

Description Information

Subsection	Description	
2.983 (a)	Applicant	: SANYO ELECTRIC CO., LTD. 1-1 Sanyo cho, Daito City Osaka, Japan
	Manufacture	: SANYO ELECTRIC CO., LTD.
2.983 (b)	FCC ID	: AEZSCP-49H
2.983 (c)	Quantity	: Quantity production is planned.
2.983 (d)	Technical Description: See Exhibit xx	
2.983 (d)(1)	Emission Type	:
	AMPS wide band mode:	40KF8W and 40K0F1D
	PCS wide band CDMA mode:	1M25F9W
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 +24.5dBm 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 +23.5dBm 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: 0.63 Watts (AMPS wide band mode) 0.52 Watts (PCS wide band CDMA mode)
2.983 (d)(5)	DC Voltage and Current to the Final Amplifier Module:
AMPS	Supply Voltage : 3.7 V Drain Voltage : 3.7 V Drain Current : 430 mA
CDMA	Supply Voltage : 3.7 V Drain Voltage : 3.7 V Drain Current : 450 mA

2.983 (d)(6) Function of Active Devices: See Exhibit
(SCP-49h_Part_List.pdf)

Description Information (Continued)	
Subsection	Description
2.983 (d)(7)	Circuit Diagrams :
	Transceiver Block Diagram: See Exhibit (AEZSCP-49H_block&schematic_diagram.pdf)
	Transceiver schematic Diagram: See Exhibit (AEZSCP-49H_block&schematic_diagram.pdf)
2.983 (d)(8)	Operating Instruction Book: See Exhibit (AEZSCP-49H_UserGuide.pdf)
2.983 (d)(9)	Tune-Up Procedure: See Exhibit (AEZSCP-49H_Tuning&Adjustment.pdf)
2.983 (d)(10)	Description of Frequency Stabilization System: (TCXO System)
	The TCXO System consists of VCXO Circuit (X1400) and Mobile station modem (IC210) included u-processor, DAC and AFC block. With regard to the Frequency Stability: The frequency of the TCXO module (X1400) is 19.2 MHz with stability less than ± 2ppm 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 (IC210) 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.

Description Information (Continued)

Subsection	Description
2.983 (d)(11)	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 Stat ion Modem LSI (IC210). IC210 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 IC210. The deviation of wide Band Data and Signaling Tone can be set to a maximum of $\pm 8\text{KHz}$ in IC210. Means for Limiting Power Power limiting is obtained via the Automatic Power Control (APC) Circuit. APC Circuit contains HDET, IC210 and Flash Memory. The adjustment of the transmitter's power for each of the 6 levels is made according to data stored in Flash memory IC240.
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. The CODEC Block included IC210 digitalizes voice signal and u-processor which MSM (IC210) includes generates signaling message. Each signal is a digital signal. IC210 generates the CDMA modulation signal. Digital Filter in IC210 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, IC210 and FLASH MEMORY. The adjustment of the transmitter's power for maximum power level is made according to data stored in FLASH MEMORY IC240.

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 TIA/EIA-98D . The following equipments were used for testing: <table><tr><th>Equipment</th><th>Manufacture</th><th>Type No.</th></tr></table>	Equipment	Manufacture	Type No.
Equipment	Manufacture	Type No.		
2.983 (f)	Equipment Identification: Equipment's Identification Label and its intended Location are shown in Exhibit (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			

Description Information (Continued)

Subsection

Description

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:

Channel No.	Nominal Frequency (MHz)	Power Output (Watts)	
		Hi	Low
991	824.04		
383	836.49		
799	848.97		

Note: Channel capacity = 832

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.)

Description Information (Continued)	
Subsection	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.
	Modulation Requirement
22.915	
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.

Description Information (Continued)	
Subsection	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: 0.63 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)	
824.04 836.49 848.97	
22.917 (f)	2 nd
	3 rd to 6 th
	7 th to 11 th
	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 .
	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.

Description Information (Continued)													
Subsection	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)</th></tr><tr><td></td><th colspan="3">(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: AEZSCP-49H has an Electronic Serial Number (ESN) of 32 bit, which is uniquely written at the factory. The host component of ESN (FLASH MEMORY) 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 (FLASH MEMORY) 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.