

LIST OF EXHIBITS

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APPLICANT:
TOSHIBA CORPORATION

TRANSCEIVER TYPE: 16
CJ6DCE34608A

Subsection

2.983(e).

Standard Test Conditions:

The following Conditions and Procedures were applied during Testing of this Transmitter.

Room Temperature = 23 - 27degrees Celsius

Room Humidity = 30 - 50percent

Supply Voltage = 3.7-V

Prior to Testing, the Unit should be tuned-up according to the Manufacturer's Alignment Procedure.

Subsection

2.983(f).

Equipment Identification:

Equipment's Identification label and its intended Location are as shown in EXHIBIT No.26 (FCC ID Nameplate), and in EXHIBIT No.20 (Photograph of inside)

Subsection

2.983(g).

Photographs:

A complete set of the Photographs showing External and Internal Views of Circuit Details and Construction are provided by from EXHIBIT No.19.

APPLICANT:
TOSHIBA CORPORATION

TRANSCIVER TYPE:
CJ6DCE34608A

RF POWER OUTPUT

Subsection

2.935(a)

22.913(a)

The radiated RF power (ERP) measurements are shown in Table 1. And the corresponding RF output power (conductive) at the external RF Connector are also shown in Table 1.

RESULTS:

Table 1. Analog mode

Channel No.	Nominal Frequency (MHz)	ERP(W) *	RF output power at The RF Connector (W) **
991	824.04	0.378	0.479
383	836.49	0.448	0.500
759	848.97	0.359	0.407

Conditions: Supply Voltage = 3.7Vdc

Modulation = None

*: Measured by JQA (Japan Quality Assurance Organization).

For detail refer to EXHIBIT NO.17

** : Measured by TOSHIBA.

The test set-up for RF power output is as per Figure 1 of the Tune-up Procedure, shown in PAGE 2 OF EXHIBIT NO.12

Following Table 2 shows the RF output power (conductive) at the external RF Connector in Digital mode for reference.

Table 2. Digital mode

Channel No.	Nominal Frequency (MHz)	RF output power at The RF Connector (W) **
1013	824.70	0.240
383	836.49	0.250
777	848.31	0.210

Conditions: Supply Voltage = 3.7Vdc

The Test Set-up for CDMA RF POWER OUTPUT is as per Figure 5 of the Tune-up Procedure, shown PAGE 8 of EXHIBIT No.12

Transmitter Type : CJ6DCE34608A

Date : Mar, 24, 1999

Signature

Kunivoshi Marui
Kunivoshi Marui

PAGE 6 OF EXHIBIT No.2

APPLICANT:
TOSHIBA CORPORATION

TRANSCEIVER TYPE: /2
CJ6DCE34608A

TRANSMITTER FREQUENCY RESPONSE

Subsection

2.987 (a).

The Test Set-up for the TRANSMITTER FREQUENCY RESPONSE is as per PAGE 8 of EXHIBIT No.2 (Using **HP8901B** Modulation Meter).

With the Audio SG adjusted to 1,000 Hz, and +/-1.0kHz Deviation, the 0dB Reference Level was determined. With Input Levels held constant and below Limiting at all Frequencies, the Audio SG was varied from 100 to 5,000Hz. The Response in dB, relative to 1,000Hz was measured.

The results are shown in EXHIBIT No. 13.

MODULATION LIMITING

Subsection

2.987 (b).

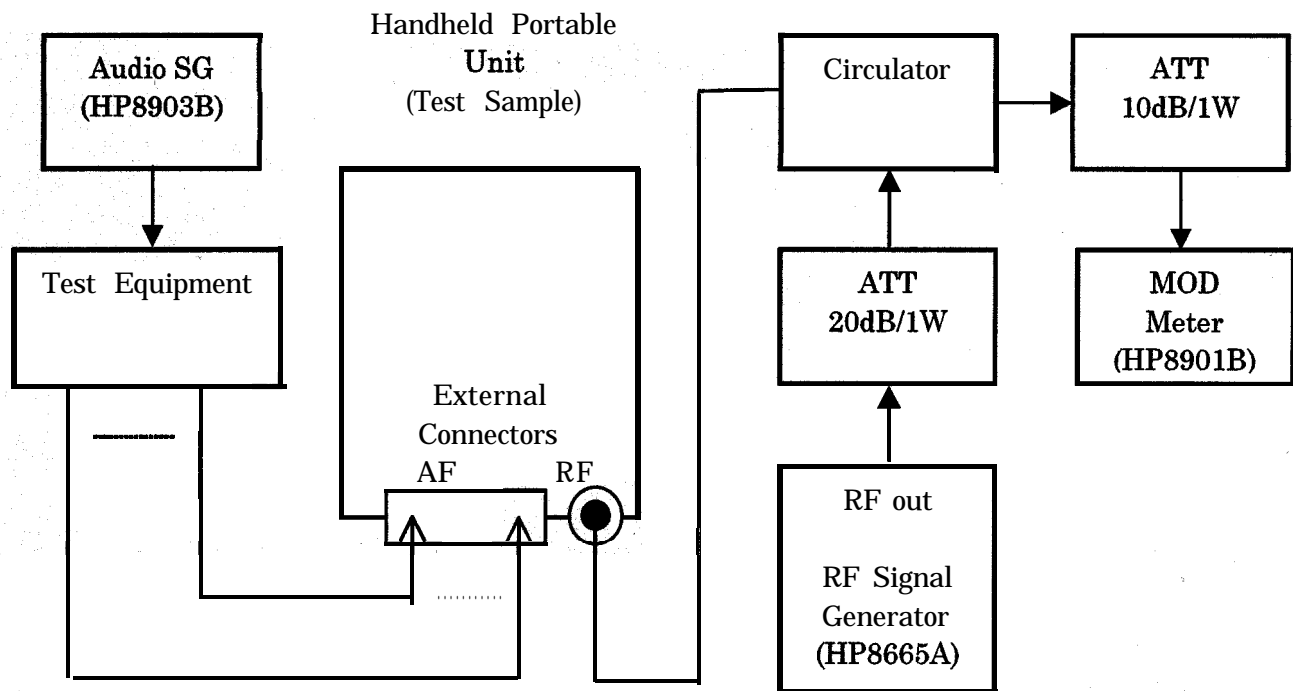
The Test Set-up for the MODULATION LIMITING is as per PAGE 8 of EXHIBIT No.2 The Deviation is to be observed by varying the Input Voltage. Test has been performed for three Different Modulation Frequencies.

The results are shown in EXHIBIT No. 14.

TRANSMITTER TEST SET-UP (1)

This Test Set-up is for:

- A. Modulation Capability
- B. Audio Frequency Response
- C. Response of Low Pass Filter
- D. Modulation Limiting



APPLICANT:
TOSHIBA CORPORATION

TRANSCIVER TYPE: /
CJ6DCE34608A

OCCUPIED BANDWIDTH

Subsection
2.989(c)(1)

The Test Set-up for the OCCUPIED BANDWIDTH is Figure in SPURIOUS EMISSIONS AT ANTENNA TERMINALS, PAGE 11 of EXHIBIT No.2.

Analog mode:

The Audio SG was adjusted to the Frequency of Maximum Response. The Output Level was set to **+/-6kHz** Deviation.

With Level constant, the Frequency was set to **2,500Hz**. Then the Audio Signal level was increased by 16dB.

The measurements were made by Spectrum Analyzer, and the results are shown on the attached Photographs.

In addition, Occupied Bandwidth Data was obtained for the SAT (Supervisory Audio Tone) and ST (Signaling Tone). The results are also shown on the attached Photographs.

Digital mode:

Modulate the transmitter with OQPSE modulation, using pseudo random data.

List of Photographs:

Occupied Bandwidth (No Modulation)	(PAGE 2 OF EXHIBIT No.15)
Occupied Bandwidth (Audio)	(PAGE 3 OF EXHIBIT No.15)
Occupied Bandwidth (SAT)	(PAGE 4 OF EXHIBIT No.15)
Occupied Bandwidth (Audio + SAT)	(PAGE 5 OF EXHIBIT No.15)
Occupied Bandwidth (DTMF + SAT)	(PAGE 6 OF EXHIBIT No.15)
Occupied Bandwidth (WBD)	(PAGE 7 OF EXHIBIT No.15)
Occupied Bandwidth (ST)	(PAGE 8 OF EXHIBIT No.15)
Occupied Bandwidth (SAT + ST)	(PAGE 9 OF EXHIBIT No.15)
Occupied Bandwidth (Digital mode)	(PAGE 10 OF EXHIBIT No.15)

APPLICANT:
TOSHIBA CORPORATION

TRANSCIEVER TYPE:
CJ6DCE34608A

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SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Subsection
2.991
22.917.

The Test Set-up for the SPURIOUS EMISSION AT ANTENNA TERMINALS is as per Figure in SPURIOUS EMISSIONS AT ANTENNA TERMINALS, PAGE 11 of EXHIBIT No.2.

The Level of the Carrier and the various Conducted Spurious and Harmonic Frequencies were measured by means of a Calibrated Receiving System used to compare the Output of the Transmitter with than of a Standard Signal Generator at the Spurious Frequency. The Spectrum was scanned from the Lowest Frequency generated in the Equipment to 10GHz.

Harmonics	Modulation Spurious Level Below Carrier (dBc)
2nd	-74.0
3rd	<-80
4th	C-80
5th	<-80
6th	<-80
7th to 11th	<-80

Limit: $-(43+10 \log 0.6)$ dBc = -40.8dBc.

Analog mode:

Carrier Frequency of 824.04, 836.49, 848.97MHz and Power Output of 0.6, 0.095, 0.006Watts were measured, and the results were the same as those shown above.

Digital mode:

Carrier Frequency of 824.70, 836.49, 848.31MHz and Power Output of 0.3, 0.00000001Watts were measured, and the results were the same as those shown above.

Transmitter Type : CJ6DCE34608A

Data : Jan. 25, 1999

Signature Kuniyoshi Marui
Kuniyoshi Marui

SPURIOUS EMISSIONS AT ANTENNA TERMINALS

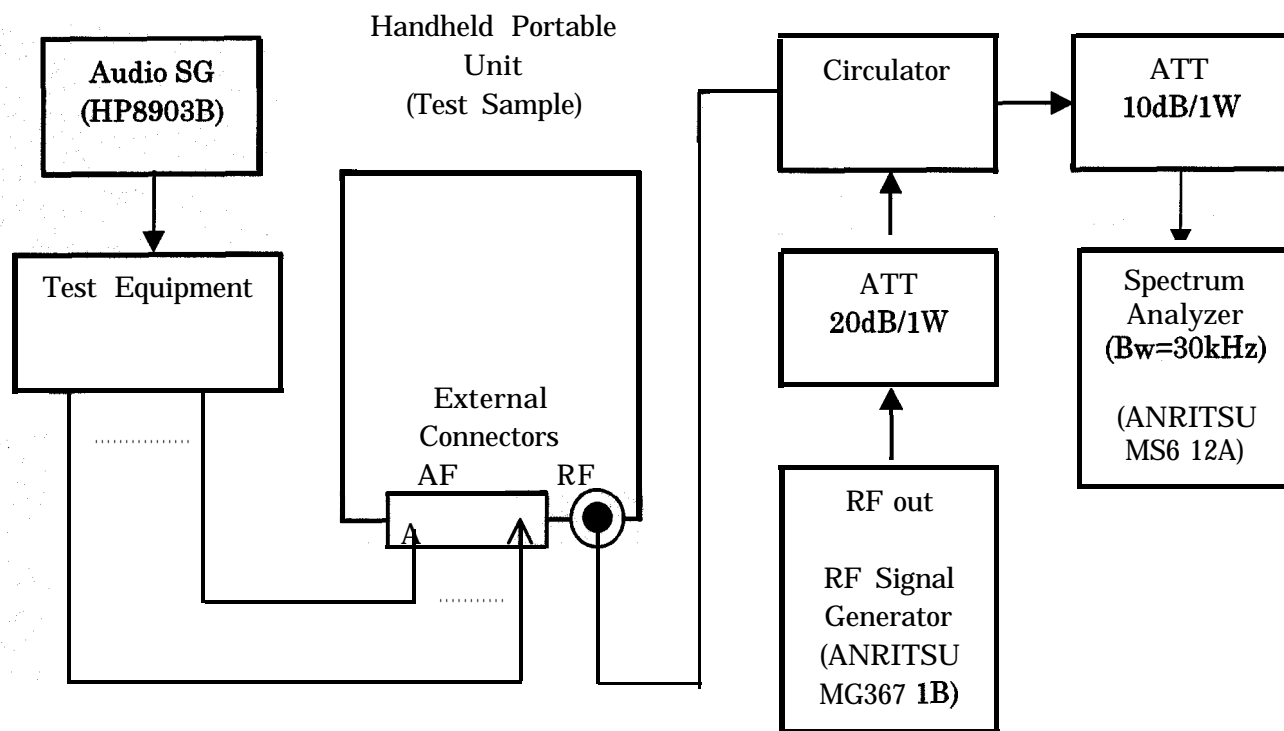
Subsection

2.991

22.917. (f)

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 were measured by means of a Calibrated Receiving System used to compare the Output of the Transmitter with than of a Standard Signal Generator.



RESULTS

The Spectrum was scanned in the Frequency Range of **869-894MHz**. Then the Level of Emissions are as follows.

Spurious Emissions
below -80dBm

Limit: Below **-80dBm**

Analog mode:

Carrier Frequency of 824.04, 836.49, **848.97MHz** and Power Output of 0.6, 0.095, **0.006Watts** ERP were measured, and the results were the same as those shown above.

Digital mode:

Carrier Frequency of 824.70, 836.49, **848.31MHz** and Power Output of 0.3, **0.00000001Watts** ERP were measured, and the results were the same as those shown above.

Transmitter Type : **CJ6DCE34608A**

Data : **Jan. 25, 1999**

Signature *Kuniyoshi Marui*
Kuniyoshi Marui

APPLICANT:
TOSHIBA CORPORATION

TRANSCIVER TYPE:
CJ6DCE34608A 17

RESULTS

The Spectrum was scanned in the Frequency Range of 869-894MHz. Then the Level of Emissions are as follows.

Spurious Emissions
below -80dBm

Limit: Below -80dBm

Analog mode:

Carrier Frequency of 824.94, 836.49; **848.97MHz** and Power Output of 0.6, 0.095, **0.006Watts** ERP were measured, **and the results were** the same as those shown above.

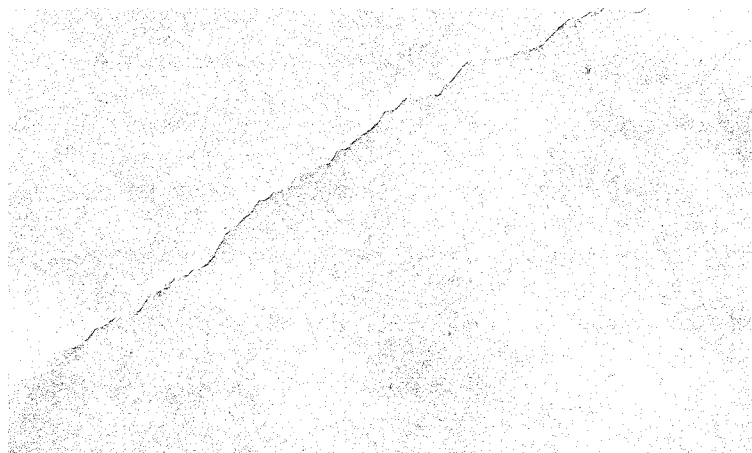
Digital mode:

Carrier Frequency of 824.79, 836.49, **848.31MHz** and Power Output of 0.3, **0.00000001Watts** ERP were measured, and the results were the same as those shown above.

Transmitter Type : **CJ6DCE34608A**

Data : Jan. 25, 1999

Signature *Kuniyoshi Marui*
Kuniyoshi Marui



APPLICANT:
TOSHIBA CORPORATION

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TRANSCEIVER TYPE:
CJ6DCE34608A

FREQUENCY STABILITY - TEMPERATURE VARIATION

Subsection

2.995 (a)(1).

The Test Set-up for the FREQUENCY STABILITY-TEMPERATURE VARIATION is as per Figure on PAGE 15 of EXHIBIT No.2.

With Power OFF, the Temperature was decreased to -30degrees Celsius and permitted to stabilize for three hours. Power was applied and the Maximum Frequency Change within one minute was measured.

With Power OFF, the Temperature was then raised in 10degrees Celsius Steps. The Sample was permitted to stabilize at each Step for at least one-half hour. The Power was then applied and the Maximum Frequency Change within one minute was measured.

Temp. (degrees Celsius)	Frequency Change Within One Minute (Hz)
-30	+15.2
-20	+1.3
-10	-1.1
0	-7.1
+10	-4.7
+20	+1.1
+30	+2.1
+40	+0.3
+50	-0.8
+60	-3.2

Conditions: Carrier Frequency = 836.49MHz.

Supply Voltage = 3.7Vdc

Limit: +/-2.5ppm = +/-2,091.23Hz.

VCTCXO : DSA751HAC
Transmitter Type : CJ6DCE34608A

Data : Jan. 25, 1999

Signature *Kuniyoshi Marui*
Kuniyoshi Marui

APPLICANT:
TOSHIBA CORPORATION

TRANSCEIVER TYPE:
CJ6DCE34608A

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Temp.(degrees Celsius)	Frequency Change Within One Minute (Hz)
-30	+1.3
-20	+4.0
-10	+4.0
0	+2.1
+10	+1.3
+20	+0.8
+30	-0.8
+40	-3.2
+50	-2.1
+60	-2.1

Conditions: Carrier Frequency = 836.49MHz.
Supply Voltage = 3.7Vdc
Limit: +/-2.5ppm = +/-2,091.23Hz.

VCTCXO : TSA3355A
Transmitter Type : CJ6DCE34608A

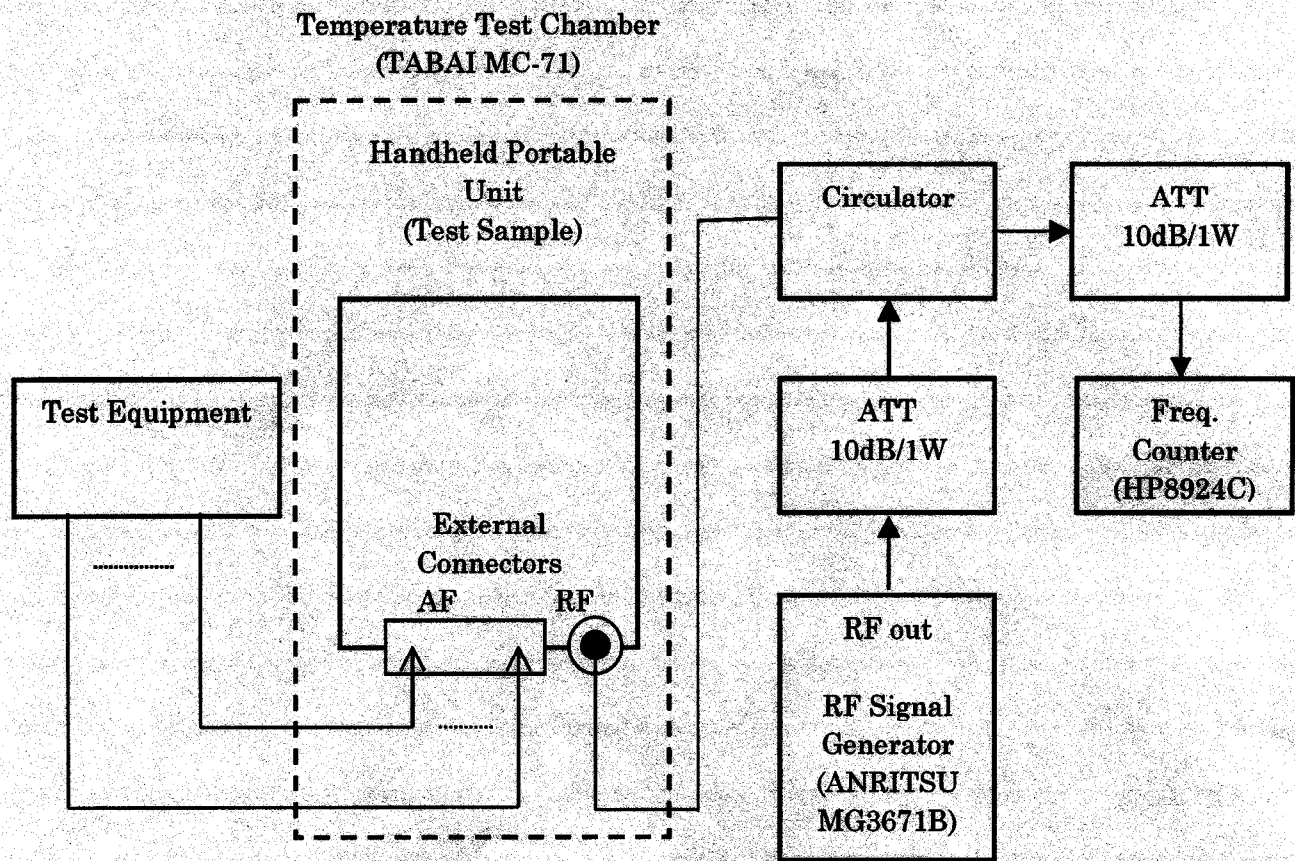
Data : Jan, 25, 1999

Signature Kuniyoshi Marui
Kuniyoshi Marui

TRANSMITTER TEST SET-UP (2)

This Test Set-up is for:

- A. Operational Stability
- B. Carrier Frequency Stability
- C. Operational Performance Stability
- D. Frequency Stability - Temperature Variation
- E. Frequency Stability - Voltage Variation



APPLICANT:
TOSHIBA CORPORATION

TRANSCIVER TYPE: 24
CJ6DCE34608A

FREQUENCY STABILITY - VOLTAGE VARIATION

Subsection
2.995 (d).

The Test Set-up for the FREQUENCY STABILITY - VOLTAGE VARIATION is as per PAGE 15 of EXHIBIT No.2.

With Power OFF, the Sample was permitted to stabilize at +25 +/-2 degrees Celsius. Power was then applied at 115, 100 and 85% of the Standard Test Voltage (STV), and the battery operating end point (ie: 4V). The frequency Change within one minute was recorded.

STV(%)	Supply Voltage(Vdc)	Frequency Change(Hz)
115	5.5	+10
100	3.7	+10
85	4.1	+10
the end point	4.0	+10

Conditions: Carrier Frequency = 836.49MHz.

Limit: +/-2.5ppm = +/-2,091.23Hz

VCTCXO : DSA751HAC
Transmitter Type : CJ6DCE34608A

Data : Jan. 25, 1999

Signature Kuniyoshi Marui
Kuniyoshi Marui

STV(%)	Supply Voltage(Vdc)	Frequency Change(Hz)
115	5.5	0
100	3.7	0
85	4.1	0
the end point	4.0	0

Conditions: Carrier Frequency = 836.49 MHz

Limit: +/-2.5ppm = +/-2,091.23 Hz

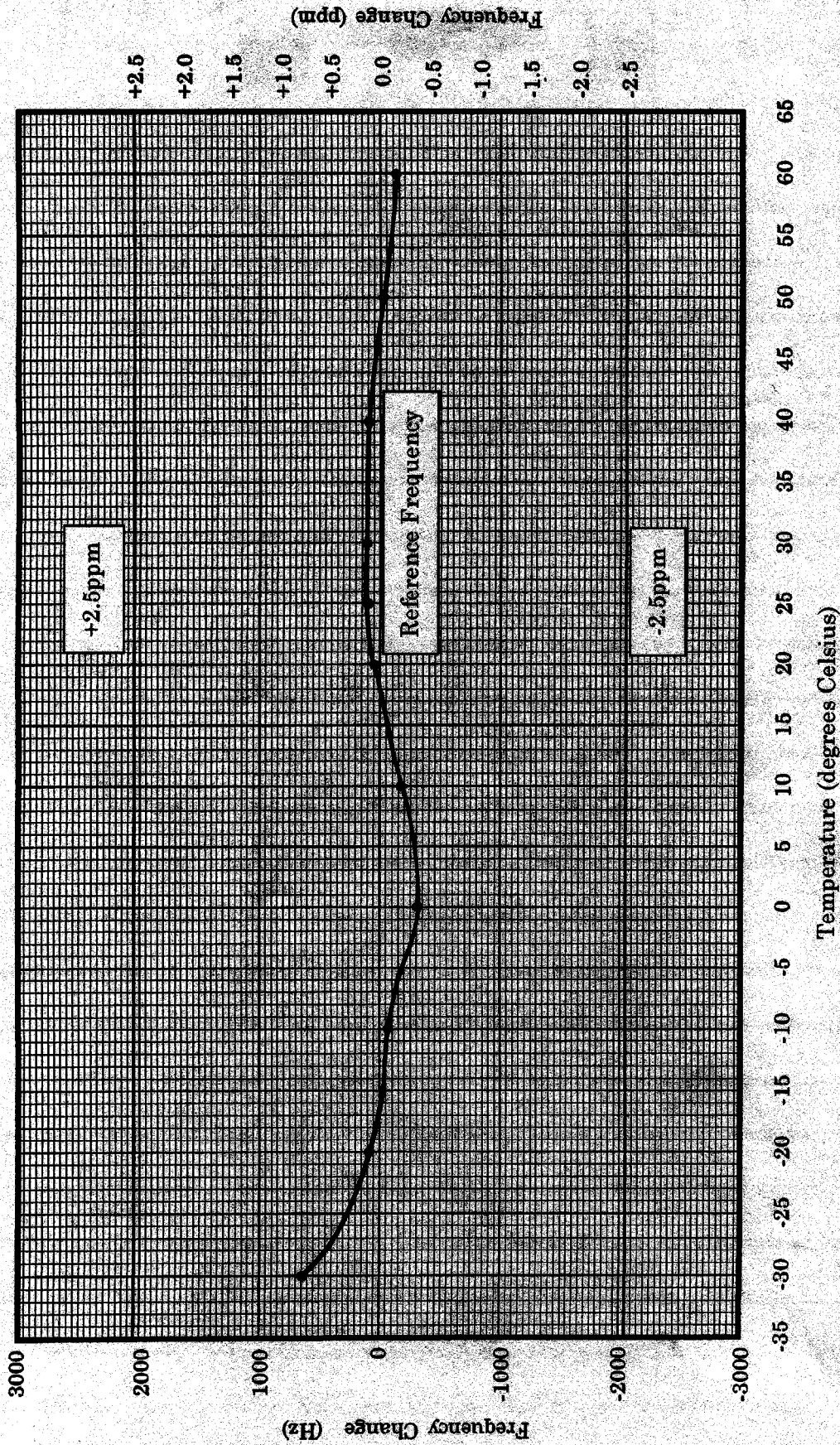
VCTCXO : TSA3355A
Transmitter Type : CJ6DCE34608A

Data : Jan. 25, 1999

Signature Kuniyoshi Marui
Kuniyoshi Marui

APPLICANT:
TOSHIBA CORPORATION

TRANSCIEVER TYPE: 22
CJ6DCE34608A



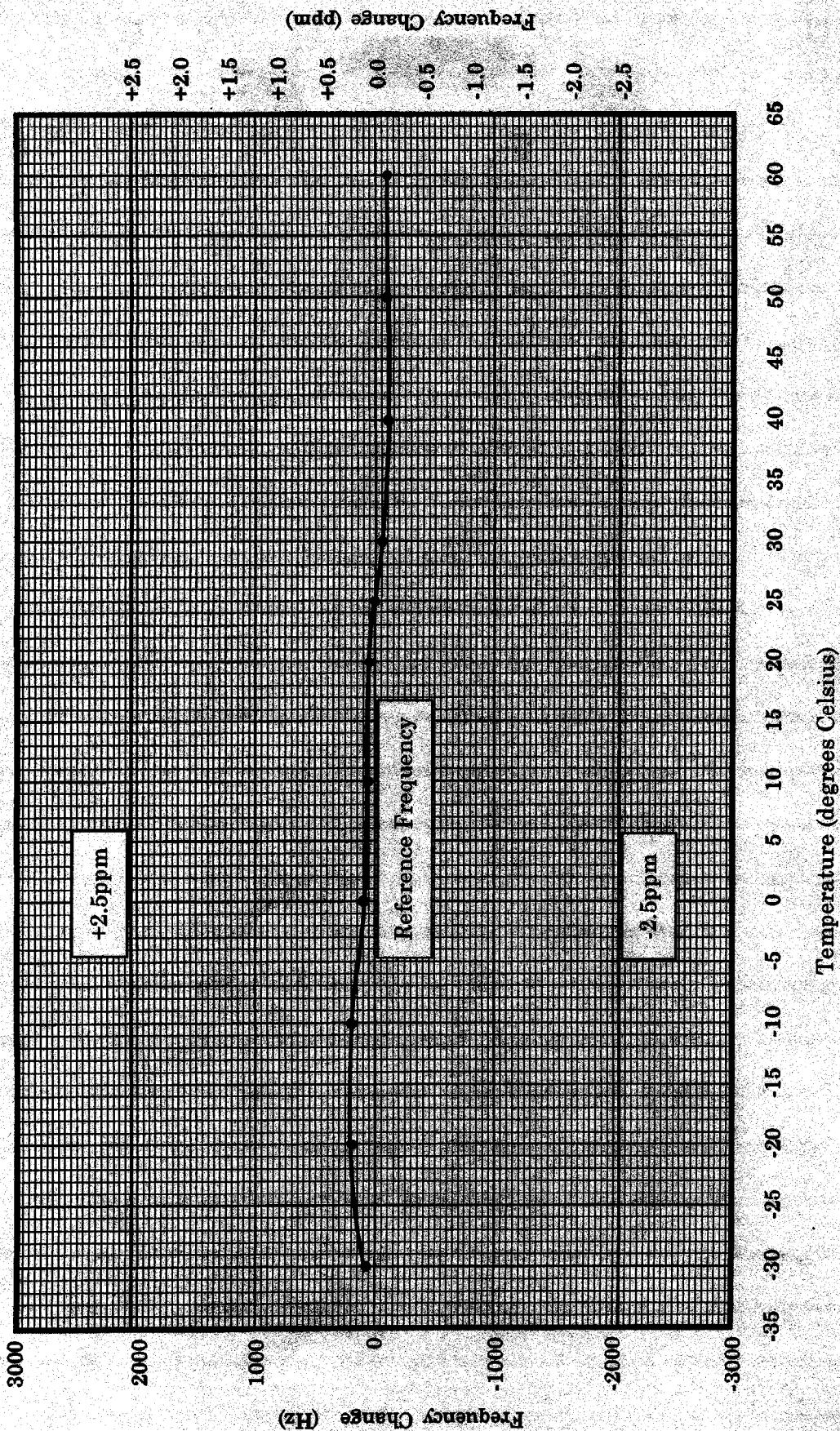
Frequency Stability vs Temperature Variation

X'Tal: DSA751HAC

Transmitter Type: CJ6DCE34608A

APPLICANT:
TOSHIBA CORPORATION

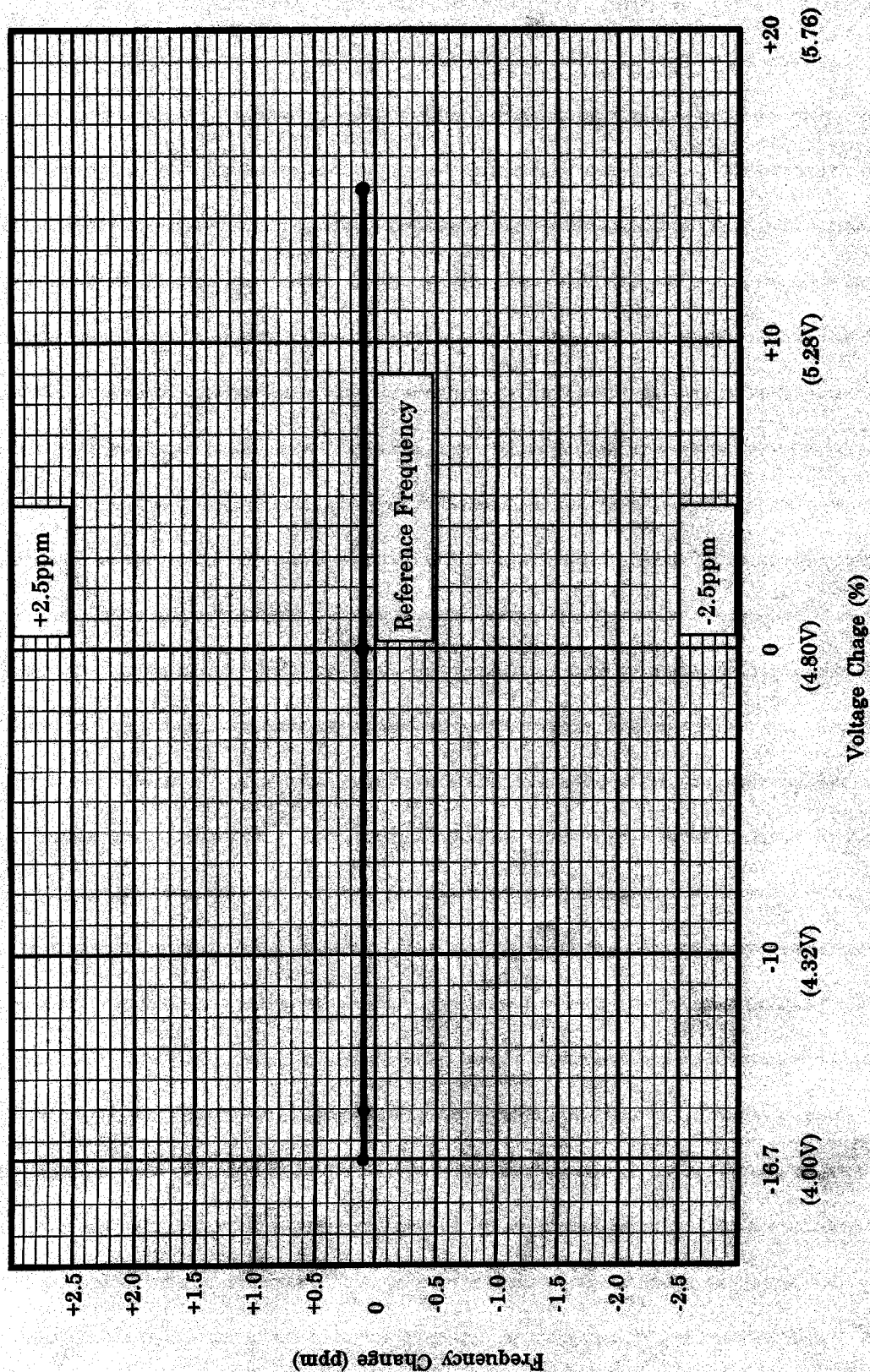
TRANSCIEVER TYPE: 23
CJ6DCE34608A



Frequency Stability vs Temperature Variation
XTal: TSA3355A
Transmitter Type: CJ6DCE34608A

APPLICANT:
TOSHIBA CORPORATION

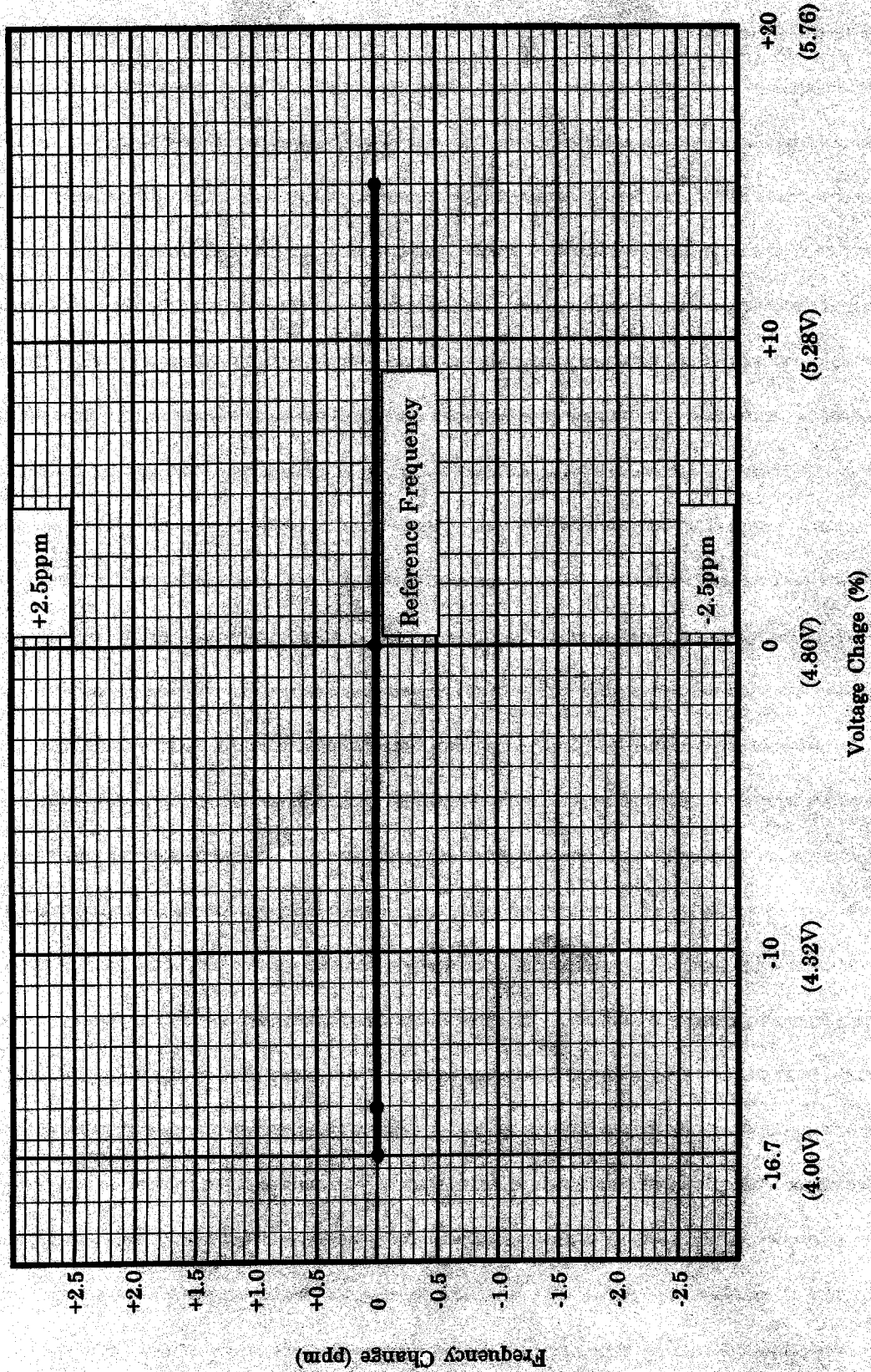
TRANSCEIVER TYPE: 24
CJ6DCE34608A



Frequency Stability vs Voltage Variation
XTal: DSA751HAC
Transmitter Type: CJ6DCE34608A

APPLICANT:
TOSHIBA CORPORATION

TRANSCEIVER TYPE: 25
CJ6DCE34608A

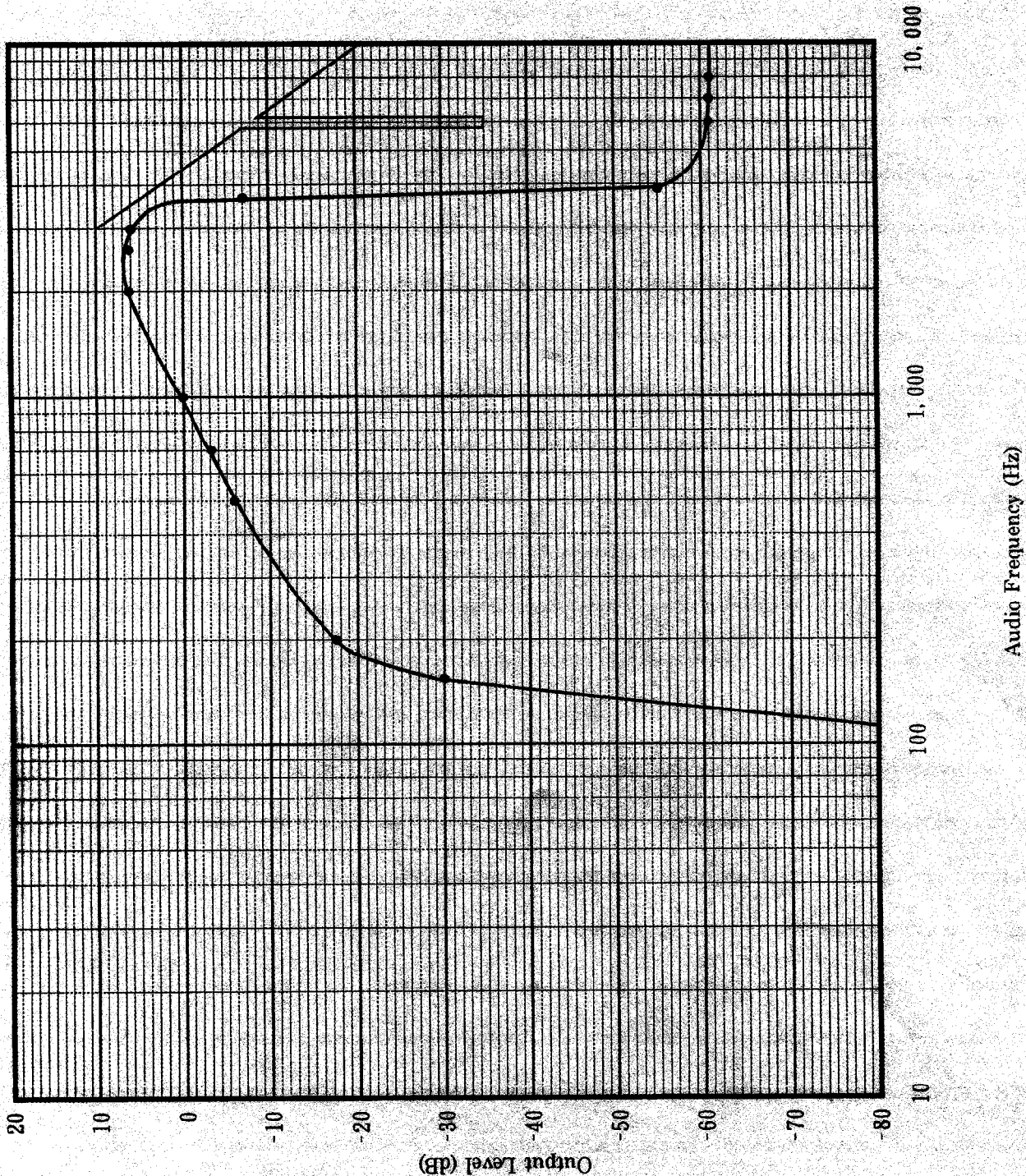


Frequency Stability vs Voltage Variation
XTal: TSA3355A
Transmitter Type: CJ6DCE34608A

APPLICANT:
TOSHIBA CORPORATION

TRANSCIVER TYPE: C2
CJ6DCE34608A

Transmitter Modulation Characteristics
Audio Response
Method: Constant Input
Reference: 1000Hz = 0dB



Transmitter Type: CJ6DCE34608A
Data: Jan. 25, 1999

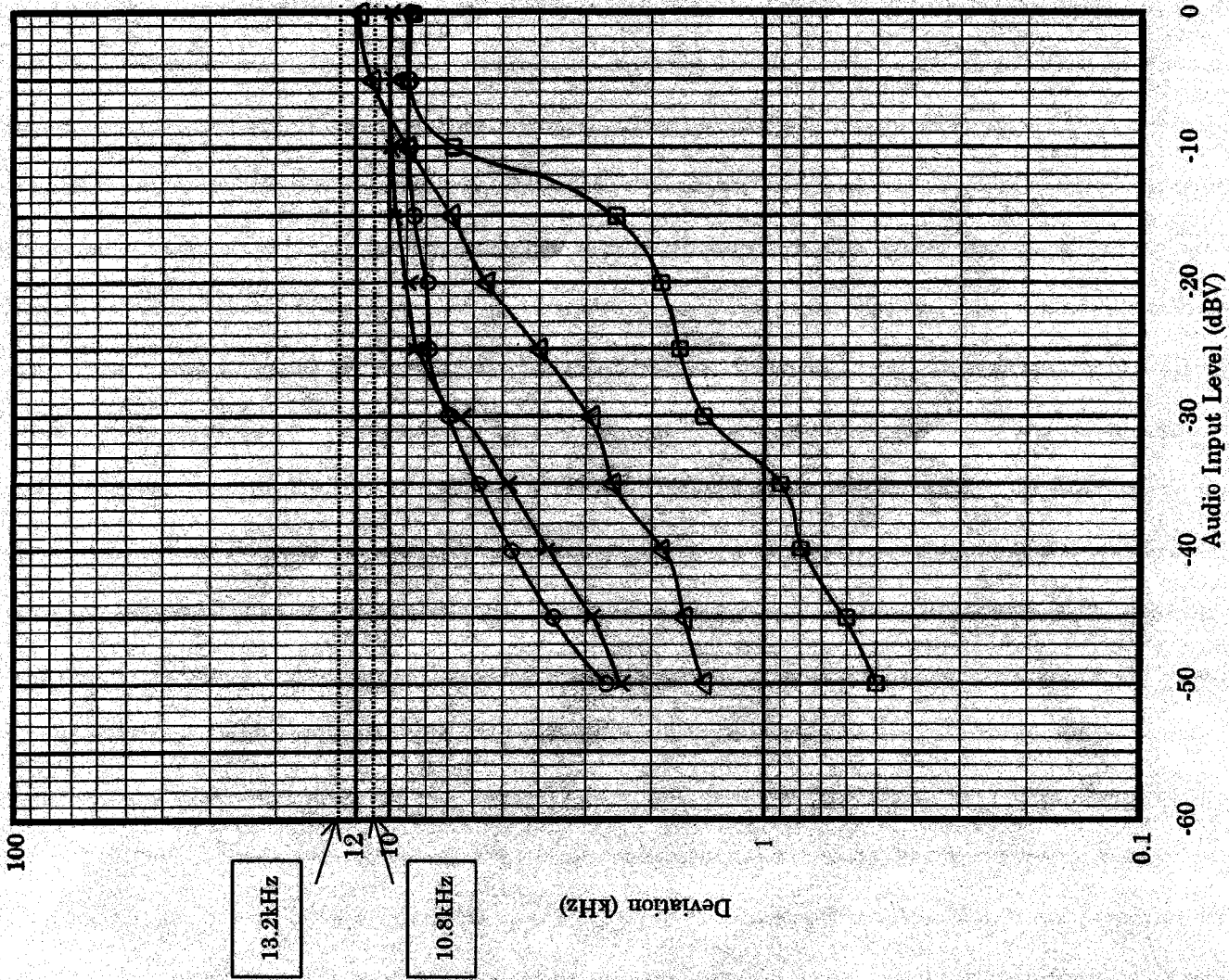
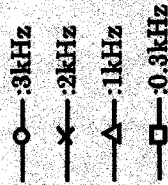
Signature

Kuniyoshi Marui
Kuniyoshi Marui

APPLICANT:
TOSHIBA CORPORATION

TRANSCEIVER TYPE: C?
CJ6DCE34608A

Transmitter Modulation Characteristics
Modulation Limiting (Compandor ON)
Audio Input: -30dBV = +/-2.9kHz Deviation at 1000Hz



Transmitter Type: CJ6DCE34608A
Data: Jan. 25, 1999

Signature

Kuniyoshi Marui
Kuniyoshi Marui

APPLICANT:

TOSHIBA CORPORATION

TRANSCIEVER TYPE: *CF*

CJ6DCE34608A


OCCUPIED BANDWIDTH (Sample)

<u>Description</u>	<u>Page</u>
Modulation: No Modulation	2
Modulation: Audio (Compandor ON)	3
Modulation: SAT	4
Modulation: Audio (Compandor ON)+SAT	5
Modulation: DTMF+SAT	6
Modulation: WBD	7
Modulation: ST	8
Modulation: SAT+ST	9
Modulation: Digital Mode	10

Transmitter Type: CJ6DCE34608A

Date: Jan. 25. 1999

Signature


Kuniyoshi Marui

APPLICANT:
TOSHIBA CORPORATION

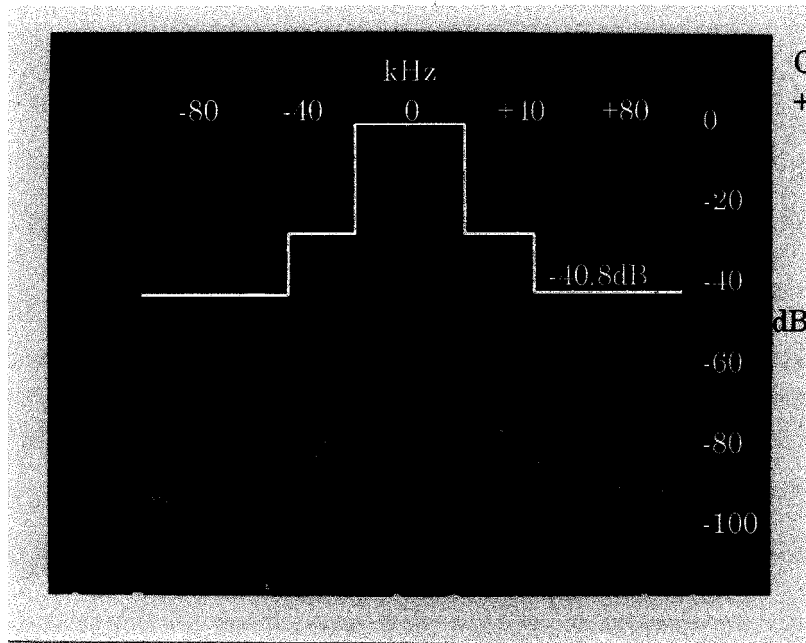
TRANSCIVER TYPE:
CJ6DCE34608A 6 5

MODULATION: NO MODULATION

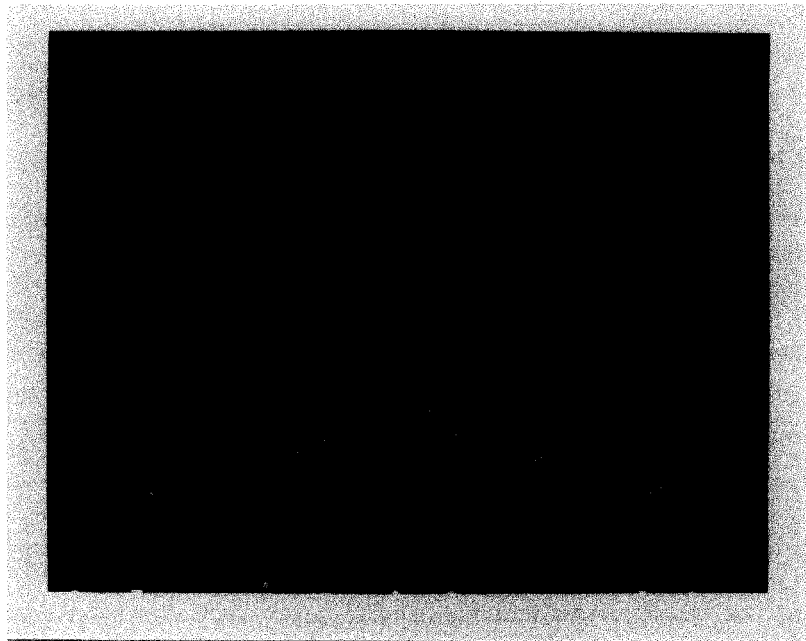
Horizontal Scale: 20kHz/Div

Vertical Scale: 10dB/Div (Attenuation)

Bandwidth: 300Hz



Carrier Reference Level
+27.0dBm (0.5watts)



APPLICANT
TOSHIBA CORPORATION

TRANSCIEVER TYPE: 22
CJ6DCE34608A

MODULATION: AUDIO (Compandor_ON)

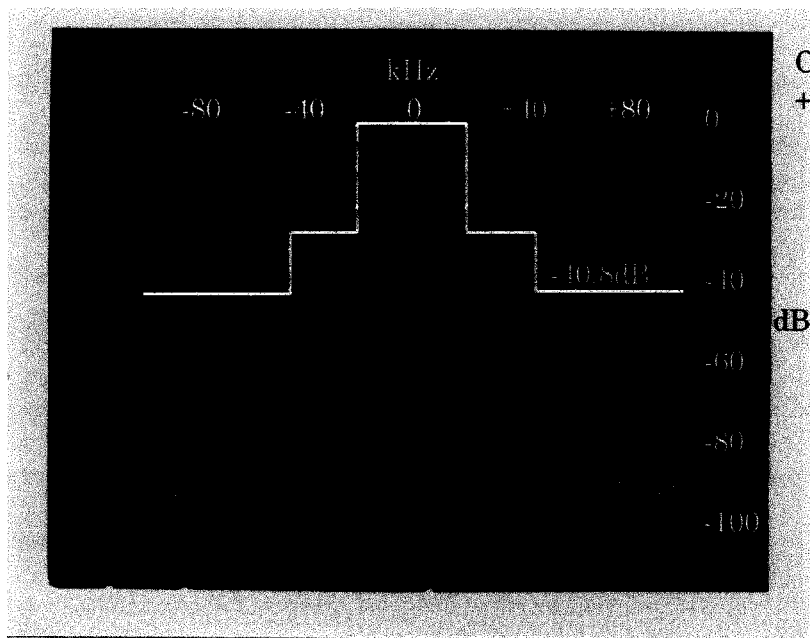
Horizontal Scale: 20kHz/Div

Vertical Scale: 10dB/Div (Attenuation)

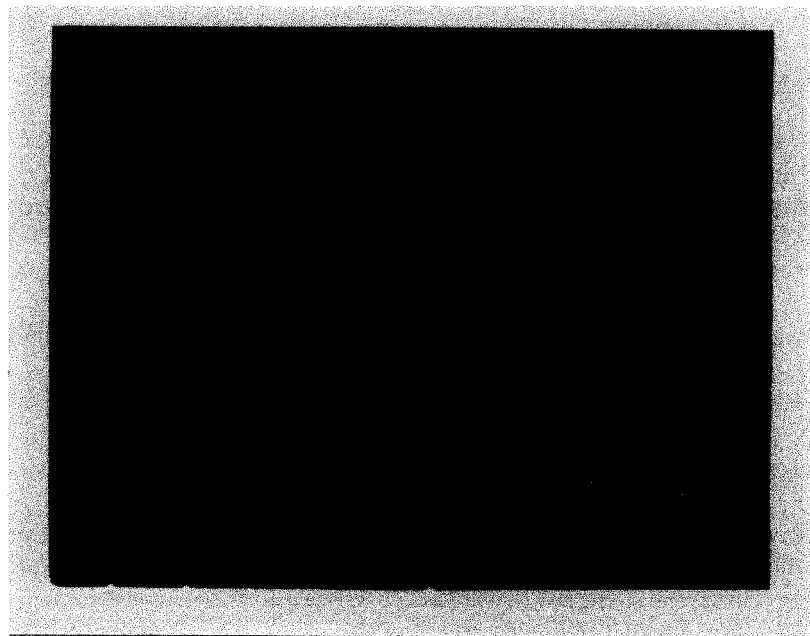
Bandwidth: 300Hz

Audio Level: 16dB greater than the level to produce +/-6kHz deviation

Audio Frequency: 2500Hz



Carrier Reference Level
+27.0dBm (0.5watts)

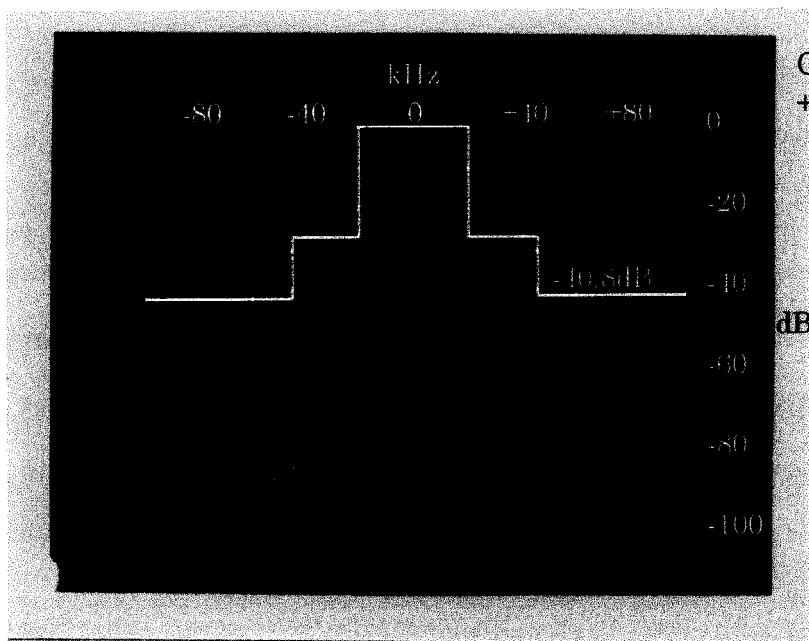


APPLICANT:
TOSHIBA CORPORATION

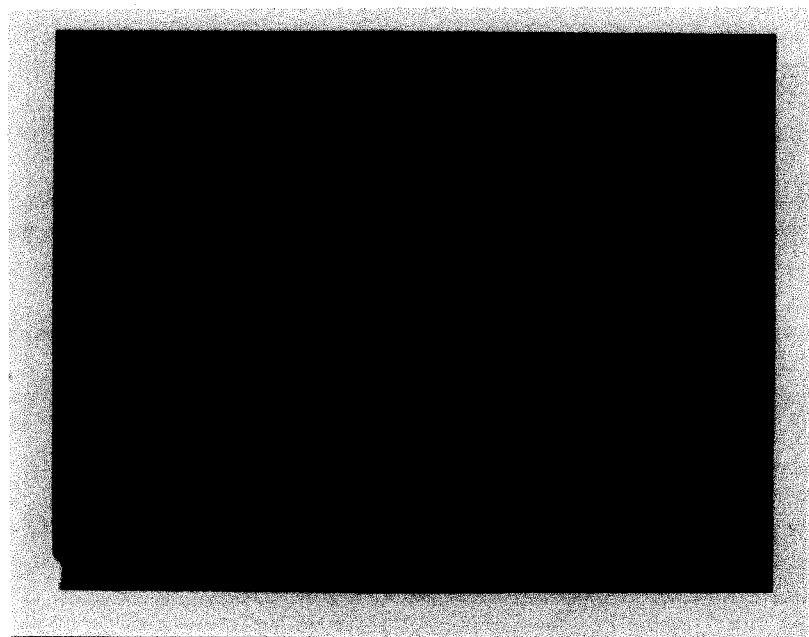
TRANSCIVER TYPE: 67
CJ6DCE34608A

MODULATION: SAT

Horizontal Scale: 20kHz/Div
Vertical Scale: 10dB/Div (Attenuation)
Bandwidth: 300Hz
Deviation: +/-2kHz
Signal Frequency: 6kHz (SAT)



Carrier Reference Level
+27.0dBm (0.5watts)



APPLICANT:
TOSHIBA CORPORATION

TRANSCIEVER TYPE: 66
CJ6DCE34608A

MODULATION: AUDIO (Compondor ON) + SAT

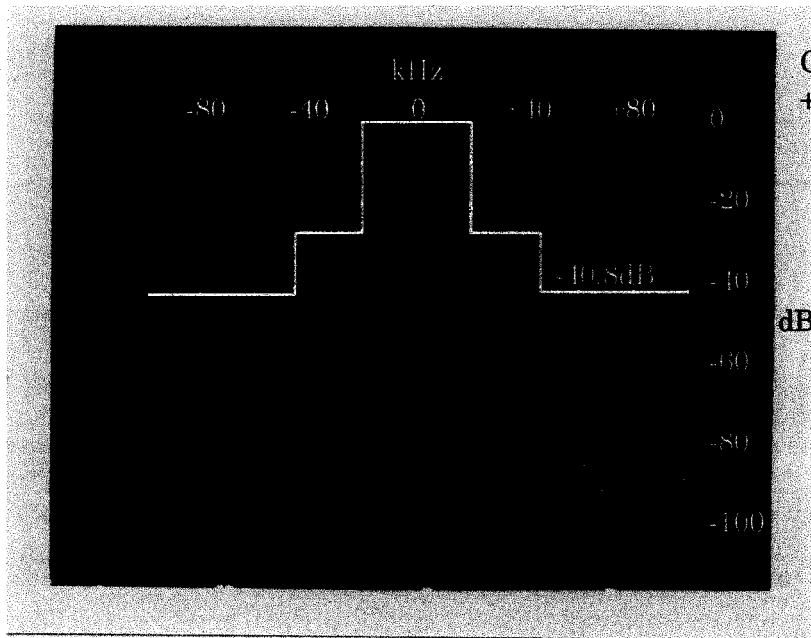
Horizontal Scale: **20kHz/Div**

Vertical Scale: **10dB/Div** (Attenuation)

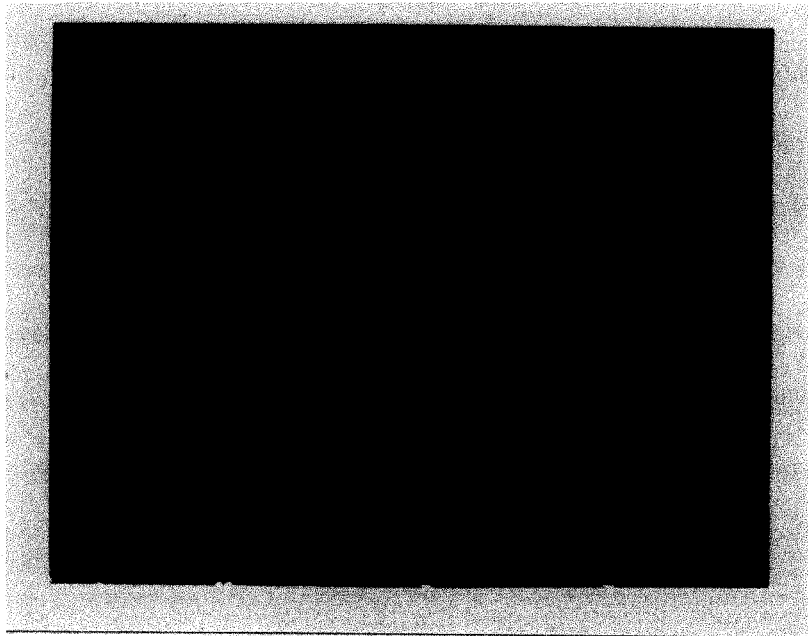
Bandwidth: **300Hz**

AUDIO Level: AUDIO = 16dB greater than the level to produce +/-6kHz deviation, SAT = Equal to the level to produce +/-2kHz deviation

AUDIO Frequency: AUDIO = **2500Hz**, SAT = **6kHz**



Carrier Reference Level
+27.0dBm (0.5watts)



APPLICANT:
TOSHIBA CORPORATION

TRANSCEIVER TYPE:
CJ6DCE34608A 3 7

MODULATION: DTMF + SAT

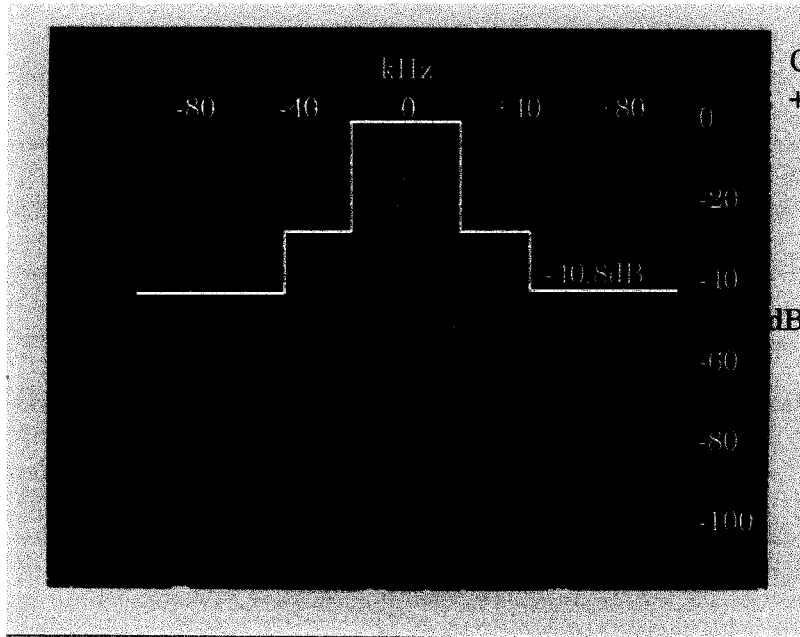
Horizontal Scale: 20kHz/Div

Vertical Scale: 10dB/Div (Attenuation)

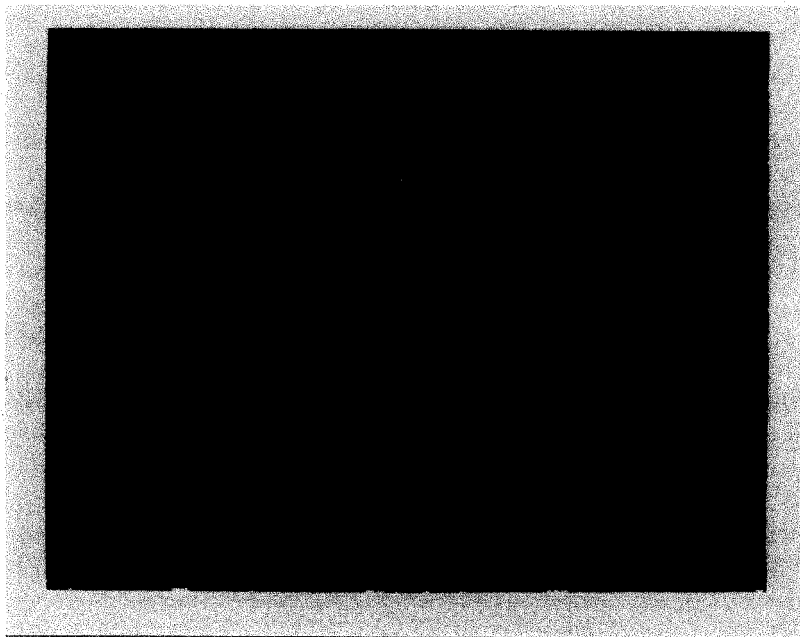
Bandwidth: 300Hz

Deviation: DTMF = +/-4.5rad/freq., SAT = +/-2kHz

Signal Frequency: DTMF = #(1477Hz & 941Hz), SAT = 6kHz



Carrier Reference Level
+27.0dBm (0.5watts)

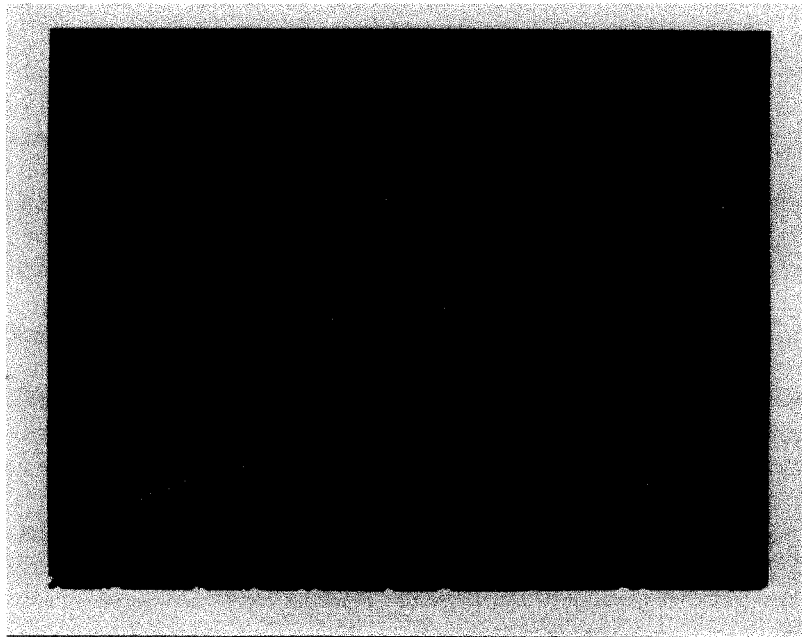
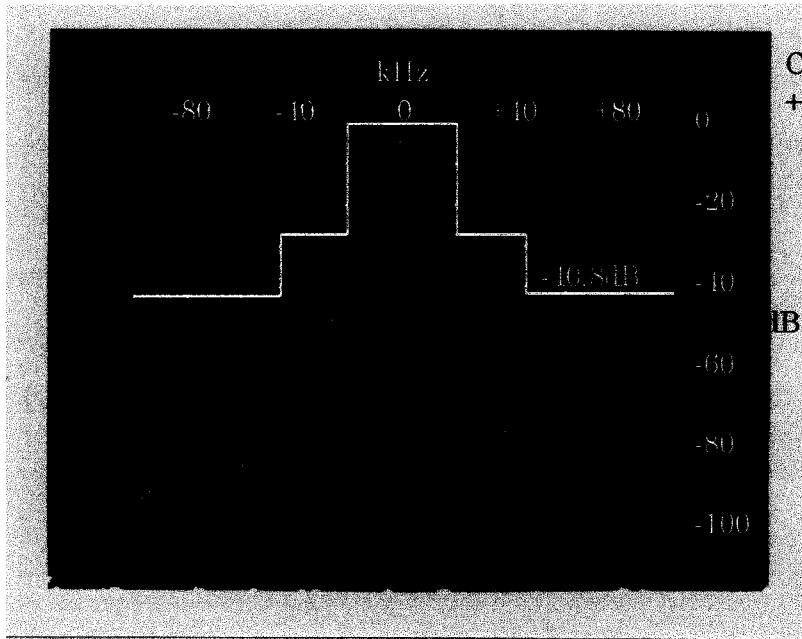


APPLICANT:
TOSHIBA CORPORATION

TRANSCIEVER TYPE:
CJ6DCE34608A

MODULATION: WIDEBAND DATA (WBD)

Horizontal Scale: 20kHz/Div
Vertical Scale: 10dB/Div (Attenuation)
Bandwidth: 300Hz
Deviation: +/-8kHz
Signal: WBD (One of RECC DATA Streams)

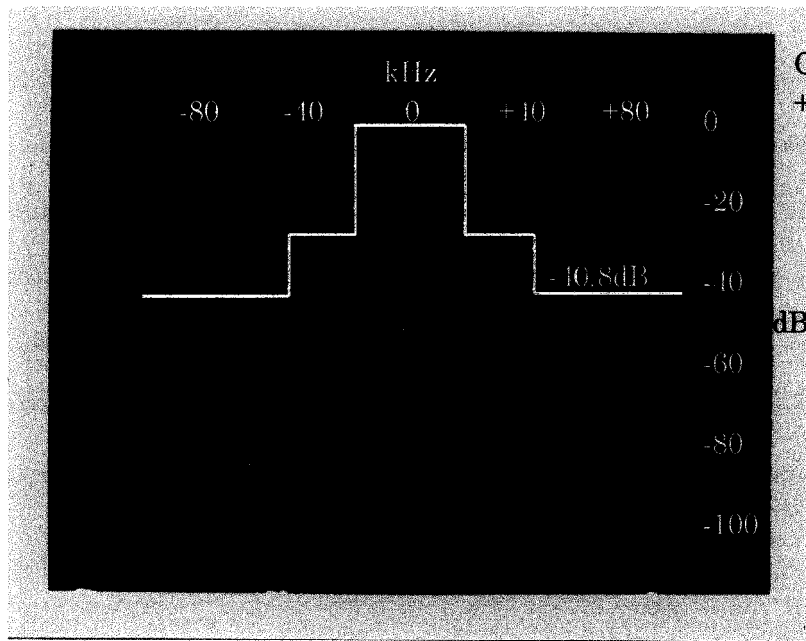


APPLICANT:
TOSHIBA CORPORATION

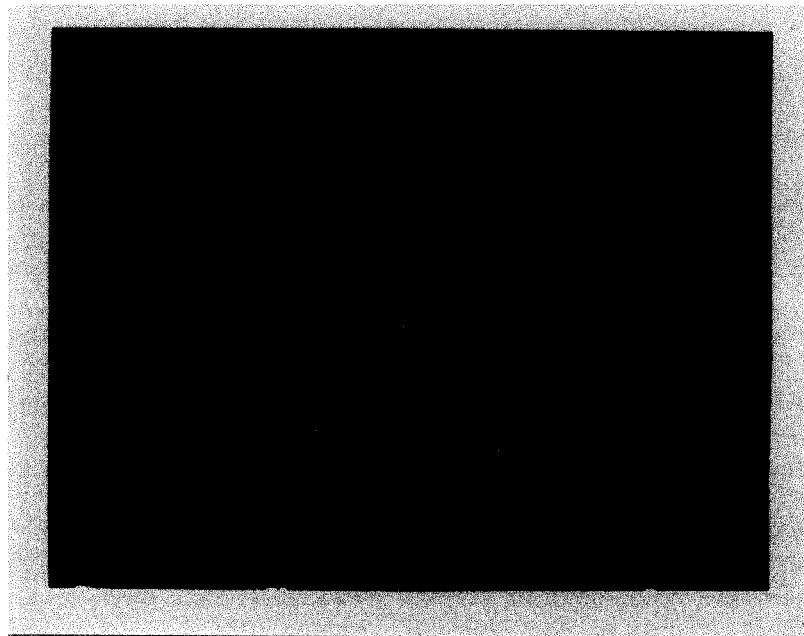
TRANSCIVER TYPE:
CJ6DCE34608A

MODULATION: SIGNALING TONE (ST)

Horizontal Scale: **20kHz/Div**
Vertical Scale: **10dB/Div** (Attenuation)
Bandwidth: **300Hz**
Deviation: **+/-8kHz**
Signal: **ST (10kHz)**



Carrier Reference Level
+27.0dBm (0.5watts)

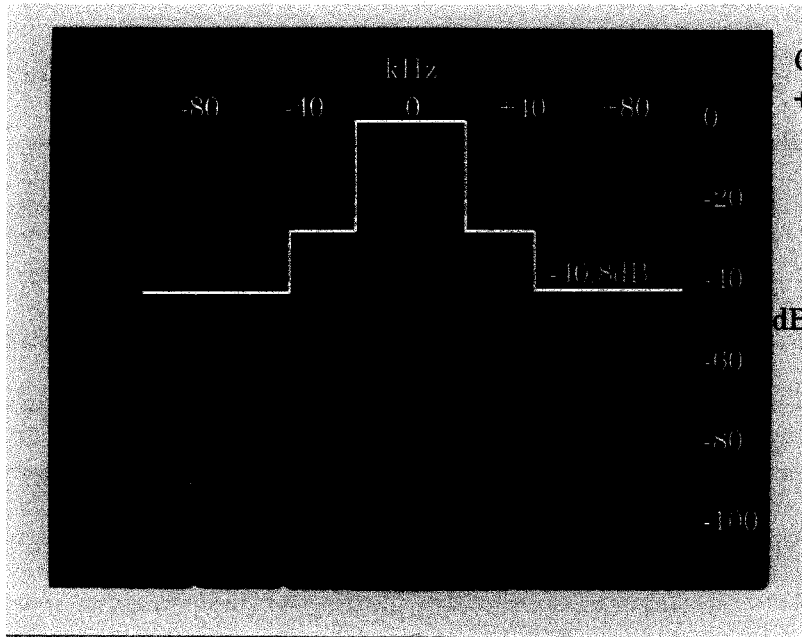


APPLICANT:
TOSHIBA CORPORATION

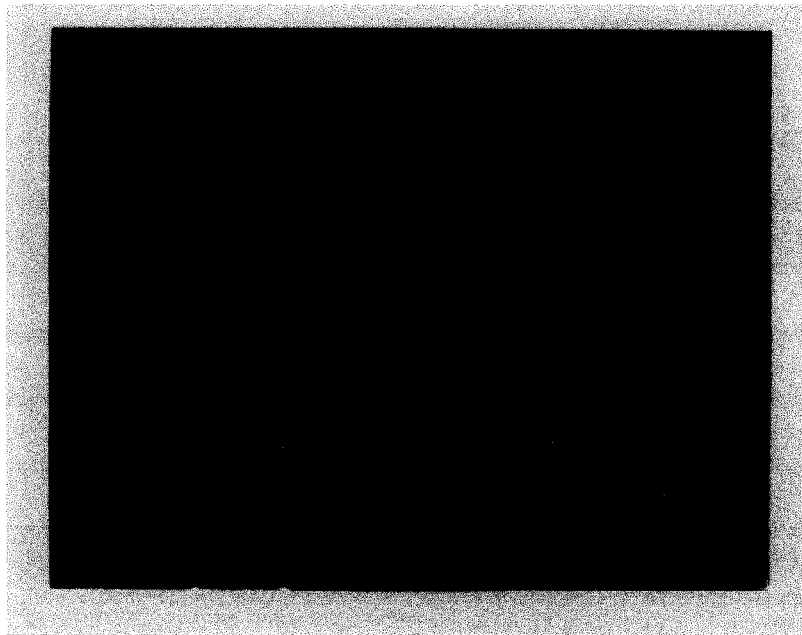
TRANSCIVER TYPE:
CJ6DCE34608A

MODULATION: SAT + ST

Horizontal Scale: 20kHz/Div
Vertical Scale: 10dB/Div (Attenuation)
Bandwidth: 300Hz
Deviation: +/-8kHz
Signal: SAT (6kHz), ST (10kHz)



Carrier Reference Level
+27.0dl3m (0.5watta)

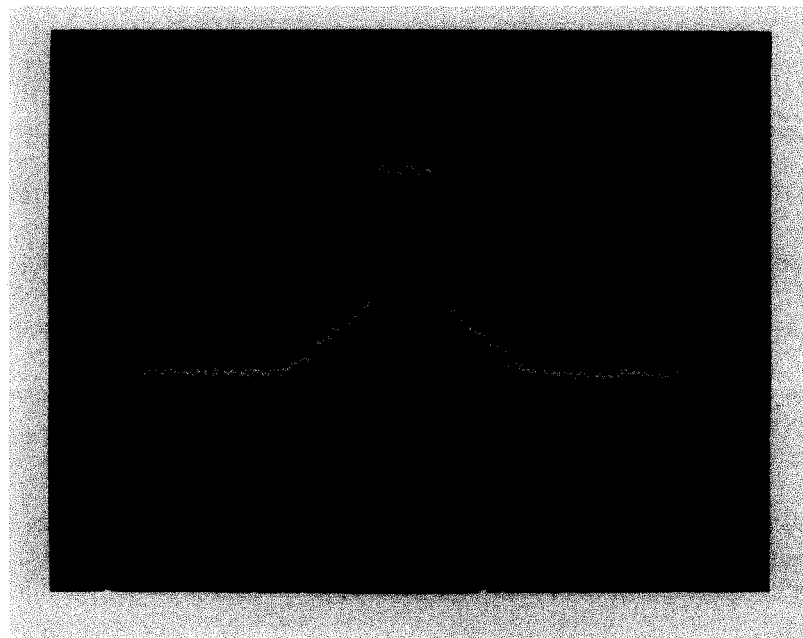
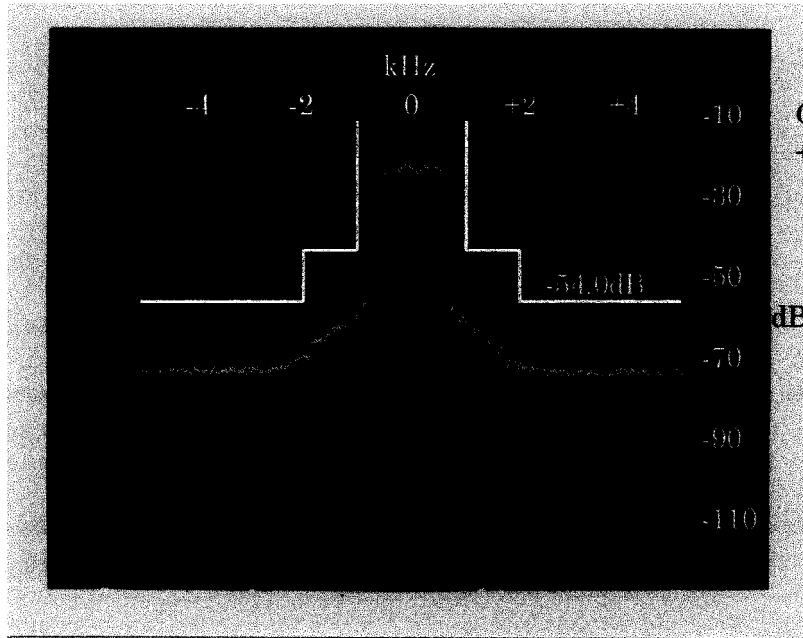


APPLICANT:
TOSHIBA CORPORATION

TRANSCIEVER TYPE:
CJ6DCE34608A

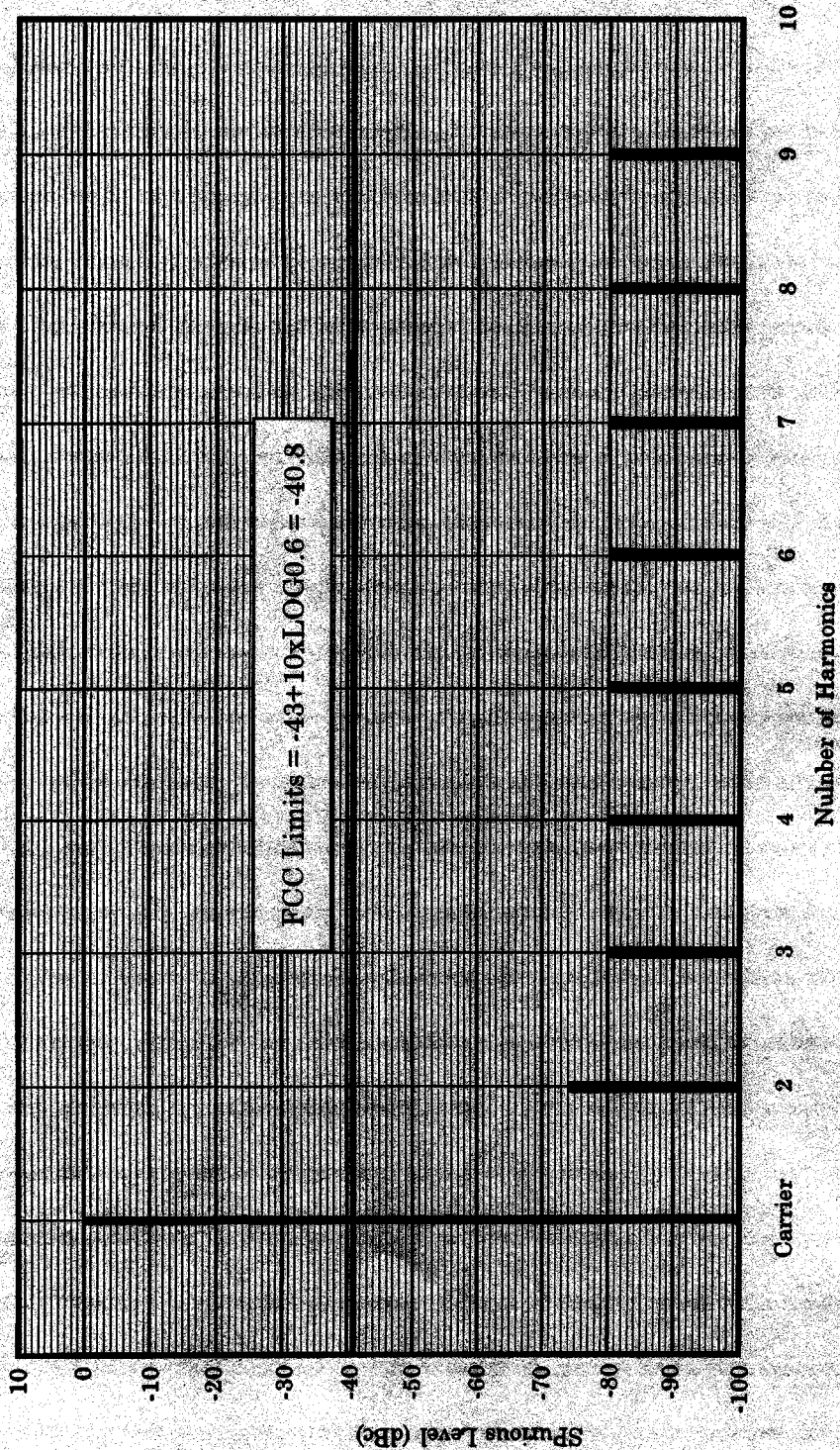
MODULATION: DIGITAL

Horizontal Scale: **1MHz/Div**
Vertical Scale: **10dB/Div** (Attenuation)
Bandwidth: **1kHz**
Signal: Pseudo random data



APPLICANT:
TOSHIBA CORPORATION

TRANSCIEVER TYPE:
CJ6DCE34608A



Transmitter Type: CJ6DCE34608A

Date: Jan. 25.1999

Signature

Kuniyoshi Marui
Kuniyoshi Marui

Transmitter Conducted Spurious Emission

Analog mode:

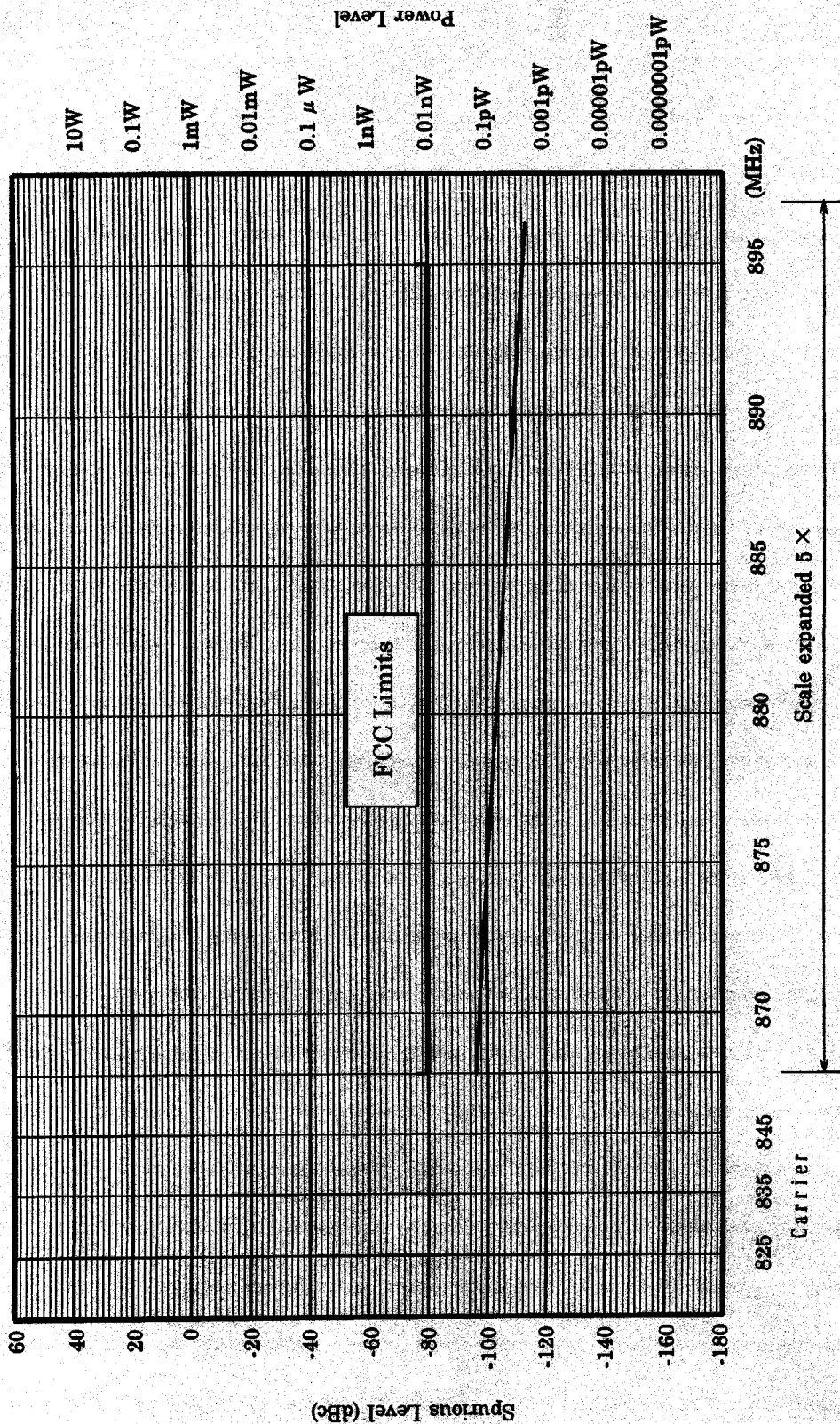
Carrier Frequency of 824.02, 836.49, 848.97 MHz and Carrier Power 0.6, 0.095, 0.006Watts ERP we measured, and the results were the same as those shown above.

Digital mode:

Carrier Frequency of 824.70, 836.49, 848.31 MHz and Carrier Power 0.3, 0.00000001Watts ERP we measured, and the results were the same as those shown above.

APPLICANT:
TOSHIBA CORPORATION

TRANSCIEVER TYPE:
CJ6DCE34608A



Transmitter Type: CJ6DCE34608A

Date: Jan. 25, 1999

Signature

Kuniyoshi Marui
Kuniyoshi Marui

Transmitter Conducted Spurious Emission

Analog mode:

Carrier Frequency of 824.02, 836.49, 848.97 MHz and Carrier Power 0.6, 0.095, 0.006Watts ERP we measured, and the results were the same as those shown above.

Digital mode:

Carrier Frequency of 824.70, 836.49, 848.31 MHz and Carrier Power 0.3, 0.00000001Watts ERP we measured, and the results were the same as those shown above.