

Application

For

CERTIFICATION

Measurement Data Prepared On Behalf Of

METEOR COMMUNICATIONS CORPORATION

FCC ID: BIB54505001-01

Model: MCC545C

VHF Low Band - Meteor Burst Packet Data Radio

Under Part 90

BY

Spectrum Technology, Inc.
209 Dayton Street
Edmonds, WA 98020
425 771-4482

January 22, 2001

EXHIBIT VI

CERTIFICATION

TABLE OF CONTENTS

Exhibit 6A - RF Output Data (2.1046)	1
Exhibit 6B - Modulation Characteristics (2.1047)	N/A
Exhibit 6E - Occupied Bandwidth (2.1049)	2 – 4
Exhibit 6F - Conducted Spurious Emissions at Antenna Terminals (2.1051)	5 - 6
Exhibit 6G - Radiated Spurious Radiation (2.1053)	7
Exhibit 6H - Frequency Stability Performance (2.1055)	8 - 9

EXHIBIT 6A - TEST: RF POWER OUTPUT

FCC ID: BIB54505001-01

Grantee: Meteor Communications Corporation

Serial No.: none

Manufacture Rating: 100.0 Watt +50 dBm

Equipment Authorization Procedure: Para. 2.1046

Duty Cycle: Intermittent Packet Data

Frequency Measured: 45.00 MHz

FINAL RADIO FREQUENCY AMPLIFYING DEVICE

Transistor Type: Advanced Semi Corp. VLB100-12F (Q1)

Measured Power Output 100.0 Watt or + 50 dBm

EXHIBIT 6E - TEST: OCCUPIED BANDWIDTH

FCC ID: BIB54505001-01

Grantee: Meteor Communications Corporation

Serial No.: none

Minimum Standard Specified: Para. 90.210(c)

Test Results: Equipment complies with standard

Equipment Authorization Procedure: Para. 2.1049

The modulation generated by the EUT and used during test was a pseudo random GMSK data modulation at 9600 bits/sec. This is the maximum amplitude and symbol rate.

MEASUREMENT DATA

Spectrum Analyzer: Hewlett Packard 8562A

	Plot A	Plot B	
Settings: Resolution Bandwidth:	300	300	Hz
Video Filter:	300	300	Hz
Scan Time:	5	3	sec.
Scan Width:	50	100	kHz
Center Frequency:	45.00	45.00	MHz

Please refer to the following two pages for the Plots A and B referenced above for the occupied bandwidth measured.

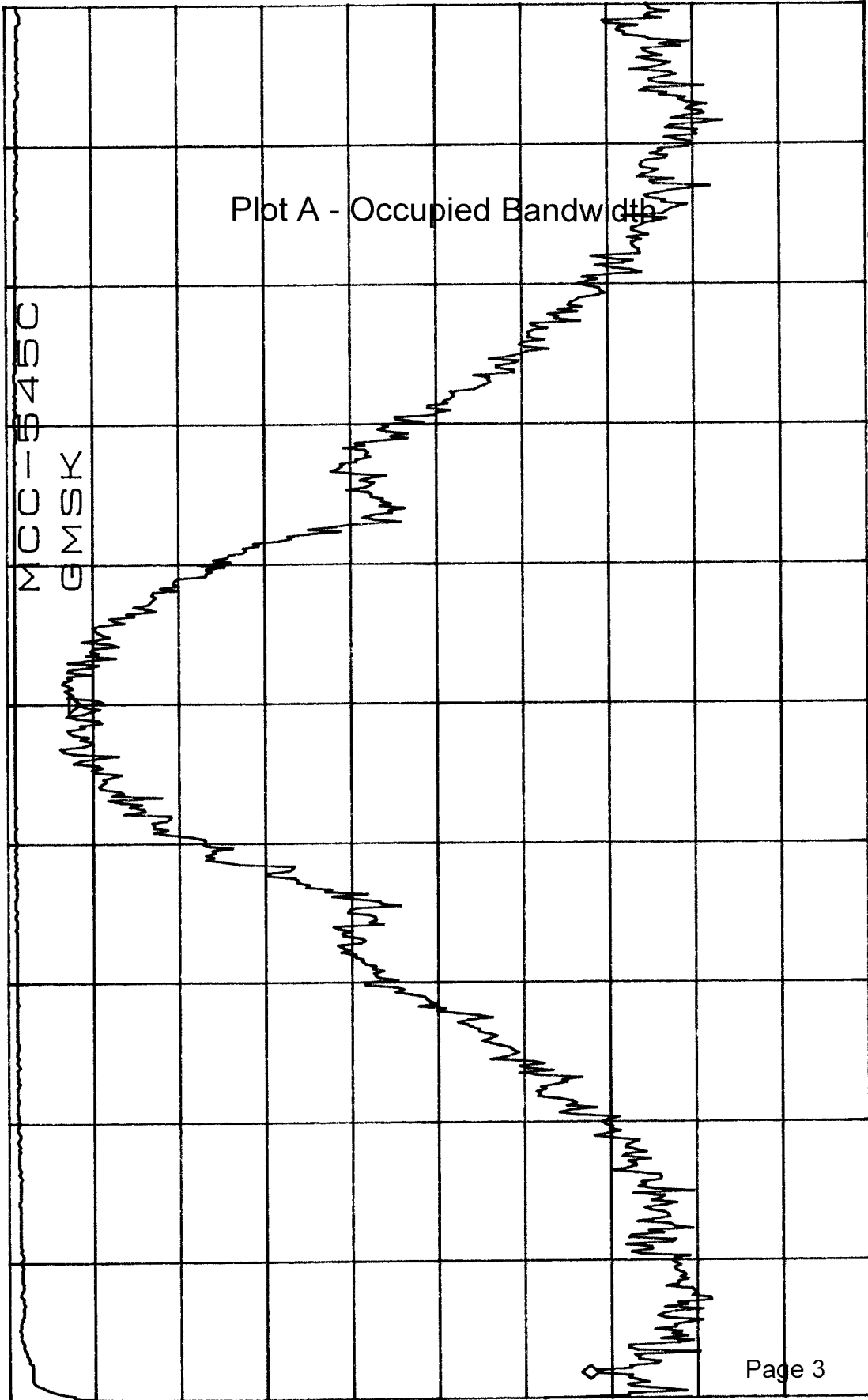
*ATTEN 20dB

ΔMKR -60.00dB

RL 9.9dBm

10dB/

-24.08KHz



CENTER 45.00000MHZ

10/26/00 WCDMA

SPAN 50.00KHz

*RBW 300Hz

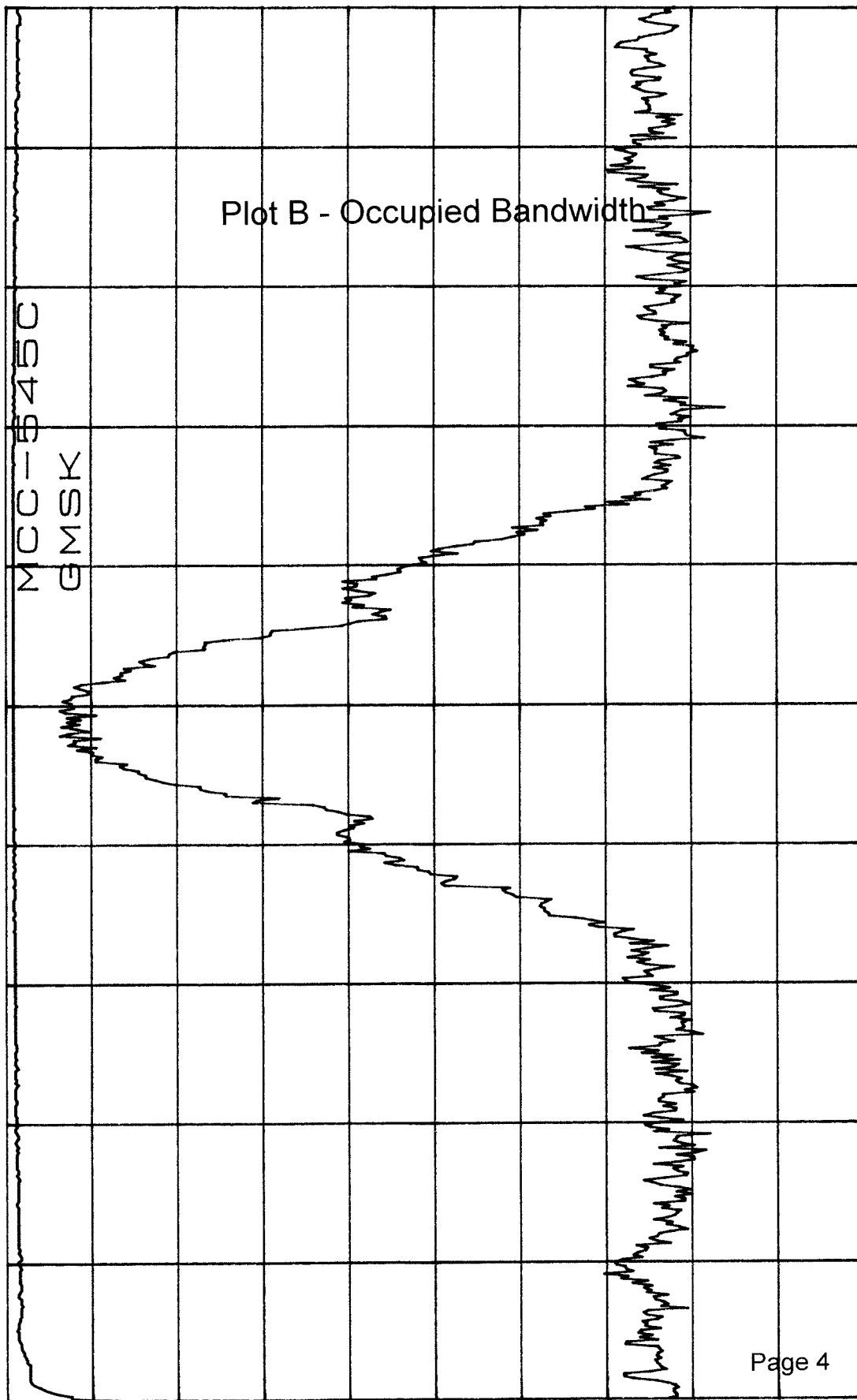
VBW 300Hz

SWP 2.0sec

*ATTEN 20dB

RL 9.9dBm

10dB/



Page 4

CENTER 45.0000MHZ
*RBW 300HZ VBW 300HZ
SPAN 100.0KHZ
SWP 3.0sec
10/26/00 10:11:11

EXHIBIT 6F - TEST: CONDUCTED SPURIOUS EMISSIONS

FCC ID: BIB54505001-01

Grantee: Meteor Communications Corporation

Serial No.: none

Minimum Standard Specified: Para. 90.209

Test Results: Equipment complies with standard

Equipment Authorization Procedure: Para. 2.1051

Frequency Range Observed: 0 to 500 MHz

Operating Frequency: 45.00 MHz

Power Output: 100.0 Watt high power (peak)

Spurious Limit = $43 \text{ dB} + 10\text{Log}_{10} \text{ PO} = 43 + (20) = 63 \text{ dBc}$

Method of Measurement

The transmitter output was fed through a tuneable bandpass filter, a K&L Microwave Model:X4BT-75/150-2B, tuned individually to permit the second then the third harmonic and so on, to pass, while the Fo was rejected. The bandpass filter was used to allow an accurate measurement and avoid overloading the mixer of the spectrum analyzer due to the high power. The spectrum analyzer plot on the following page is a max-hold peak record.

The modulation generated by the EUT and used during test was a pseudo random GMSK data modulation at 9600 bits/sec. This is the maximum amplitude and symbol rate.

Please refer to the plot on the following page with the measurement results.

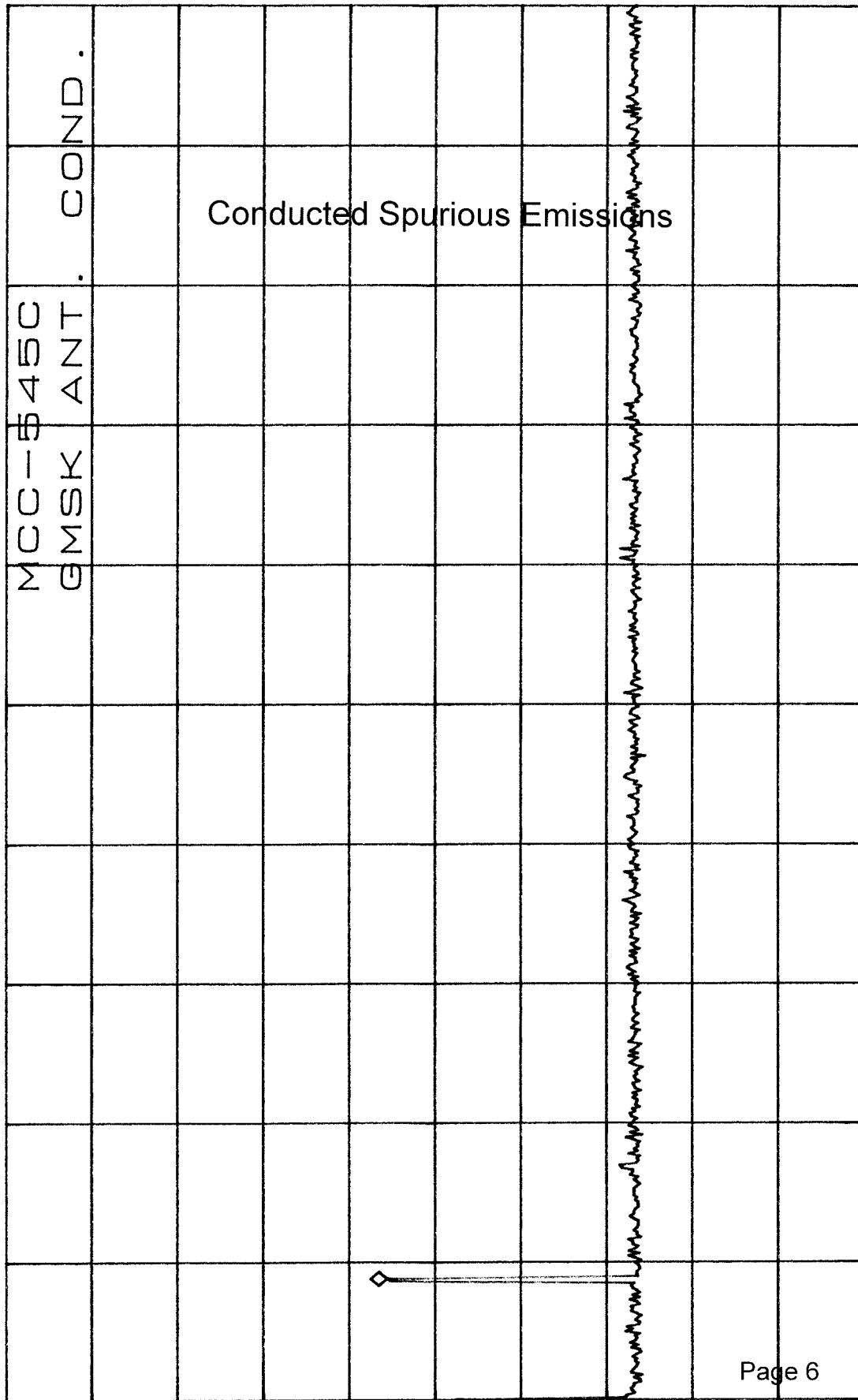
*ATTEN 20dB

MKR -34.83dBm

RL 9.7dBm

10dB/

44.2MHz



D

START 0Hz

STOP 500.0MHz

*RBW 100kHz

VBW 100kHz

SWP 200ms

10/26/00 W/CMW

EXHIBIT 6G - TEST: RADIATED SPURIOUS EMISSIONS

FCC ID: BIB54505001-01

Grantee: Meteor Communications Corporation

Serial No.: none

Minimum Standard Specified: Para. 90.210

Test Results: Equipment complies with standard

Equipment Authorization Procedure: Para. 2.103

Test Equipment Set Up: See Block Diagram

Frequency Range Observed: 0 to 500 MHz

Operating Frequency: 45.00 MHz

Power Output: 100.0 Watt (peak)

Spurious Limit = $43 \text{ dB} + 10\text{Log}_{10} \text{ PO} = 43 + (20) = 63 \text{ dBc high power}$

The modulation generated by the EUT and used during test was a pseudo random phase shift key (PSK) data modulation. The data stream is a 2kHz square wave or 4 kb/sec. data rate. This is the maximum amplitude and symbol rate.

<u>FORMULA</u>	<u>FREQUENCY IN MHz</u>	<u>Level (dB below carrier)</u>
Fo	45.00	- 0 -
5Fo	225.00	- 90.66

Note: All radiated emissions measured were more than 20 dB below the spurious limits noted above with 5Fo the highest level measured.

EXHIBIT 6H - FREQUENCY STABILITY

FCC ID: BIB54505001-01

Grantee: Meteor Communications Corporation

Minimum Standard Specified:	Para. 90.213	-30 to +50 C
	20 ppm = +/- 900 Hz	25-50 MHz

Equipment Authorization Procedure: Para. 2.995

Test Frequency: 45.00 MHz

Test Results: Equipment complies with standard

The measurement data reported on the following page, displays the frequency observed when the transmitter was first keyed, immediately following power up (a period of 45-60 seconds). This value was recorded and is reported. Measurements at +50, 0 and -30 degrees C were made at the nominal voltage and after varying the voltage + and - 15 %. Within the initial 60 seconds, the transmitter was measured well within the frequency tolerance of 20 ppm in all cases.

Two temperature probes connected to a Fluke 52, were used during the measurements. The first probe was mechanically held in place in contact with the largest internal mass of the transmitter adjacent to the TCXO. The other probe was placed within the chamber at a location with good air circulation to accurately measure the internal chamber temperature for comparison with the internal transmitter temperature to ensure temperature stability at all measurement points prior to measurements.

Voltages used for measurements at -30, 0, & +50 degrees Celsius:

+15 %	13.8 VDC
Nominal	12.0 VDC
-15%	10.2 VDC

EXHIBIT 6H - FREQUENCY STABILITY

FCC ID: BIB54505001-01

Grantee: Meteor Communications Corporation

Minimum Standard Specified:

Para. 90.213

-30 to +50 C

20 ppm = +/- 900 Hz

25-50 MHz

Equipment Authorization Procedure:

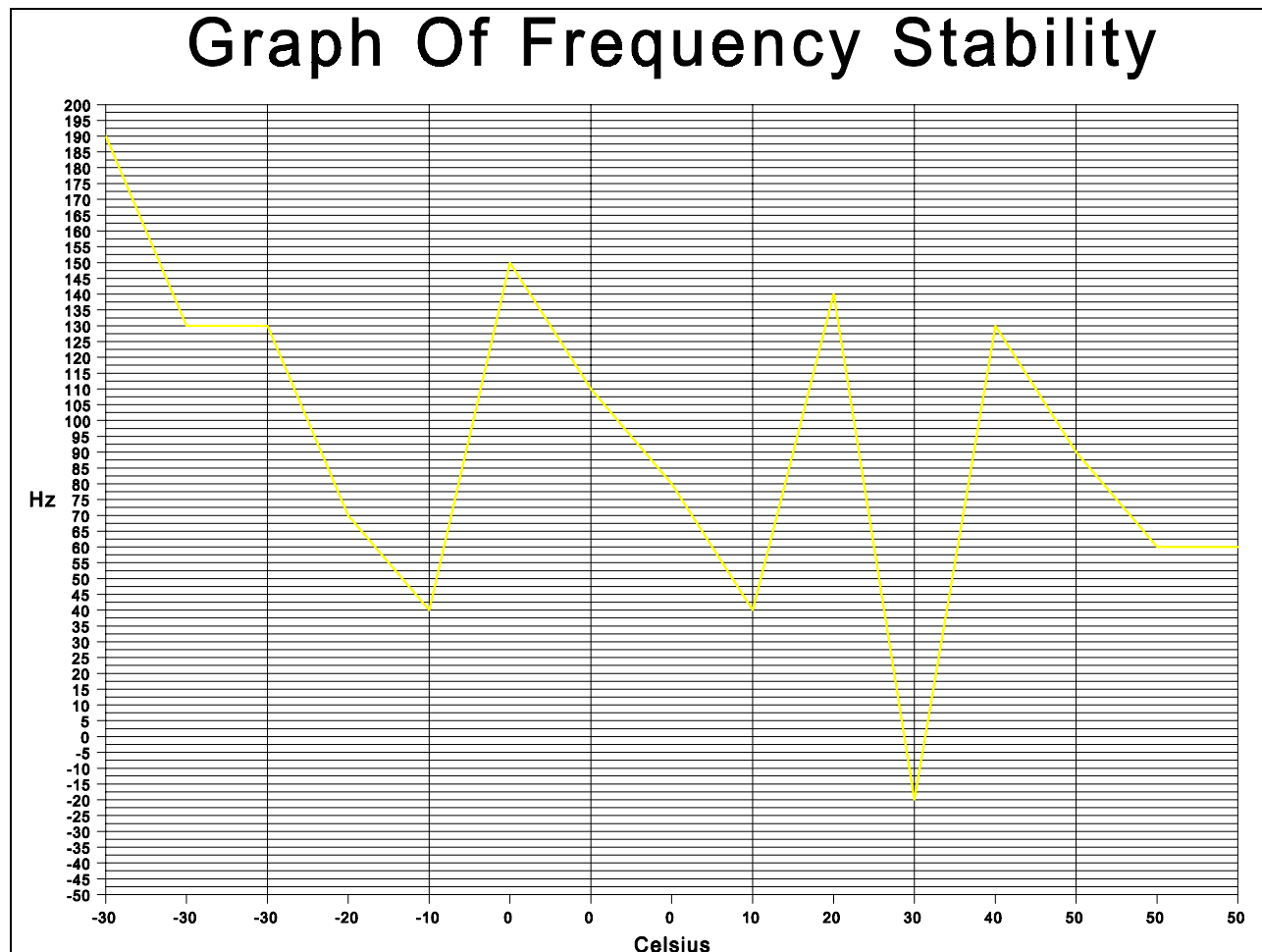
Para. 2.1055

Test Frequency:

45.00 MHz

Band 36 - 50 MHz

The variation in frequency with voltage are shown on the plot above for +50, 0 and -30 C. Three readings



are shown at these temperatures. The left hand reading is -15%, 10.2 VDC, the right hand reading is +15%, 13.8 VDC. The center reading at +50, 0 and 30 degrees C and all of the other reported readings are at the nominal voltage of 12 VDC.

Page 9