AM/FM Modulation

AM/FM modulation technology is one kind of traditional analog modulation in Radio communication system. It uses variable amplitude carier to modulate the original signal. Like the voice or Audio signal, usually uses AM modulation technology before, but it still has some shortcoming because the signal is easily interfered by other analog signals, so it is not common used in today’s communication system, but AM modulation is still the standard case in School Lab.
Feature:  
1. Use DSG3060 RF Signal Generator + DSA875 Spectrum Analyzer

Advantage:  
1. High DANL Specification on DSA875.  
2. Multiple and diversified measurement function on DSA875.

Benefit:  
1. Fast capture the AM modulation spectro-lines.  
2. Find the AM modulation line spacing easily.  
3. Peak table can easily sorted the measurement data.
Required Equipment List

1. DSA875/832/832E/815 Spectrum Analyzer
2. DSG3060/3030/830/815 RF Signal Generator
3. DSA Utility Kit
AM modulation measurement Setup

1. Connect the SMA cable between DSA875 and DSG3060
2. Press “Preset” button on both DSA875 and DSG3060
DSG3060 Setup:
3. Press “FREQ” button and set the frequency to 500MHz.
4. Press “LEVEL” button and set the level to -10dBm.
5. Press “AM” button and set the freq to 100KHz.
6. Select Switch item and enable “On”.
7. Press “MOD” and “RF” button on.
AM modulation measurement Setup:

8. Press “FREQ” button and set the center frequency to 500MHz.
9. Press “SPAN” button and set the span to 1MHz.
10. Press “BW/Det” and set the RBW to 3KHz. The AM Modulation spectrum can be shown on Display as below diagram.
AM modulation measurement Setup

11. Press “Marker” and you can see the frequency and power information is shown on left side of display.
12. Press “Peak” and set to Peak Right item, you can see the AM modulation spectrum spacing is 100KHz.
AM modulation measurement Setup

DSA875 Setup:
13. Change to next page and select Peak Table and switch the state to “On”.
14. Press Pk Readout item and select >DL. You can adjust the display limit line to sort your result criteria as you like.
FM demodulation Setup

1. Connect the Radio Antenna to DSA815 Spectrum Analyzer.
2. Press “Preset” button on DSA815 and back to default setup.
FM demodulation Setup

3. Press “FREQ” and setup the center frequency to 103.3MHz.
4. Press “SPAN” and setup the span value to 500KHz.
5. Press “BW/Det” and setup the RBW to 1KHz, then you can see the FM spectrum as below diagram indicated.
FM demodulation Setup

6. Press “Marker” and the frequency and power level is shown on Display.

Marker
103.300000 MHz
-39.23 dBm
FM demodulation Setup

7. Press “Demod” and select the “FM” item
FM demodulation Setup

7. Press “Demod Setup”.

Marker 103.300000 MHz -29.95 dBm
7. Select “Earphone” item to “On” and connect the earphone to spectrum Analyzer as below indicated. Users can hear the FM radio program in earphone.
THANK YOU