EXHIBIT #7

Measurement Procedure & Test Equipment Used

Except where otherwise stated, all measurements are made following the Electronic Industries Association (EIA) Minimum Standard for Portable/Personal Land Mobile Communications FM or PM Equipment 25-1000 MHz-(EIA/TIA-603). This exhibit is only applicable to the Land Mobile Radio portion of testing, and does not apply to the part 15C.

This exhibit presents a brief summary of how the measurements were made, the required limits, and the test equipment used.

The following procedures are presented with this application.

1.	Test Equipment List	x
2.	RF Power Output	x
3.	Audio Frequency Response	x
4.	Audio Low Pass Filter Response	x
5.	Modulation Limiting	x
6.	Occupied Bandwidth	x
7.	Radiated Spurious Emissions	x
8.	EIRP in GNSS Band: 1.559 to 1.610 GHz	**x**
9.	Unwanted Emissions: Adjacent Channel Power Ratio	**x**
10.	Conducted Spurious Emissions	x
11.	Frequency Stability (Volt/Temp)	x
12.	Transient Frequency Behavior	x

Test Equipment List

Pursuant To FCC Rules 2.947 (d)

	MODEL	MANUFACTURER	Instrument	Calibration Date
1	N1912A	AGILENT	POWER METER	23-Oct-15
2	DPO4104	TEKTRONIX	O SCOPE	21-Apr-15
3	8656A	Hewlett Packard	SIGNAL GENERATOR	14-Aug-15
4	N1921A	Hewlett-Packard	RF POWER SENSOR	28-Oct-15
5	115	TEST EQUITY	TEMP CHAMBER	Cal not required
6	6032A	AGILENT	POWER SUPPLY	20-Oct-15
7	3488A	Hewlett-Packard	SWITCH CONTROL	Cal not required
8	6672A	Hewlett-Packard	POWER SUPPLY	14-Aug-15
9	8902A	Hewlett-Packard	MEASURING RECEIVER	14-Aug-15
10	8530W	Hewlett-Packard	COMPUTER	Cal not required
11	N9030A	AGILENT	PXA SIGNAL ANALYZER	20-Oct-15
12	U8903A	AGILENT	AUDIO ANALYZER	7-Nov-15
13	6672A	Hewlett-Packard	POWER SUPPLY	14-Aug-15

Table 1: Test Equipment List

Test Name	FCC Rules Part (47 CFR)	IC Rules
RF Power Output Data	2.1046(a), 2.1033(c)(6), 2.1033(c)(7) and 2.1033(c)(8) 90.541(700MHz) 22.565(f) (VHF & UHF), 74.461 (VHF, UHF), 74.861 80.215	RSS-Gen Sec 6.12, RSS-119 Sec 4.1, 5.4, RSS-119 Sec 5.13 (700MHz) RSS-182 Sec 7.5 (VHF)
Audio Frequency Response	2.1047 and 2.1033(c)(13)	-
Audio Low Pass Filter Response	2.1047 and 74.463	-
Modulation Limiting	2.1047 and 74.463	-
Occupied Bandwidth	2.1049, 90.210, 90.691 (800MHz), 22.359 (b) (VHF & UHF), 74.462 (c) (VHF, UHF), 74.861 (d), 80.211(c), 80.211(f)	RSS-GEN Sec 6.6, RSS-119 Sec 5.5,
Radiated Spurious Emissions	2.1053, 90.210, 22.359 (a) (VHF & UHF) 74.462 (b) (VHF, UHF) 90.543 (700 MHz)	RSS-GEN Sec 6.13 RSS-119 Sec 4.2, 5.8 RSS-182 Sec 7.9 (VHF)
Conducted Spurious Emissions	2.1051, 90.210, 22.359 (a) (VHF & UHF), 80.211 (c) (VHF, UHF) 74.462 (c) (VHF, UHF) 90.543 (700 MHz)	RSS-GEN Sec 6.13 RSS-119 Sec 4.2, 5.8 RSS-182 Sec 7.9 (VHF)
Frequency Stability (Supply Voltage/ Temp)	2.1055, 90.213, 90.539 (700MHz) 22.355 74.464 (VHF, UHF)	RSS-GEN Sec 6.11 RSS-119 Sec 5.3 RSS-182 Sec 7.4 (VHF)
Transient Frequency Behavior	90.214	RSS-119 Sec 5.9

Table 2: List of FCC and IC reference

RF Power Output

Method of Measurement

The RF power output is measured with the transmitter adjusted in accordance with the tune-up procedure outlined in Exhibit 10 to give the value of voltage and current as specified in Exhibit 12 as required by 2.1033(c) (8). A 50-ohm RF attenuator of proper power rating was used as a load for making these measurements.

The power measurements are made using an Agilent series N1912A RF power meter and 30 dB attenuator.

Audio Frequency Response

Method of Measurement

Operate the transmitter under standard test conditions and monitor the output with a frequency deviation meter or calibrated test receiver. With 1000 Hz sine wave audio input applied through a dummy microphone circuit, adjust the audio input to give 20% of full rated system deviation. Maintaining a constant input voltage, vary the input frequency from 300 to 3000 Hz, and observe the deviation.

Minimum Standard

The audio frequency response shall not vary more than +1 or -3 dB from 300 to 3000 Hz from a true 6 dB per octave pre-emphasis characteristic as referenced to 1000 Hz level, with the exception of a permissible 6 dB/octave roll off below 500 Hz. Equivalent to TIA/EIA 603 Section 5.2.6.2 mask.

Audio Low Pass Filter Response

Method of Measurement

A Dynamic Signal Analyzer is used to sweep the response from 1kHz to 25kHz. The source of the analyzer is connected to the AUDIO IN port of the radio interface box. The audio input level is adjusted to produce a standard test modulation. The transmitter is operated under standard test conditions and the output of the Switch Cap Filter is monitored, with the post limiter low pass filter within the lineup. The output is connected to channel 2 of the analyzer and referenced to its input signal. A sinusoidal sweep from 1K to 25kHz will produce the frequency response of the low pass filter during TX mode.

FCC Limits -- Per applicable rule parts.

136 to 173 MHz & 20 or 25 kHz channel bandwidth.

Frequencies between 3 kHz and 15 kHz shall be attenuated greater than the attenuation at 1 kHz by 40 $1og_{10}$ (f/3000) dB.

Frequencies above 15 kHz shall be attenuated at least 28 dB.

450 to 869 MHz & VHF Marine.

Frequencies between 3 kHz and 20 kHz shall be attenuated greater than the attenuation at 1 kHz by 60 $1og_{10}$ (f/3000) dB.

Frequencies above 20 kHz shall be attenuated at least 50 dB.

Modulation Limiting

Method of Measurement

The transmitter shall be adjusted for full rated system deviation. Adjust the audio input for 60% of rated system deviation at 1000 Hz. Using this level as a reference (0 dB) vary the audio input level from the reference to a level 20 dB above it for modulation frequencies between 300 and 3000 Hz in 100Hz steps. Record the system deviation obtained as a function of the input level.

FCC Limits

Minimum Standard - The transmitter modulation must not exceed rated system deviation at any audio frequency input or reasonable change in input level. In the exhibit, 100% corresponds to the maximum rated system deviation for the given channel bandwidth.

Interpreting the Measured Data

The channel spacing and maximum deviation are listed at the bottom of the plot. The X axis is the audio input signal level in millivolts. The Y axis is the percentage of the maximum deviation listed at the bottom of the plot. The Z axis is the frequency of the modulated signal.

Occupied Bandwidth

Method of Measurement

Data on occupied bandwidth is presented in the form of a spectrum analyzer photograph, which illustrates the transmitter sidebands. For analog signals, the reference line for the data plot is taken of the unmodulated carrier, to which is superimposed the sideband display generated by modulating the carrier with a 2500 Hz tone at a level 16 dB greater than that required to produce 50 percent modulation. For digital voice, data, and TDMA, the reference line for the data plot is that of the peak value of the modulated carrier. For digital data, the Standard Transmitter Test Pattern is a continuously repeating 511 bit pseudo-random bit sequence based on ITU-T 0.153. If tone or digital coded squelch is indicated, photographs using both the 2500 Hz tone and the indicated squelch signal are used to modulate the transmitter. During these measurements, the instantaneous Deviation Control is set for a maximum of +5 kHz.

FCC Limits - Per Applicable Rule Parts.

Measured Data: At least +25 dB down on any frequency removed from the assigned frequency by more than 50 % and up to and including 100% of the authorized bandwidth. At least +35 dB down on any frequency removed from the assigned frequency by more than 100% up to and including 250% of the authorized bandwidth; at least 43 plus 10 log $_{10}$ (mean output power in watts) decibels or 70 decibels, whichever is the lesser attenuation.

Radiated Spurious Emissions

Test Site:

The site, located at Penang, Malaysia, is in a region which is reasonably free from RF interference and has been approved by the Commission for Spurious Measurements.

The equipment is placed on the turntable, connected to a dummy RF load and then placed in normal operation using the intended power source. A broadband receiving antenna, located 3 meters from the transmitter-under-test (TUT), picks up any signals radiated from the transmitter and its operation accessories. The antenna is adjustable in height and can by horizontally and vertically polarized. A spectrum analyzer covering the necessary frequency range is used to detect and measure any radiation picked up by the above mentioned receiving antenna.

Method of Measurement:

The equipment is adjusted to obtain peak reading of received signals wherever they occur in the spectrum by:

a. Adjust the spectrum analyzer for the following settings:
   1) Resolution Bandwidth = 100 kHz for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1GHz.
   2) Video Bandwidth = 300 kHz for spurious emissions below 1 GHz, and 3 MHz for spurious emissions above 1 GHz.
   3) Sweep Speed slow enough to maintain measurement calibration.
   4) Detector Mode = Positive Peak.

b. Key the transmitter.

b. For each spurious frequency, raise and lower the test antenna from 1 m to 4 m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Then the turntable should be rotated 360° to determine the maximum reading. Repeat this procedure to obtain the highest possible reading. Record this maximum reading.

The testing procedure is repeated for both horizontal and vertical polarization of the receiving antenna. Relative signal strength is indicated on the spectrum analyzer connected to the receiving antenna. To obtain actual radiated signal strength for each spurious and harmonic frequency observed, a standard signal generator with calibrated output is connected to a dipole antenna adjusted to that particular frequency. This dipole antenna is substituted for the transmitter under test. The signal generator is adjusted in output level until a reading identical to that obtained with the actual transmitter is observed on the spectrum analyzer. Signal strength is then read directly from the generator. Actual measurements are recorded on the attached graphs.

FCC Limits -- Per Applicable Rule Parts.

Radiated spurious emissions shall be attenuated below the maximum level of emission of the carrier frequency in accordance with the following formula:
Spurious attenuation in dB = 43 + 10 $\log_{10}$(Power output in watts)

EIRP in GNSS Band: 1.559 to 1.610 GHz

Method of Measurement:

a) Adjust the spectrum analyzer for the following settings:
   1) Resolution Bandwidth = 1 MHz.
   2) Video Bandwidth ≥ 3 times the resolution bandwidth.
   3) Sweep Speed slow enough to maintain measurement calibration.
   4) Detector Mode = mean or average.

b) Place the transmitter to be tested on the turntable in the standard test site, or an FCC listed site compliant with ANSI C63.4-2001 clause 5.4.

d) For each spurious measurement the test antenna should be adjusted to the correct length for the frequency involved. This length may be determined from a calibration ruler supplied with the equipment. Measurements shall be made from 1.559 GHz to 1.610 GHz. e) Key the transmitter with standard modulation applied to the transmitter.

f) For each spurious frequency, raise and lower the test antenna from 1 m to 4 m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Then the turntable should be rotated 360° to determine the maximum reading. Repeat this procedure to obtain the highest possible reading. Record this maximum reading.

FCC Limits -- Per Applicable Rule Parts.

Unwanted radiated emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

Unwanted Emissions: Adjacent Channel Power Ratio

Method of Measurement:

a) The transmitter shall be operated at the rated carrier power. The adjacent channel power analyzer is set to use average power detection (sample or rms detector) and a span of 100 kHz.

b) The measurement bandwidth settings and markers of the analyzer shall be centered at the transmitter operating frequency, and at both the upper and lower adjacent channel frequencies using a power measurement bandwidth and resolution bandwidth as specified in 3.2.14 of this document. The video bandwidth shall be set to at least ten times the resolution bandwidth.

3.2.14.3 All frequency bands below 1 GHz excluding frequencies in FCC Part 90.543 (769-775/799-805 MHz).

Adjacent channel power ratio for fixed, mobile and portable stations is shown within the following specified channel bandwidths:

Table 44 - Adjacent Channel Power Ratio

Channel Bandwidth	Measurement Bandwidth	Fixed Station (dB)	Mobile Station (dB)	Portable Station (dB)
≥ 25.0 kHz	16 kHz	70 if < 512 MHz 60 if > 512 MHz	70 if < 512 MHz 60 if > 512 MHz	70 if < 512 MHz 60 if > 512 MHz
20.0 kHz	14 kHz	70 if < 512 MHz 60 if > 512 MHz	70 if < 512 MHz 60 if > 512 MHz	70 if < 512 MHz 60 if > 512 MHz
15.0 kHz	8.5 kHz	70 dB	70	70
12.5 kHz	8.5 kHz	60 if < 512 MHz 50 if > 512 MHz	60 if < 512 MHz 50 if > 512 MHz	60 if < 512 MHz 50 if > 512 MHz

Note: The resolution bandwidth must be no greater than 2% of the measurement bandwidth.

3.2.14.4 700 MHz Band (90.543 (a) mobile devices)

Table 45 - 12.5 kHz Mobile Transmitter ACPR Requirements

Offset from Center Frequency (kHz)	Nominal Resolution Bandwidth (Hz)	Measurement Bandwidth (kHz)	Maximum ACPR (dB)
9.375	100	6.25	40
15.625	100	6.25	60
21.875	100	6.25	60
37.50	300	25.00	60
62.50	300	25.00	65
87.50	300	25.00	65
150.00	1000	100.00	65
250.00	1000	100.00	65
350.00	1000	100.00	65
>400 to paired RX Band	30000	30 (swept)	75
In paired RX Band	30000	30 (swept)	100

Table 46 - 25 kHz Mobile Transmitter ACPR Requirements

Offset from Center Frequency (kHz)	Nominal Resolution Bandwidth (Hz)	Measurement Bandwidth (kHz)	Maximum ACPR (dB)
15.625	100	6.25	40
21.875	100	6.25	60
37.50	300	25.00	60
62.50	300	25.00	65
87.50	300	25.00	65
150.00	1000	100.00	65
250.00	1000	100.00	65
350.00	1000	100.00	65
>400 to paired RX Band	30000	30 (swept)	75
In paired RX Band	30000	30 (swept)	100

d) Adjust the frequency of one audio generator to 650 Hz. With the second audio generator off, adjust the amplitude of first audio generator to provide a transmitter modulation of 50% of rated system deviation. Record the audio generator level.

e) Turn off the first audio generator. Adjust the frequency of the second audio generator to 2200 Hz. Adjust the amplitude of the second audio generator to provide a transmitter modulation of 50% of rated system deviation. Record the audio generator level.

f) Turn both audio generators on and adjust the level of each to be 10 dB greater that the levels recorded in steps d) and e).

g) Key the transmitter.

h) The power shall be measured on the adjacent channel power analyzer in the specified measurement 6 dB bandwidth centered at both the upper and lower specified frequency offsets from the carrier frequency as listed in 3.2.14.3. Each lower frequency value shall be recorded in dBm as *PADJL*, and each upper frequency value shall be recorded in dBm as *PADJU*.

Conducted Spurious Emissions

Method of Measurement:

The transmitter is terminated into a 50 ohm load and interfaced with a spectrum analyzer which allows the spurious emission level relative to the carrier level to be measured directly. Modulate the transmitter with a 2500 Hz sine wave at an input level 16 dB greater than that required to produce 50% of rated system deviation at 1000 Hz. Adjust the spectrum analyzer for the following settings:

1) Resolution Bandwidth = 100 kHz (Per 47 CFR 90.210 and 90.691) for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1 GHz.
2) Video Bandwidth ≥ 3 times the resolution bandwidth.
3) Sweep Speed ≤ 2 kHz per second.
4) Detector Mode = mean or average power.

Measurements shall be made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier or as high as the state of the art permits except for that region close to the carrier equal to ± 250% of the authorized bandwidth.

FCC Limits - Per Applicable Rule Parts.

Conducted spurious emissions shall be attenuated below the maximum level of emission of the carrier frequency in accordance with the following formula:
Spurious attenuation in dB = $43 + 10 \log_{10}$ (Power output in watts) for 25 kHz Channelization.
Spurious attenuation in dB = $50 + 10 \log_{10}$ (Power output in watts) for 12.5 kHz Channelization.

Frequency Stability

Method of Measurement:

A. Temperature (Non-heated type crystal oscillators):
Frequency measurements are made at the extremes of the temperature range -30 to +60 degrees centigrade and at intervals of not more than 10 degrees centigrade throughout the range. Sufficient time is allowed prior to each measurement for the circuit components to stabilize.

B. Power Supply Voltage:
The primary voltage was varied from 85% to 115% of the nominal supply voltage. Voltage is measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

FCC Limits -- Per FCC Rule 90.213

Temperature range – from -30 to +60 degrees centigrade.
Power Supply Voltage - from 85% to 115% of nominal voltage.

Assigned Frequency (MHz)	Channel Bandwidth (kHz)	Portable Stability (PPM)
138 to 174	25	5
	12.5	5
	12.5 (NTIA only)	2.5
380 to 420 (NTIA only)	25	5
	12.5	2
421 to 512	25	5
	12.5	2.5
769 to 775	25	1.5
	12.5	1.5
799 to 805	25	1.5
	12.5	1.5
806 to 809	12.5	1.5
809 to 824	25	2.5
851 to 854	12.5	1.5
854 to 869	25	2.5

Transient Frequency Behavior

Transient frequency behavior is a measure of the difference, as a function in time, of the actual transmitter frequency to the assigned transmitter frequency when the transmitted RF output power is switched on or off.

Setup -- Per TIA/EIA 603, Section 2.2.19

Connect the output port of the transmitter under test (TUT) to an attenuator, and this to a directional coupler. Connect an RF peak detector to the coupled output of the directional coupler, and connect the output of the RF peak detector to the external trigger on a storage oscilloscope. The output of the directional coupler is mixed, via an RF combining network, with the output of a signal generator. Verify that the TUT signal level present at the combining network output is approximately 40 dB below the maximum input level of the test receiver as per step (f). Set the signal generator at the same frequency as the TUT, modulated with a 1 kHz tone, with an FM deviation equal to the assigned channel spacing (+25 kHz). Following step (h), adjust the signal generator to provide 20 dB less power at the combiner output than the level set in step (f). Connect the output of the RF combiner to a test receiver, and the test receiver's output port to a vertical input channel of the storage scope. Adjust the horizontal sweep rate on the oscilloscope to10msec/div, and the vertical amplitude to display the 1 kHz tone over +/- 4 divisions centered on the display. Reduce the transmit attenuation by 30 dB as per step (l) so that the difference in the power between the reference signal and the TUT signal at the combiner is 50 dB when the TUT is turned on. Following step (k), adjust the oscilloscope to trigger on an increasing signal from the RF detector at one division from the left side of the display when the TUT is turned on. Switch on the TUT and record the display (for RF Output Power ON). Following step (q), adjust the oscilloscope trigger controls to trigger on a decreasing signal from the RF peak detector, at 1 division from the right side of the display when the TUT is turned off. Switch off the transmitter and record the display (for RF Output Power OFF).

* Steps (f), (h), (k), (l), and (q) - section 2.2.19 of the TIA/EIA 603 were followed.

Method of Measurement -- Per TIA/EIA-603-2.2.19.

For RF Output Power ON: Turn the transmitter ON. Once the demodulator output has been captured by the transmitter power, the 1 kHz test signal will be completely suppressed. This point in time is named T-on. The display will then show the frequency difference from the assigned frequency to the actual transmitter frequency versus time. Two time intervals will be measured following T-on: T-1 and T-2.
So, the RF ON time intervals are as follows: T-on --------> T-1 ----------> T-2

For RF Output Power OFF: Turn the transmitter OFF. The display will show the transmitter frequency difference versus time, and when the 1 kHz test signal starts to rise, it indicates total absence of the transmitter output at the specified frequency. This point is named T-off. Time interval T-3 precedes T-off. So, the RF OFF time intervals are as follows: T-3 --------> T-off.

FCC Limits -- Per 90.214.

	Frequency Range (MHz)		
Time Interval	30 to 174	406 to 512	806 to 940
T-1	5.0 ms	10.0 ms	20.0 ms
T-2	20.0 ms	25.0 ms	50.0 ms
T-3	5.0 ms	10.0 ms	10.0 ms

*Per Applicable Rule Parts.