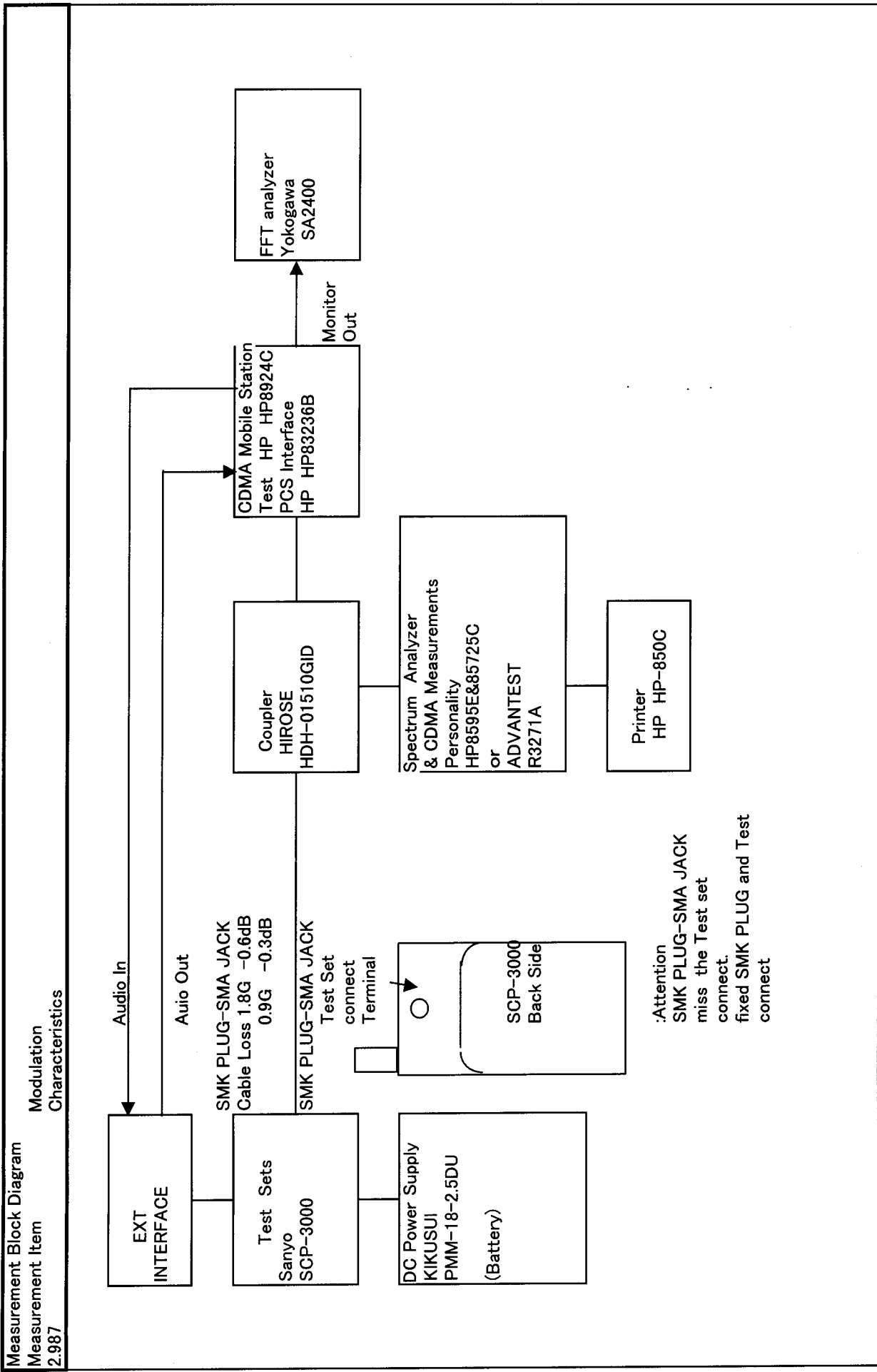
Measurement Item 2.985(a)	PCS	AMPS
Test Condition	Chan Std USPCS Protocol J-STD-008	
Measurement Channel Std & protocol Measurement order	B)Minimum Controlled Output Measurement Order(HP8924C) 1.Setup Measurement RF Channel 2.Test Set Power On 3.Setup Service Option 2 4.Setup Traffic Ec/Ior (-7.4dB) 5. Measurement ch lor Set up(-25dBm) 6.Drop timer field select off 7.Make a call 8.Position the cursor at the Closed Loop Pwr Control field and select Always down. (Send continuous '1' power Control bits) 9.Measure chan power 10.Repetedly other RF Channel measure	

Measurement Block Diagram
Measurement Item
2.985(a)



Measurement Item	PCS	AMPS
2.987 Modulation Characteristics		
Test Condition	Chan Std USPCS Protocol J-STD-008	FCC TEST Mode
	2.987(d) Modulation Characteristics	RF Voice Channel 383, 799 and 991
	STD J-STD-018	A) 2.987(a) Transmit Electrical Audio Response -See Exhibit**
	Minimum Std	1) Minimum Std 0.3 to 3KHz 6dB/oct +1, -3dB
	A) 4.3.1 Time Reference	2) Minimum Std Attenuation Relative to 3KHz
	B) 4.3.2 Waveform Quality	3.0 to 5.9KHz >40log(f/3000)dB 5.9 to 6.1KHz >35dB
	C) 4.3.2 Frequency Accuracy	6.1 to 15KHz >40log(f/3000)dB 15 to 30KHz >28dB
	ChanStd USPCS protocol J-STD-008	B) 2.987(b) Modulation Limit voice(audioinV/sdevGraph)-See Exhibit**
Measurement Channel Std & protocol	A) Time Reference Measurement Order(HP8924C)	1) Minimum Std <12KHz permit 10%
Measurement order	1) Setup Measurement RF Channel 600	A.1) Frequency Response of Audio Modulation Measurement Order
	2. Test Set Power On	1. Setup Measurement RF Voice Channel (ex. 383)
	3. Setup Service Option 2	2. Setup Control Channel (ex. Ch No. 383)
	4. Setup Traffic Ec/lor (-14dB)	3. Set Hp8924C to DPX Mode
	5. Measurement ch lor Set up(-75dBm)	4. Control ch SG Level Set up(-50dBm)
	6. Make a call	5. Test Set Power On (Push "Power" Key and "7" key simultaneously)
	7. Measure Time Reference	6. Push "2" Key and right side "up" Key. Into AMPS TEST Mode
	8. Repeatedly other RF Channel measure	7. Push "TALK" Key. Into Tx/Rx Mode.
	B) Waveform Quality Measurement Order(HP8924C)	8. To set modulation to VOICE, push "INFO" Key and "CLR" Key and to set COMP OFF, push "CLR" Key.
	C) Frequency Accuracy Measurement Order(HP8924C)	Push "#" Key, CODEC Path FREE
	1. Setup Measurement RF Channel	9. audio input 0.3~3.0KHz 1KHz ± 2.9 Kdev REF +6dB/oct
	2. Test Set Power On	Measure Frequency Response of Audio Modulation
	3. Setup Service Option 2	HP8924C Setup 1) 750 μ s de-emphasis off
	4. Setup Traffic Ec/lor(-7.4dB)	Setup 2) C-Message Filter off
	5. Measurement ch lor Set up(-75dBm)	Setup 3) Expander disabled
	6. Make a call	
	7. Measure Waveform Quality & Frequency Accuracy	
		A.2) 8. Next 1KHz ± 8 KHzdev level setup
		9. increase 20dBUP
		10. Repeatedly other audio Frequency (3K~30K)

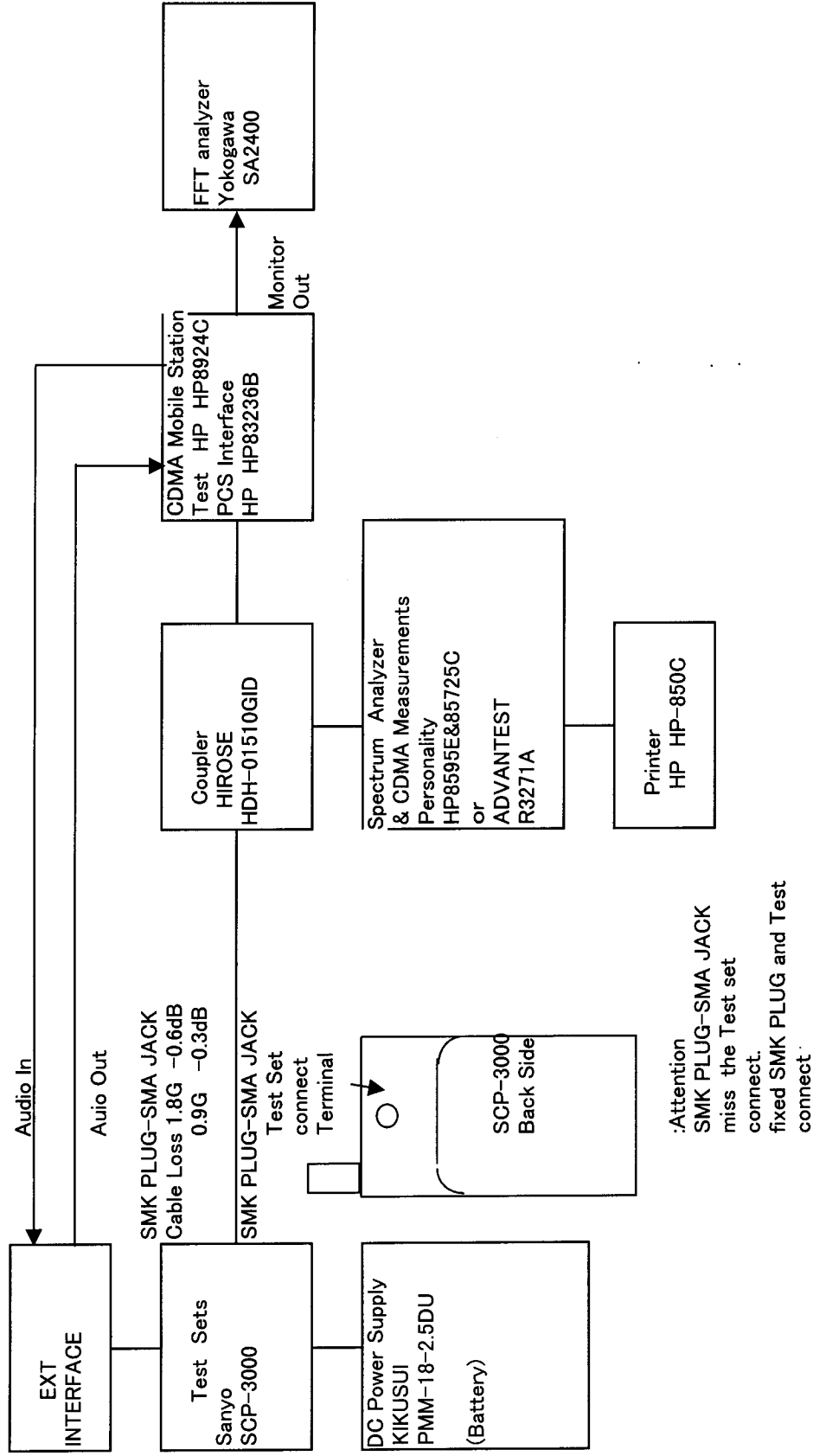
Measurement Item 2.987 Modulation Characteristics	PCS	AMPS
Test Condition	Chan Std USPCS Protocol J-STD-008	FCC TEST Mode
Measurement Channel Std & protocol Measurement order		B)Modulation Deviation Limiting Measurement Order 1. Setup Measurement RF Voice Channel 383 2. Setup Control Channel (ex. Ch No. 383) 3. Set Hp8924C to DPX Mode 4. Control ch SG Level Set up(-50dBm) 5. Test Set Power On (Push "Power" Key and "7" key simultaneously) 6. Push "2" Key and right side "up" Key. Into AMPS TEST Mode 7. Push "TALK" Key. Into Tx/Rx Mode. 8. To set modulation to VOICE, push "INFO" Key and "CLR" Key and to set COMP OFF, push "CLR" Key. Push "#" Key, CODEC Path FREE 9. audio input 1KHz $\pm 8\text{KHzdev}$ Setup HP8924C Setup 1)750us de-emphasis on Setup 2)C-Meassage Filter off Setup 3)Expander enabled 10. increase Audio Input Level. 11. Measure Modulation deviation Limiting 12. Repeatedly measure other audio Frequency (0.3K~3K) 13. Push "*" Key to change the frequency, and repeat step 9 to 11.



Measurement Item	PCS	AMPS
2.989 OBW		
Test condition	ChanStd USPCS protocol J-STD-008 2.989(h)	FCC Test Mode
	1)Measurement OBW of Maximum RF Outp See--Exhibit **	2.989 Occupied Band Width(OBW) Measurement Order • PL=0 1. Setup Measurement RF Voice Channel 383 2. Setup Control Channel (ex. Ch No. 383) 3. Set Hp8924C to DPX Mode 4. Control ch SG Level Set up(-50dBm) 5. Test Set Power On (Push "Power" Key and "7" key simultaneously) 6. Push "2" Key and right side "~up" Key. Into AMPS TEST Mode 7. Push "TALK" Key. Into Tx/Rx Mode. 8. Push "INFO" Key, selected Modulation. and push "MUTE" Key, set COMP ON. 9. Push "#" Key, CODEC PATH "FREE". 10. audio input 1KHz ±6KHzdev Setup HP8924C Setup 1)750 μ s de-emphasis on Setup 2)C-Message Filter off Setup 3)Expander enabled 11. increase 16dBUP when audio modulation only audio Input frequency 2.5 KHz. 12. Measure Modulation deviation Limiting(PL=0) 13. Printout OBW --- (spectrum Analyzer) 14. Repetedly measure OBW other Test Mode
Measurement Channel Std & protocol Measurement order	The same measurement as that 2.985(a) Measurement OBW with HP8595E CDMA Measurement Personality HP85725C 1)Measurement OBW of Maximum RF Output	devlimit 1)audio+SAT Normal Mode 2)SAT(6K) Setup Testmode 3)WBD Setup Testmode 4)ST(10K) Setup Testmode 5)DTMF+SAT Setup Testmode 6)ST+SAT Setup Testmode 7)audio Setup Testmode 8)NoModulation Setup Testmode devlimit <14K permit10% <2K permit10% <8K permit10% <8K permit10% <14K permit10% <10K permit10% <12K permit10% <12K permit10%

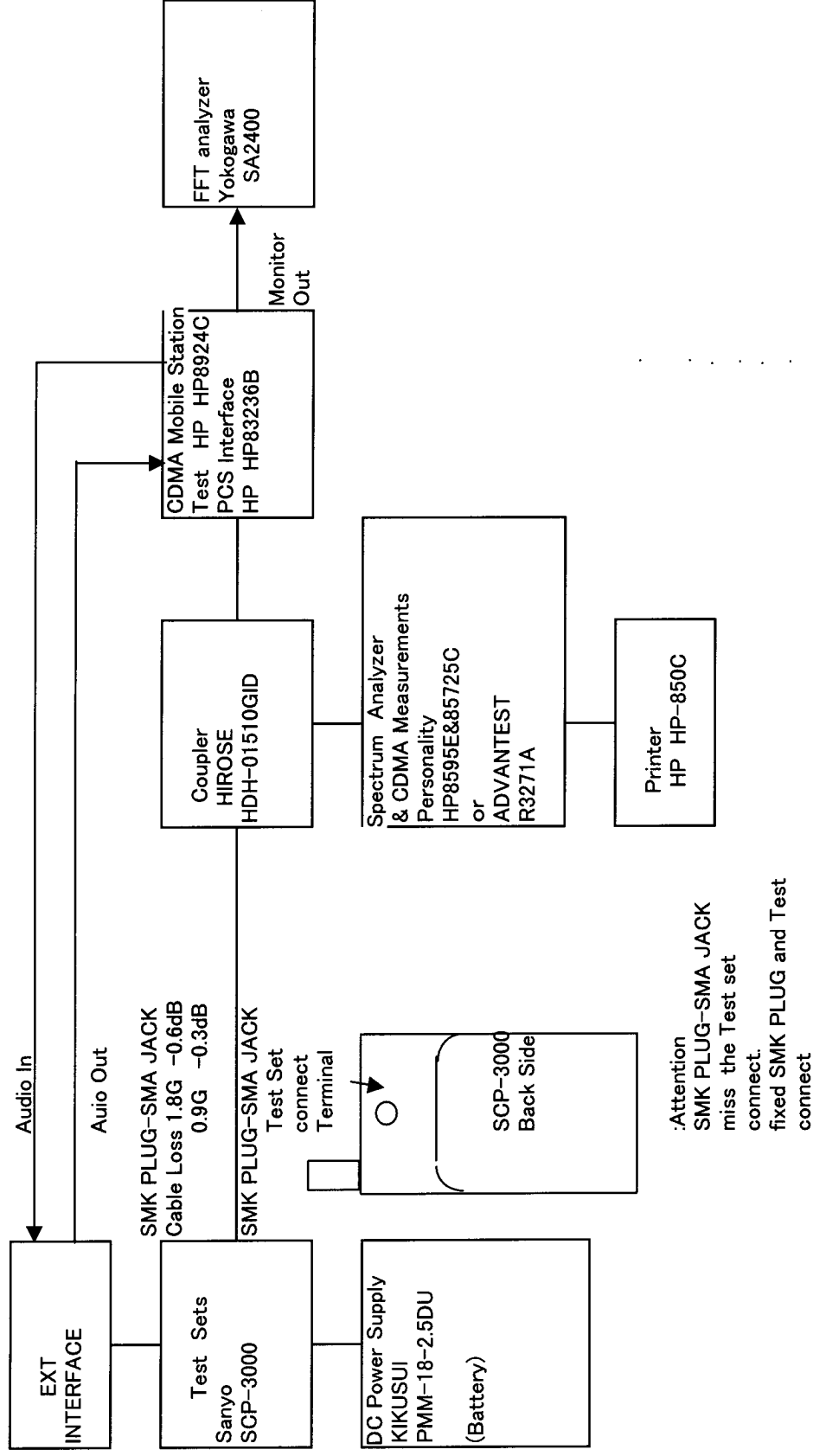
Measurement Item 2.989 OBW	PCS	AMPS
Test condition	Test Mode	

Measurement Block Diagram
Measurement Item
2.989 OBW



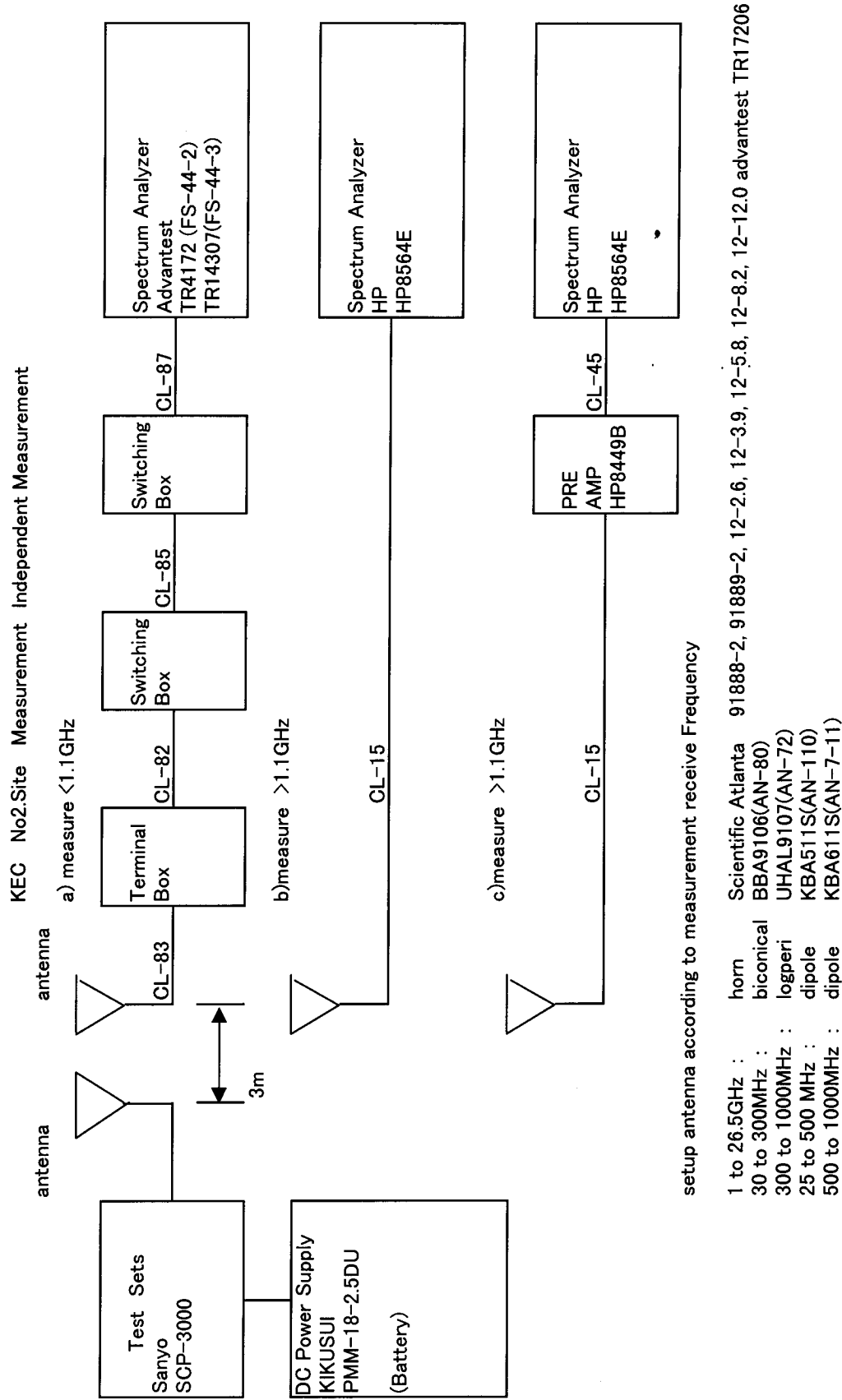
Measurement Item	PCS	AMPS
2.991 Spurious Emission at Ant Terminal		
Test Condition	Chan Std USPCS Protocol J-STD-008	Chan Std AMPS Protocol IS-95A
	24.238 Emission Limit 24.238(a) Outband Spurious minimum Std >43+10log(P)dB 24.238(b) Inband Spurious of max power minimum Std >42dBc Spurious Measurement outband and inband Inband Spurious 1) RFChannel 25 See..Fig** Outband Spurious 2) RFChannel 600 See..Fig** See..Fig** 3) RFChannel 1175 See..Fig** See..Fig**	Spurious Minimum Std 22.917(b)(1)/22.917(h)(1)(i) Fo+20K to +45K >26dB 22.917(b)(1)/22.917(h)(1)(ii) Fo+45K to +90k >43+10Log(P)dB 22.917(e)/22.917(h)(1)(ii) Fo+45K to 2nd Outband >43+10Log(P)dB 22.917(f) Mobile emissions in base frequency range <-80dBm Spurious Measurement outband and inband Inband Spurious 1) RFChannel 991(PL=0/7) See..Fig** Outband Spurious 2) RFChannel 383(PL=0/7) See..Fig** See..Fig** 3) RFChannel 799(PL=0/7) See..Fig** See..Fig**
Measurement Channel Std & protocol Measurement order	Spurious Measurement outband and inband A) Spurious Emission at Ant Terminal Measurement Order(HP8924C) 1. Setup Measurement RF Channel 2. Test Set Power On 3. Setup Service Option 2 4. Setup Traffic Ec/lor (-7.4dB) 5. Measurement ch lor Set up(-104dBm) 6. Make a call 7. Closed Loop Pwr Control field and select always up. 8. Spectrum analyzer measure the Test Set Spurious Emission 9. Sweep the spectrum analyzer over a frequency range from the lowest Intermediate frequency or lowest oscillator frequency used In the personal station , to the tenth harmonic of the carrier frequency 10. Repeatedly measurement other RF Channel	Spurious Measurement outband and inband A) Spurious Emission at Ant Terminal Measurement Order(HP8924C) 1. Setup Measurement RF Voice Channel 2. Setup Control Channel (ex. Ch No. 383) 3. Set to DPX Mode 4. Setup RF Voice Channel Power Level (PL=0) 5. Setup Control Channel (ex. 383) 6. Control ch SG Level Set up(-90dBm) 7. Test Set Power On (Push "Power" Key and "7" key simultaneously) 8. Push "2" Key and right side "up" Key. Into AMPS TEST Mode 9. Push "TALK" Key. Into Tx/Rx Mode. 10. Push "INFO" Key, selected Modulation. and push "MUTE" Key, set COMP ON. 11. Push "#" Key, CODEC PATH "FREE". 12. Push Vol "up" or "down" key, to set a output power level. 13. Audio input 1KHz ±6KHzdev Setup 14. Change an input frequency 2.5 KHz. 15. Increase audio input 16 dB. 16. Spectrum analyzer measure the Test Set Spurious Emission 17. Sweep the spectrum analyzer over a frequency range from the lowest Intermediate frequency or lowest oscillator frequency used in the personal station , to the tenth harmonic of the carrier frequency 18. Push "#" Key, change the channel Repeat stage 13 to 17 and measurement other RF Channels.

Measurement Block Diagram
2.991 Spurious Emission at Ant Terminal



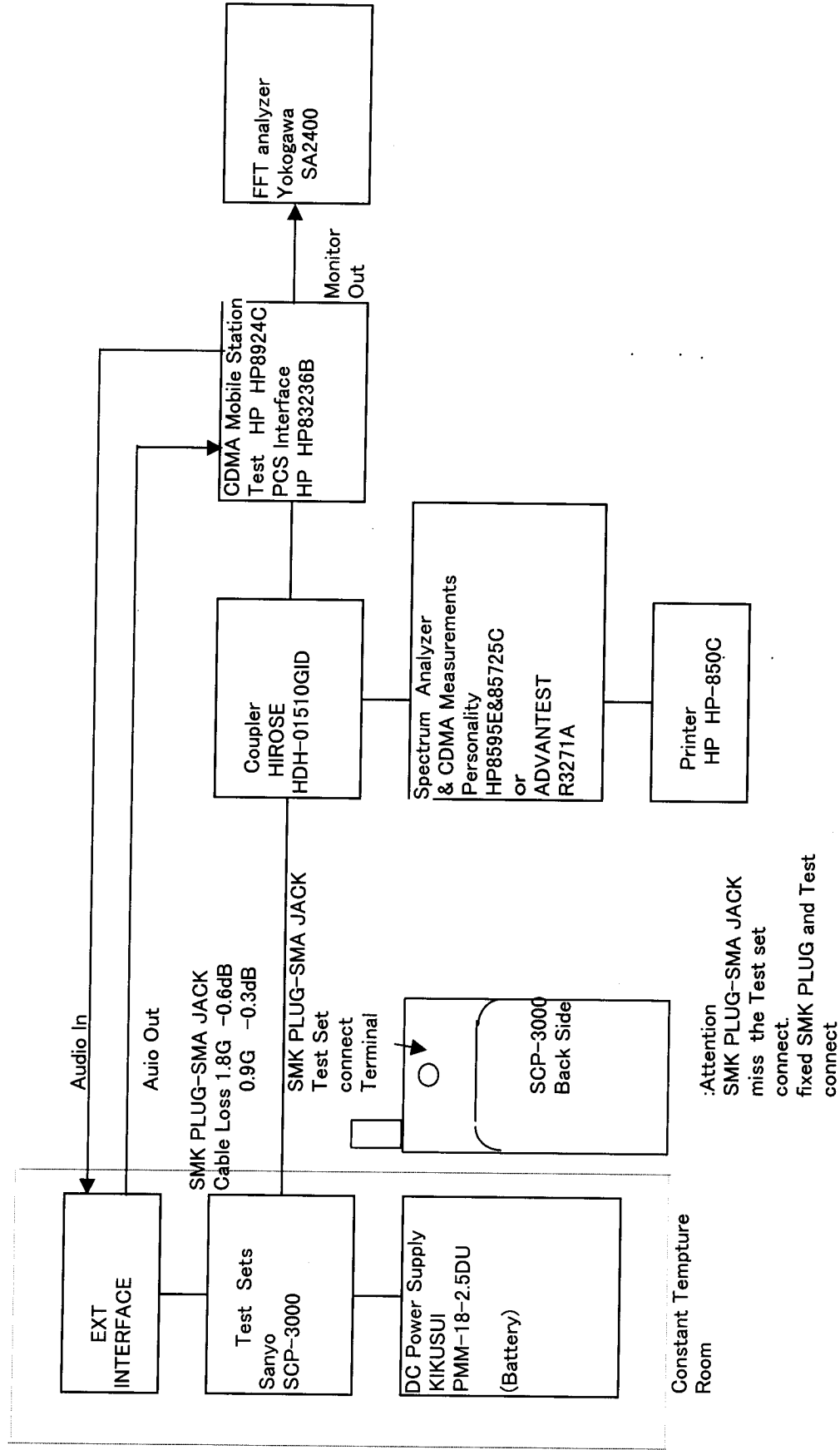
Measurement Item	PCS	AMPS
2.993 Field Strength of Spurious radiation		
Test Condition	Test Mode 24.238 Emission Limit 24.238(a) Outband Spurious minimum Std $>43+10\log(P)$ dB	Test Mode Spurious Minimum Std
	Spurious Measurement outband and inband Inband Spurious 1) PCS TX Test Mode (CH 25) See •• Fig** 2) PCS TX Test Mode (CH 600) See •• Fig** 3) PCS TX Test Mode (CH 1175) See •• Fig** Outband Spurious See •• Fig** See •• Fig** See •• Fig**	22.917(e) 22.917(f) Mobile emissions in base frequency range $>43+10\log(P)$ dB Spurious Measurement outband and inband Inband Spurious Outband Spurious 1) AMPS Test Mode (CH 991) See •• Fig** 2) AMPS Test Mode (CH 383) See •• Fig** 3) AMPS Test Mode (CH 799) See •• Fig** See •• Fig** See •• Fig** See •• Fig**
Measurement Channel Std & protocol Measurement order	Spurious Radiation Measurement outband and inband 1. Test Set Power On (Push "Power" Key and "7" key simultaneously) 2. Push "2" Key and right side "up" Key. Into AMPS TEST Mode 3. Push "INFO" Key, selected TX Mode 4. Push "*" Key, select Channel No. (default 25 Ch) 5. Spectrum Analyzer measure the Test Set Spurious Radiation 6. Sweep the Spectrum Analyzer over a frequency range from the lowest intermediate frequency or lowest oscillator frequency used in the personal station, to the tenth harmonic of the carrier frequency 7. Repeatedly measurement other Ch	Spurious Radiation Measurement outband and inband 1. Test Set Power On (Push "Power" Key and "7" key simultaneously) 2. Push "2" Key and right side "up" Key. Into AMPS TEST Mode 3. Push "TALK" Key. Into Tx/Rx Mode. 4. Push "INFO" Key, selected Modulation. and push "MUTE" Key, set COMP ON. 5. Push Vol "up" or "down" key, to set a output power level. 6. measure the Test Set Spurious Radiation over Spectrum analyzer. 7. Sweep the Spectrum Analyzer over a frequency range from the lowest intermediate frequency or lowest oscillator frequency used in the personal station, to the tenth harmonic of the carrier frequency 8. Repeatedly measurement other Ch

Measurement Block Diagram
2.993 Field Strength of Spurious radiation



Measurement Item	PCS	AMPS
2.995 Frequency Stability		
Test Condition	Chan Std USPCS protocol J-STD-008	Chan Std MSAMPS protocol IS-95A
	2.995(a) Frequency Stability-Temperature variation minimum Std(-30degree to 50degree) <150Hz	2.995(a) Frequency Stability-Temperature variation minimum Std(-30degree to 50degree) <2.5ppm
	2.995(d)Frequency Stability-Voltage variation minimum Std(Vcc=3.1 to 4.1V) Typical Vcc=3.6V <150Hz	2.995(d)Frequency Stability-Voltage variation minimum Std(Vcc=3.1 to 4.1V) Typical Vcc=3.6V <2.5ppm
Measurement Channel Std & protocol Measurement order	A)Frequency Stability-Tempturpe variation Measurement Order(HP8924C) 1. Test Set Keep 3hours in the constant tempture Room(-30degree) 2. Setup Measurement RF Channel 600 3. Test Set Power On 4. Setup Service Option 2 5. Setup Traffic Ec/lor(-7.4dB) 6. Measurement ch lor Set up(-75dBm) 7. Make a call 8. Measure Frequency Error 9. Test Set Power Off 10. Repetedly 1 to 9 maeasurement Other Tempture Variation B)Frequency Stability-Voltage variation Measurement Order(HP8924C) 1. Test Set Keep in the constant tempture Room(20 to 30degree) 2. Setup Measurement RF Channel 600 3. Test Set Power On(Supply Voltage=3.6V) 4. Setup Service Option 2 5. Setup Traffic Ec/lor(-7.4dB) 6. Measurement ch lor Set up(-75dBm) 7. Make a call 8. Measure Frequency Error 9. Repetedly 1 to 8 measurement Other Voltage Variation (example1. 3.1V example2. 4.1V)	A)Frequency Stability-Tempturpe variation Measurement Order(HP8924C) 1. Test Set Keep 3hours in the constant tempture Room(-30degree) 2. Setup Measurement RF Voice Channel 383 3. Setup RF Voice Channed Power Level (PL=2) 4. Setup Control Channel 5. Control ch SG Level Set up(-50dBm) 6. Test Set Power On 7. Make a Registration 8. Make a page 9. Push Talk button of Test Set after Sound Ringer 10. Measure Frequency Error 11. Repetedly 1 to 10 maeasurement Other Tempture Variation B)Frequency Stability-Voltage variation Measurement Order(HP8924C) 1. Test Set Keep in the constant tempture Room(20 to 30degree) 2. Setup Measurement RF Voice Channel 383 3. Setup RF Voice Channed Power Level (PL=0) 4. Setup Control Channel 5. Control ch SG Level Set up(-50dBm) 6. Test Set Power On(Supply Voltage=3.6V) 7. Make a Registration 8. Make a page 9. Push Talk button of Test Set after Sound Ringer 10. Measure Frequency Error 11. Repetedly 1 to 10 measurement Other Voltage variation (example1. 3.1V example2. 4.1V)

Measurement Block Diagram
2.995 Frequency
Stability



Measurement Item	PCS	AMPS																								
24.51(d)SAR 24.52																										
Test Condition	Test Mode	Test Mode																								
	24.51(d)/24.52 SAR Measurement	24.51(d)/24.52 SAR Measurement																								
	<table><tr><td>Measurement Mode</td><td>Ch25</td><td>Ch600</td><td>Ch1175</td></tr><tr><td>1)Left Int(Out/In)</td><td></td><td></td><td></td></tr><tr><td>2)right Int(Out/In)</td><td></td><td></td><td></td></tr></table>	Measurement Mode	Ch25	Ch600	Ch1175	1)Left Int(Out/In)				2)right Int(Out/In)				<table><tr><td>Measurement Mode</td><td>Ch991</td><td>Ch383</td><td>Ch799</td></tr><tr><td>1)Left Int(Out/In)</td><td></td><td></td><td></td></tr><tr><td>2)right Int(Out/In)</td><td></td><td></td><td></td></tr></table>	Measurement Mode	Ch991	Ch383	Ch799	1)Left Int(Out/In)				2)right Int(Out/In)			
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Measurement Mode	Ch991	Ch383	Ch799																							
1)Left Int(Out/In)																										
2)right Int(Out/In)																										
Measurement Channel Std & protocol Measurement order	24.51(d)/25.52 SAR Measurement 1. Test Set Power On (Push "Power" Key and "7" key simultaneously) 2. Push "2" Key and left side "up" Key. Into PCS TEST Mode 3. Push "INFO" Key, selected Tx Mode. 4. Push "*" Key, selected Channel No. 5. PCS Test Set Set the SAR Measurement System 6. SAR Measurement System measure the Test Set 7. SAR Measurement System measure various Mode 8. Repeatedly measurement other Ch <table><tr><td>Measurement Mode</td><td>Ch25</td><td>Ch600</td><td>Ch1175</td></tr><tr><td>1)Left Int(Out/In)</td><td></td><td></td><td></td></tr><tr><td>2)right Int(Out/In)</td><td></td><td></td><td></td></tr></table>	Measurement Mode	Ch25	Ch600	Ch1175	1)Left Int(Out/In)				2)right Int(Out/In)				24.51(d)/25.52 SAR Measurement 1. Test Set Power On (Push "Power" Key and "7" key simultaneously) 2. Push "2" Key and right side "up" Key. Into AMPS TEST Mode 3. Push "TALK" Key. Into Tx/Rx Mode. 4. Push "*" Key, selected Channel No. 5. AMPS Test Set Set the SAR Measurement System 6. SAR Measurement System measure the Test Set 7. SAR Measurement System measure various Mode 8. Repeatedly measurement other Ch <table><tr><td>Measurement Mode</td><td>Ch991</td><td>Ch383</td><td>Ch799</td></tr><tr><td>1)Left Int(Out/In)</td><td></td><td></td><td></td></tr><tr><td>2)right Int(Out/In)</td><td></td><td></td><td></td></tr></table>	Measurement Mode	Ch991	Ch383	Ch799	1)Left Int(Out/In)				2)right Int(Out/In)			
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1)Left Int(Out/In)																										
2)right Int(Out/In)																										

Measurement Block Diagram

Measurement Item

24.51(d)SAR

24.52

