

EXHIBIT 2: System Theory of Operation and Description

This FCC license application is to obtain the permission for Experimental Radio service that allows the transmission of the low RF power in the GSM frequency ranges listed as follows:

420 – 430 MHz, 460 – 470 MHz, 810 – 826 MHz, 869 – 894 MHz, 921 – 960 MHz,
1805 – 1880 MHz, 1930 – 1990 MHz, 2110 – 2170 MHz, 2620 – 2690 MHz

The equipment that used for this experiment development laboratory includes:

1. Two Base Transmitter Station (BTS) units, which are used to generate the above RF signals that would be fed directly into the NCU
2. One Network Control Unit (NCU) is used to amplify the receive RF signal from the BTS units, and raising the noise floor level of this RF signal in one or more dedicated GSM bands as listed above before routing to the Leaky Line Antennas for transmission.
3. GORE™ Leaky Feeder Antennas are used to propagate the RF signal that is being generated by the NCU.
4. An RF/EMI Shielding Portable Enclosure to isolate (with >80 dB of RF attenuation in the frequency band 300MHz-16 GHz) the outside electromagnetic signals from the inside electromagnetic signals in order to maintain an independent area free from outside interference. Secondly, the EMI chamber will also be used to confine the OMTS (Pico Cell) transmit signals inside the chamber when making a phone call

The NCU Maximum RF output power is about 33dBm. This signal is attenuated by a 33dB Attenuator, which will result in 0 dBm RF level to be fed into the Leaky Line Antennas. Since the RF/EMI Shielding Enclosure has >80dB RF isolation, the maximum RF radiated power that may be seen outside of the EMI chamber is -80 dBm. However, the RF radiation power could be seen to be about -57dBm at the coaxial cable between the NCU and the EMI chamber due to its typical maximum isolation of 90 dB.

