PHILIPS TESTING SERVICE
Knoxville TN.

TEST REPORT

Customer: TEN-TEC
Product: Amateur Transceiver, Model 526
Date: 30 March 2001

Purpose: Compliance Test of a new Scanning Receiver, per Federal Regulation 47 CFR 15.121 (b), "Scanning Receiver and Frequency Converters used with Scanning Receivers"

Test Engineers: Bill Kaylor and Lyle Randall

Test Conditions:

Equipment: 1 each, TEN-TEC Amateur Transceiver, model 526 w/outboard Power Supply
2 each, Hewlett Packard RF Signal Generators, model 8640B
1 each, Sound Design Audio Distortion Analyzer, model 1700B
3 each, ANZAC Low-loss Impedance Transformers, model TP-75-4
1 each, Wide-band RF Signal Combining Network, 2 inputs/1 output
Assorted cables, connectors, and between-series adaptive connectors

Environment: Normal in-door temperature and humidity conditions were maintained. This test was not conducted inside of a RF shielded room or screen cage.

Power Source: Non-preconditioned, unregulated 120 VAC power.

Connections and configurations: (See referenced drawings and figures attached)
All equipment was allowed a 30-minute warm-up before testing was begun.

Test Procedure:

The testing of the TEN-TEC model 526 transceiver's receiver was divided into two separate tests. The first test was to investigate the receiver's ability to reject any response to a strong cellular signal that was presented at any of the receiver's antenna inputs. To perform this test, the following conditions were established:

(1) One of the Hewlett Packard RF Generators was connected directly to one of the transceivers two antenna inputs (Figure 1)
(2) The transceivers "Mode" switch was set to select FM receiver operation within the band for the antenna the RF generator was connected to
(3) The receiver "Volume" control was adjusted to mid-range and the "Squelch" control was adjusted for a constant noise in the speaker.
(4) The HP RF Generator was set to provide a RF output on one of the selected Cellular Telephone frequencies with an output power level of –47 dBm. This signal was FM modulated with a 1000 Hz tone for a deviation of 3 kHz.

With these conditions maintained, the transceiver's receiver was slowly tuned from one limit to the other (50 to 54 MHz or 136 to 174 MHz). **Any** responses (demodulated audio at the speaker) that contained a 1000 Hz tone modulation was presumed to be a response to the RF generator's input signal. At the completion of the tuned sweep of one of the receivers bands, the RF generator signal was transferred to the other antenna input. The receiver "BAND" switch was depressed to change to the other operational band. A slow tuning of this second band was performed while listening for **any** audio responses in the speaker audio that contained a 1000 Hz modulated tone. When this second receiver tuned sweep was completed, the frequency of the RF generator was set to the next Cellular Band frequency and these two receiver tests were begun again. The transceiver receiver was tested using six (6) separate Cellular Band frequencies and any responses were noted.

TEST RESULTS, Test #1.

Test # \\	Generator Freq. (MHz) \\	Receiver Band \\	Responses
1a	824 MHz	50 to 54 MHz	None observed
1b	824 MHz	136 to 174 MHz	None observed
1c	836.5 MHz	50 to 54 MHz	None observed
1d	836.5 MHz	136 to 174 MHz	None observed
1e	849 MHz	50 to 54 MHz	None observed
1f	849 MHz	136 to 174 MHz	None observed
1g	869 MHz	50 to 54 MHz	None observed
1h	869 MHz	136 to 174 MHz	None observed
1j	881 MHz	50 to 54 MHz	None observed
1k	881 MHz	136 to 174 MHz	None observed
1m	881 MHz	50 to 54 MHz	None observed
1n	881 MHz	136 to 174 MHz	None observed

The second of the two tests on this receiver was conducted to examine it's performance when two separate signals were presented to the receiver's antenna input simultaneously, one in-band and the second, a strong Cellular Band signal. To perform this test, the following conditions were established:

(1) Two HP RF Signal generators were connected to the RF input of the transceiver through a low-loss, wide band RF combining network. (Figure 2)

(2) HP RF Signal generator #1 was the source of the "Undesired" signal. It supplied a Cellular Band signal at a –47 dBm, FM modulated with a 1000 Hz tone. HP RF Signal generator #2 supplied the "Desired" signal to the receiver. This was a frequency that was either at the low end, mid-range, or upper end of the selected transceiver receiver's operating band. The generator output was set to provide a 30 uV signal, FM modulated with a 400 Hz tone.

(3) The transceivers "Mode" switch was set to select FM receiver operation within the band for the antenna the combined RF generators was connected to.

(4) The receiver "Volume" control was adjusted to mid-range and the "Squelch" control was adjusted for a constant noise in the speaker.

With these conditions maintained, the transceiver's receiver was slowly tuned from one limit to the other (50 to 54 MHz or 136 to 174 MHz). **Any** responses other than a clean 400 Hz modulated tone (demodulated audio at the speaker) was presumed to be a response to either the Undesired signal or a mix product of the Undesired and the Desired signals. At the completion of the tuned sweep of each of the receivers bands, the RF generator's signal was transferred to the other antenna input. The receiver "BAND" switch was depressed to change to the other operational band. The frequency of the Desired generator was reset to the next appropriate test frequency within the band being tested. Then, while listening for any audio responses other than a 400 Hz tone in the speaker output audio, another slow tuning of the receiver was performed. When this second receiver tuned sweep was completed, the frequency of the Undesired RF generator was set to the next Cellular

Band frequency and these two receiver bands were tested again. The transceiver receiver was tested using six (6) separate Cellular Band frequencies and any response other than a 400 Hz response is noted.

TEST RESULTS, Test #2.

Test #	Gen. Undesired	Gen. Desired	Receiver Band	Responses
2.1a	824 MHz	50 MHz	50 – 54 MHz	None
2.1b	824 MHz	52 MHz	50 – 54 MHz	None
2.1c	824 MHz	54 MHz	50 – 54 MHz	None
2.1d	824 MHz	136 MHz	136 – 174 MHz	None
2.1e	824 MHz	155 MHz	136 – 174 MHz	None
2.1f	824 MHz	174 MHz	136 – 174 MHz	None
2.2a	836.5 MHz	50 MHz	50 –54 MHz	None
2.2b	836.5 MHz	52 MHz	50 – 54 MHz	None
2.2c	836.5 MHz	54 MHz	50 – 54 MHz	None
2.2d	836.5 MHz	136 MHz	136 – 174 MHz	None
2.2e	836.5 MHz	155 MHz	136 – 174 MHz	None
2.2f	836.5 MHz	174 MHz	136 – 174 MHz	None
2.3a	849 MHz	50 MHz	50 – 54 MHz	None
2.3b	849 MHz	52 MHz	50 – 54 MHz	None
2.3c	849 MHz	54 MHz	50 – 54 MHz	None
2.3d	849 MHz	136 MHz	136 – 174 MHz	None
2.3e	849 MHz	155 MHz	136 – 174 MHz	None
2.3f	849 MHz	174 MHz	136 – 174 MHz	None
2.4a	869 MHz	50 MHz	50 – 54 MHz	None
2.4b	869 MHz	52 MHz	50 – 54 MHz	None
2.4c	869 MHz	54 MHz	50 – 54 MHz	None
2.4d	869 MHz	136 MHz	136 – 174 MHz	None
2.4e	869 MHz	155 MHz	136 – 174 MHz	None
2.4f	869 MHz	174 MHz	136 – 174 MHz	None
2.5a	881 MHz	50 MHz	50 – 54 MHz	None
2.5b	881 MHz	52 MHz	50 – 54 MHz	None
2.5c	881 MHz	54 MHz	50 – 54 MHz	None
2.5d	881 MHz	136 MHz	136 – 174 MHz	None
2.5e	881 MHz	155 MHz	136 – 174 MHz	None
2.5f	881 MHz	174 MHz	136 – 174 MHz	None
2.6a	894 MHz	50 MHz	50 – 54 MHz	None
2.6b	894 MHz	52 MHz	50 – 54 MHz	None
2.6c	894 MHz	54 MHz	50 – 54 MHz	None
2.6d	894 MHz	136 MHz	136 – 174 MHz	None
2.6e	894 MHz	155 MHz	136 – 174 MHz	None
2.6f	894 MHz	174 MHz	136 – 174 MHz	None

Conclusions: Based upon the lack of any observed responses during these tests that could be attributed to the influence of a Cellular Band signal, it is my conclusion that this product will comply with the letter and the spirit of the Federal Regulation 47 CFR 15.121 (b), "Scanning Receiver and Frequency Converters used with Scanning Receivers"

Bill Kaylor
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Philips Testing Service

FIGURE 1A

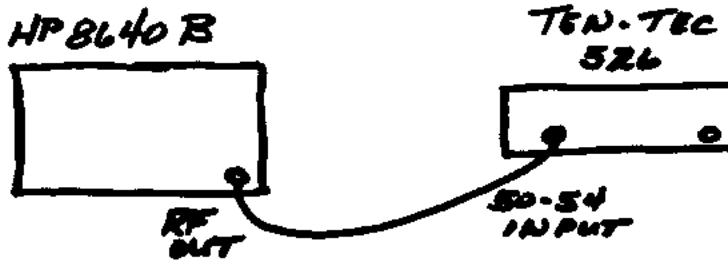


FIGURE 1B

FIGURE 2A

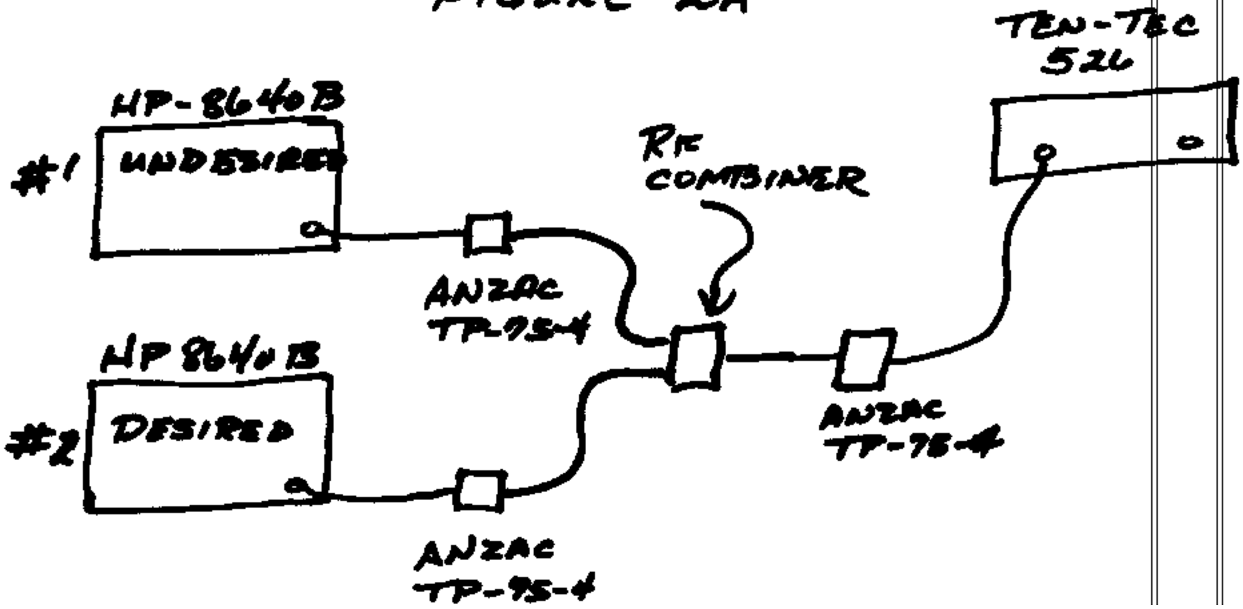
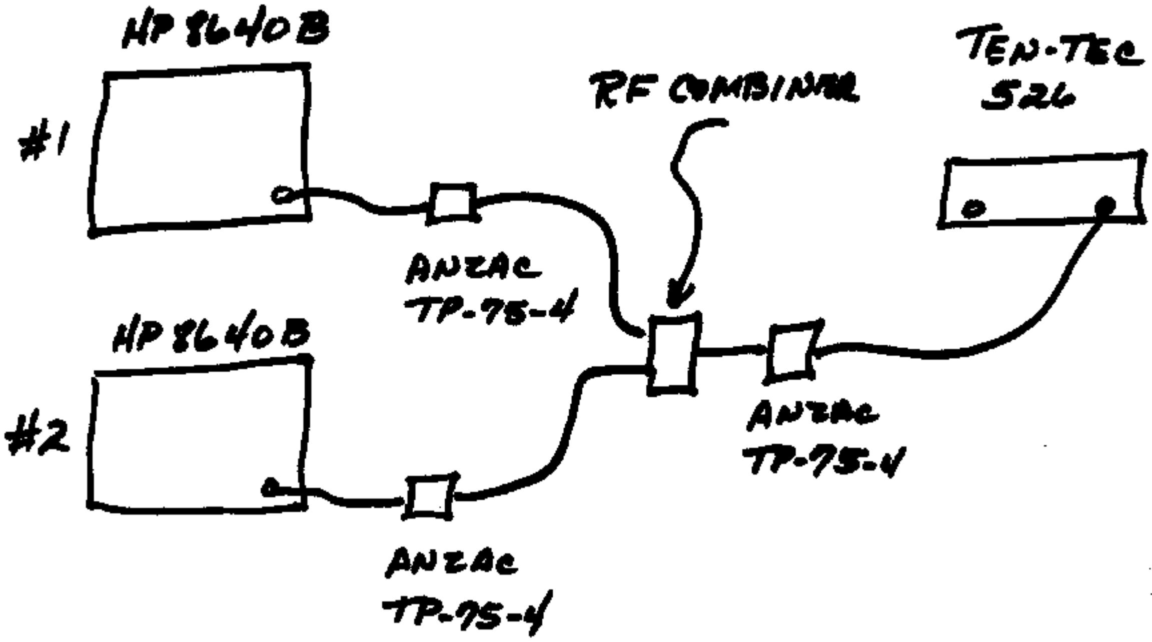


FIGURE 2B


HP 8640B
#1
ANZAC
TP-75-4
RF COMBINER
TEN-TEC
526
HP 8640B
#2
ANZAC
TP-75-4
ANZAC
TP-75-4