Antenna Type Selection with consideration for the Installation Environment

(GPS) Received signal level at meter installation		Antenna solution
(- 150 dBm or better)-70~75%	🟢	Meter with internal/embedded antenna, external antenna is not required
(- 150 dBm to -155 dBm)-20~25%	🟡	Use omni-directional external antennas to improve signal level to -150 dBm or better. In special cases use directional high gaining antenna - P/N:OE-GPS-RD-C5 3m
-155 dBm or less- Move Antenna to the right position	🔴	Risk level if meter's RSSI can't be increased to close to -155 dBm or better use alternative communication method

(GPRS) Received signal level at meter installation		Antenna solution
(- 90 dBm or better) - 85~90%	🟢	Meter with internal/embedded antenna, external antenna is not required
(- 91 dBm to -100 dBm) - 10~15%	🟡	Use omni-directional external antennas to improve signal level to -90 dBm or better. In special cases use directional high gaining antenna - P/N:OS-GSMPB-00-C5
-100 dBm or less - Move Antenna to the right position	🔴	Risk level if meter's RSSI can't be increased to close to -90 dBm or better use alternative communication method

(ISM Band) Received signal level at meter installation		Antenna solution
(- 85 dBm or better) - 80~85%	🟢	Meter with internal/embedded antenna, external antenna is not required
(- 85 dBm to -95 dBm) - 15~20%	🟡	Use omni-directional external antennas to improve signal level to -85 dBm or better. In special cases use directional high gaining antenna - P/N: OS-ISM24-02/07-C5R
-95 dBm or less - Move Antenna to the right position	🔴	Risk level if meter's RSSI can't be increased to close to -95 dBm or better use alternative communication method

▪ Practical Antenna Solutions for WM2M Applications

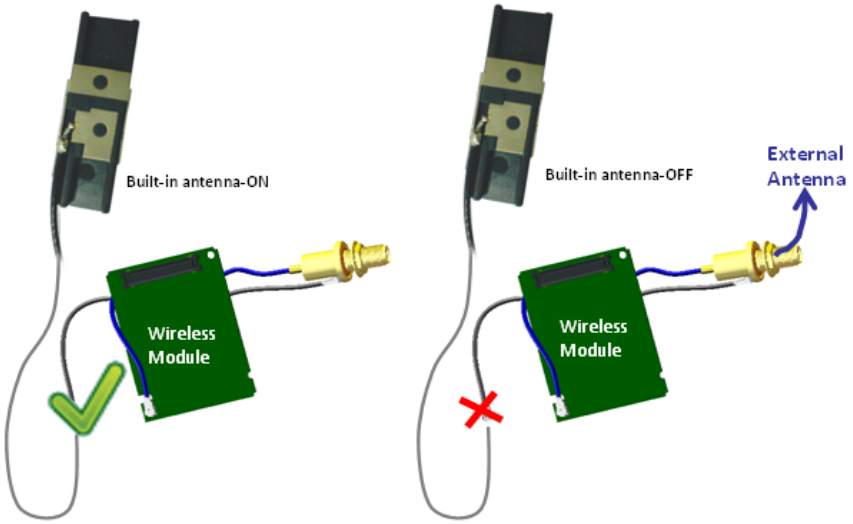
Embedded antenna **can not 100%** cover your application requirement
In certain cases, the antenna needs to be **installed away** from the equipment
CDMA requires **higher diversity** performance

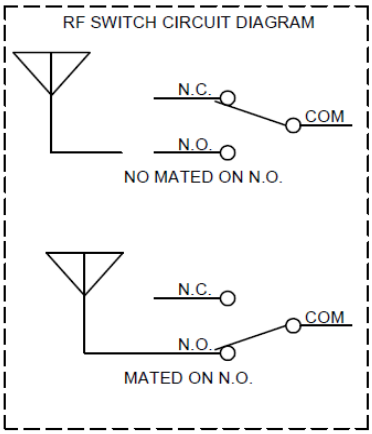
GTT Innovative Solution …

CBL type RF-Switch

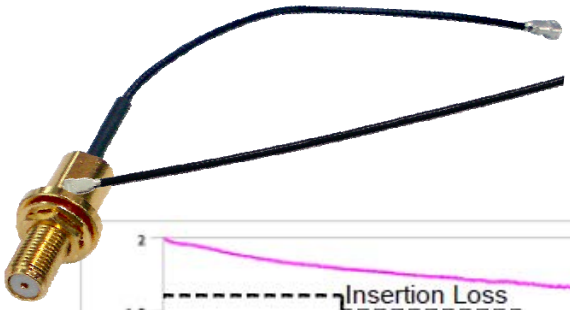
Offering Antenna Link Flexibility in M2M Platforms …

▪ Cable-type RF-Switch Functionality



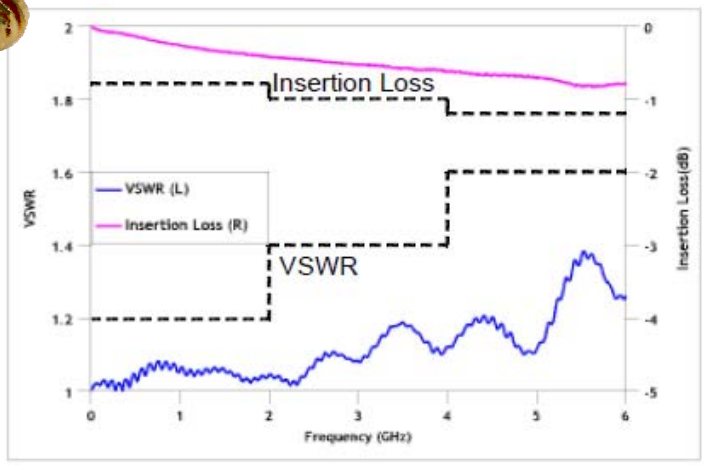


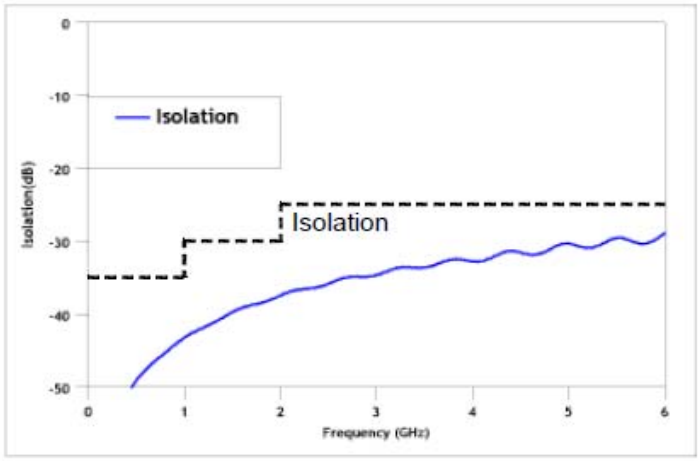
▪ Performance Tests



Insertion Loss @ Length condition: OD1.37mm, 100mm

VSWR	Insertion Loss	Isolation
1.2:1(DC~2.0GHz) 1.4:1(2.0~4.0GHz) 1.6:1(4.0~6.0GHz)	0.8dB(DC~2.0GHz) 1.0dB(2.0~4.0GHz) 1.2dB(4.0~6.0GHz)	-35dB(DC~1.0GHz) -30dB(1.0~2.0GHz) -25dB(3.0~6.0GHz)





▪ Ordering Information

	Internal Links (U.FL series)	OD1.37		
		10cm	20cm	30cm
1	N BH Jack Switch	C11-4-UFL-010	C11-4-UFL-020	C11-4-UFL-030
2	N BH Switch + Terminator	C13-4-UFL-010	C13-4-UFL-020	C13-4-UFL-030
3	SMA BH Jack Switch	C12-4-UFL-010	C12-4-UFL-020	C12-4-UFL-030
4	SMA BH Switch + Terminator	C14-4-UFL-010	C14-4-UFL-020	C14-4-UFL-030