

AMOTECH ANTENNA

Mobile, Automotive, Laptop & AMR Antenna Solution

Based on advanced material technology and excellent RF design, Amotech's Antennas offer customers with best solutions for the numerous applications which cover from very low frequencies for NFC antennas to UWB antennas, with leading antenna technology

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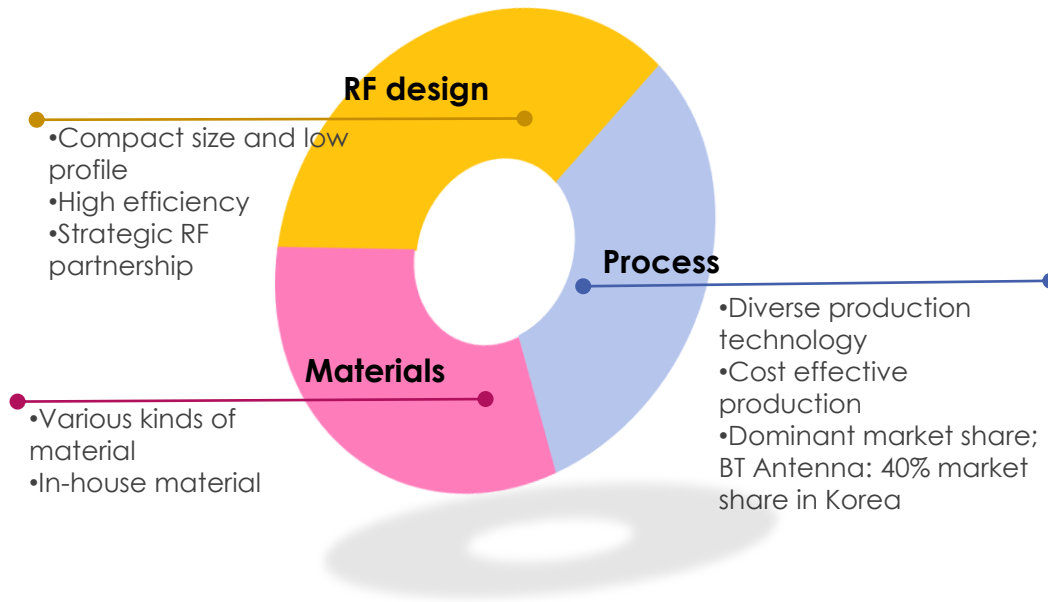
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Factory

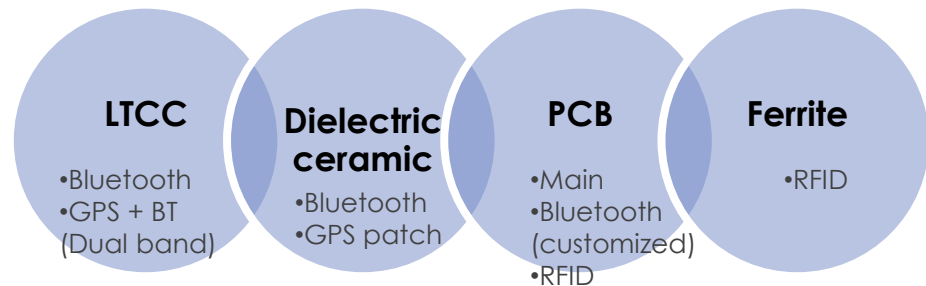
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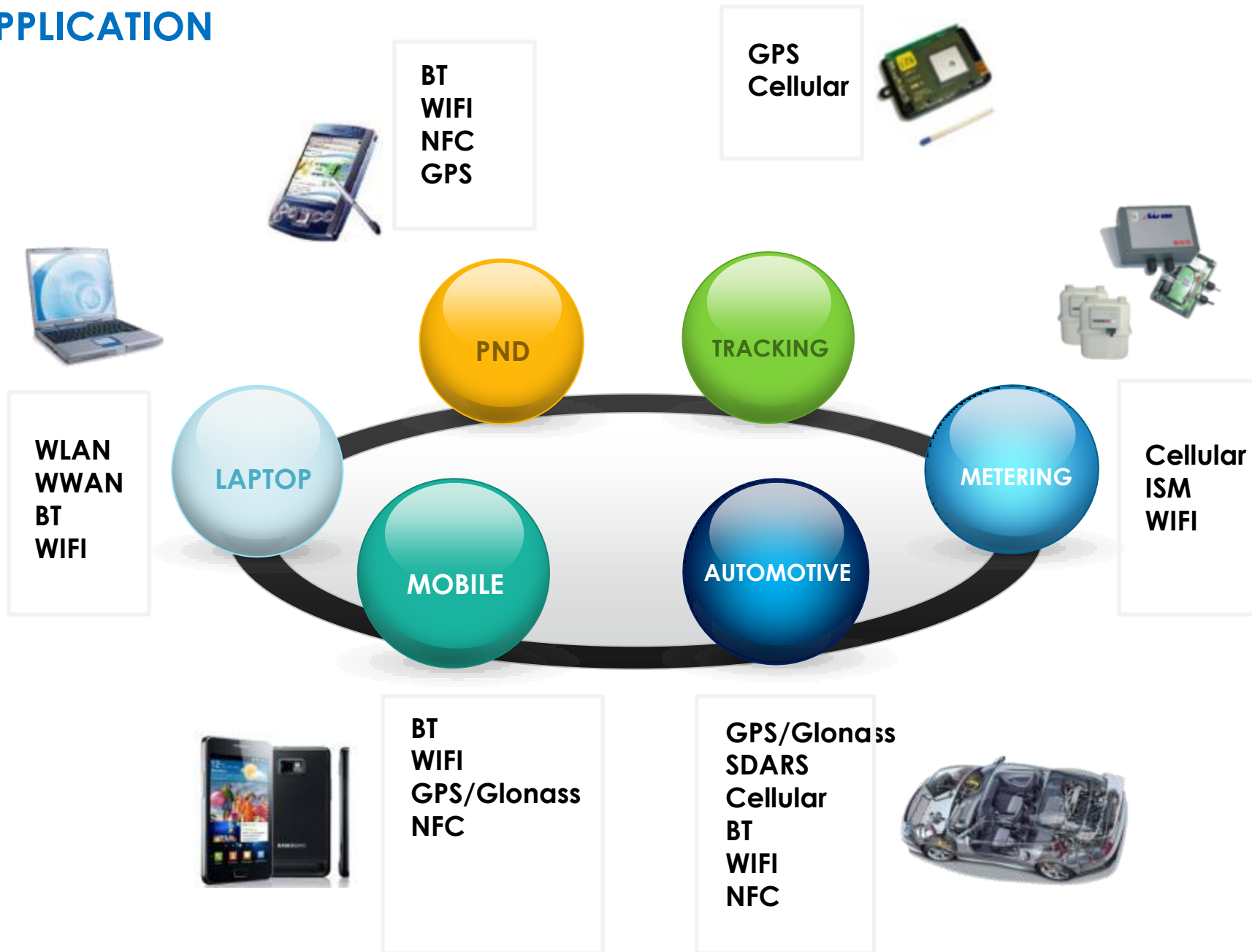
CORE COMPETITIVENESS



VARIOUS MATERIALS FOR ANTENNAS



APPLICATION



PATCH ANTENNAS


1. GPS / SDARS : Passive

Features

- Pin / SMD Type Patch antennas
- GPS/Glonass/Beidou/SDARS antennas

Technology

- No 1 market share in automotive GPS built in navigation system
- Matching service based on various experience
- High yield & capacity with competitive price and short term delivery
- Small size Antenna
- RoHS compliant

| Type | Part Number | Size (mm) | Frequency (MHz) | Gain@zenith (dBic) | Axial Ratio (dB) | Polarization | G/P Size (mm) |
|---------------------------------------------------------------------------------------------------|-------------------|-----------|-----------------|--------------------|------------------|--------------|---------------|
| Patch Antenna  | A9(Pin) | 9x9x4 | GPS(L1) | -4.5 | Typ.4.0 | RHCP | 30x30 |
| | B9 (SMD) | 9x9x4 | GPS(L1) | -4.5 | Typ.4.0 | RHCP | 30x30 |
| | D12(Pin) | 12x12x4 | GPSL1 | -2.0 | Typ.3.0 | RHCP | 12x12 |
| | E12(SMD) | 12x12x4 | GPSL1 | 0 | Typ.3.0 | RHCP | 40x40 |
| | A15(Pin) | 15x15x4 | GPS(L1) | 0.9 | Typ.2.0 | RHCP | 30x30 |
| | A18-2T | 18x18x2 | GPS(L1) | 1.0 | Typ.3.0 | RHCP | 50x50 |
| | A18-4T | 18x18x4 | GPSL1 | 3.4 | Typ.2.0 | RHCP | 50x50 |
| | B18-4T (SMD) | 18x18x4 | GPSL1 | 4.0 | Typ.2.0 | RHCP | 70x70 |
| | A20-4565753-STD60 | 20x20x4 | GPS(L1) | 4.8 | Typ.2.0 | RHCP | 60x60 |
| | B25-2T | 25x25x2 | GPS(L1) | 3.8 | Typ.3.0 | RHCP | 70x70 |
| | A25-4T | 25x25x4 | GPS(L1) | 5.8 | Typ.2.0 | RHCP | 70x70 |
| | G25-4T (SMD) | 25x25x4 | GPS(L1) | 5.8 | Typ.2.0 | RHCP | 70x70 |
| | B35-3452753-STD35 | 35x35x3 | GPS(L1) | 2.4 | Typ.2.0 | RHCP | 35x35 |
| | S25-4102387-STD70 | 25x25x4 | XM | 5.0 | Typ.2.0 | LHCP | 70x70 |
| | SB25-6T | 25x25x6 | SDARS | 6.0 | Typ.2.0 | LHCP | 70x70 |
| SB34-STD70 | 34x34x3.2 | SDARS | 5.0 | Typ.2.0 | LHCP | 70x70 | |

PATCH ANTENNAS


2. GPS/Glonass/Beidou/Galileo : Passive

Features

- Pin / SMD Type Patch antennas
- GPS/Glonass/Beidou/SDARS antennas

Technology

- No 1 market share in automotive GPS built in navigation system
- Matching service based on various experience
- High yield & capacity with competitive price and short term delivery
- Small size Antenna
- RoHS compliant

| Type | Part Number | Size (mm) | Frequency (MHz) | Gain@zenith (dBic) | Axial Ratio (dB) | Polarization | G/P Size (mm) |
|---------------------------------------------------------------------------------------------------|-------------------|-----------|--------------------------------|--------------------|------------------|--------------|---------------|
| Patch Antenna  | D12(Pin) | 12x12x4 | GPSL1/Glonass | -2.3 | Typ. 17.0 | RHEP | 40x40 |
| | D12(Pin) | 12x12x4 | GPSL1/Beidou | -1.5 | Typ. 15.0 | RHEP | 40x40 |
| | E12(SMD) | 12x12x4 | GPSL1/Glonass | -2.5 | Typ. 18.0 | RHEP | 40x40 |
| | E12(SMD) | 12x12x4 | GPSL1/Beidou | -1.8 | Typ. 15.0 | RHEP | 40x40 |
| | A18-4T | 18x18x4 | GPSL1/Glonass | 2.8 | Typ. 12.0 | RHEP | 70x70 |
| | A18-4T | 18x18x4 | GPSL1/Beidou | 3.0 | Typ. 10.0 | RHEP | 70x70 |
| | B18-4T (SMD) | 18x18x4 | GPSL1/Glonass | 2.7 | Typ. 12.0 | RHEP | 70x70 |
| | B18-4T (SMD) | 18x18x4 | GPSL1/Beidou | 2.8 | Typ. 11.0 | RHEP | 70x70 |
| | A25-4102920-AMT02 | 25x25x4 | GPSL1/Glonass | 3.7 | Typ. 8 | RHEP | 70x70 |
| | A25-4T | 25x25x4 | GPSL1/Beidou | 4.5 | Typ. 6 | RHEP | 70x70 |
| | A25-6B02920-AMT15 | 25x25x6 | GPSL1/Glonass | 4.0 | Typ. 8 | RHEP | 70x70 |
| | A25-6T | 25x25x6 | GPSL1/Beidou | 5.0 | Typ. 4 | RHEP | 70x70 |
| | N25-4102820-GNS5 | 25x25x4 | GPS/Glonass/ Galileo/Beidou | 2.0 | 2.0 | RHCP | 70x70 |
| | N25-6B02920-GNS6 | 25x25x6 | GPS/Glonass/ Galileo/Beidou | 3.0 | 2.0 | RHCP | 70x70 |

PATCH ANTENNAS

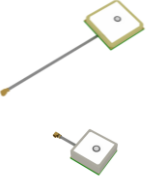

3. GPS / Glonass / Beidou : Active

Features

- GPS Embedded Active Antennas
- GPS External Active Antennas

Technology

- No 1 market share in automotive GPS built in navigation system
- Matching service based on various experience
- High yield & capacity with competitive price and short term delivery
- Small size Antenna
- RoHS compliant

| Type | Part Number | Size (mm) | Frequency (MHz) | LNA Gain (dB) | NF (dB) | Current (mA) | Cable(mm)/connector |
|-------------------------------------------------------------------------------------------------------------|-------------------------|------------|---------------------|---------------|----------|---------------|----------------------------------|
| Embedded  | AGA121202-S0-A3 | 12x12-4.8T | GPS | Typ. 19 | Typ. 1.2 | Typ. 4.0 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| | AGA121204-S0-A13 | 12x12-6.8T | GPS | Typ. 19 | Typ. 1.2 | Typ. 4.0 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| | AGA121204-S0-A11 | 12x12-6.8T | GPS/Glonass | Typ. 19 | Typ. 1.2 | Typ. 4.0 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| | AGA151502-S0-A1 | 15x15-4.8T | GPS | Typ. 19 | Typ. 1.2 | Typ. 4.0 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| | AGA151504-S0-A7 | 15x15-6.8T | GPS | Typ. 19 | Typ. 1.2 | Typ. 4.0 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| | AGA151504-S0-A8 | 15x15-6.8T | GPS/Glonass | Typ. 19 | Typ. 1.2 | Typ. 4.0 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| | AGA181802-S0-A3 | 18x18-4.8T | GPS | Typ. 19 | Typ. 1.2 | Typ. 4.0 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| | AGA181804-S0-A7 | 18x18-6.8T | GPS | Typ. 19 | Typ. 1.2 | Typ. 4.0 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| | AGA181804-S0-A8 | 18x18-6.8T | GPS/Glonass | Typ. 19 | Typ. 1.2 | Typ. 4.0 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| | AGA252502-S0-A5 | 25x25-6.5T | GPS | Typ. 30 | Typ. 1.5 | Typ. 11 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| | AGA252502-S0-A6 | 25x25-6.5T | GPS/Glonass | Typ. 30 | Typ. 1.5 | Typ. 11 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| | AGA252504-S0-A6 | 25x25-8.5T | GPS | Typ. 30 | Typ. 1.5 | Typ. 11 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| | AGA252504-S0-A7 | 25x25-8.5T | GPS/Glonass | Typ. 30 | Typ. 1.5 | Typ. 11 @ 3V | Φ=1.13, L=100 / U.FL Equivalence |
| External Ant.  | AGA363913-S0-A2 | 36x39-13T | GPS | Typ. 30 | Typ. 1.5 | Typ. 14 @ 5V | RG174 Φ2.8, L=3,000/ SMA |
| | AGA363913-S0-A3 | 36x39-13T | GPS/Beidou | Typ. 30 | Typ. 1.5 | Typ. 14 @ 5V | RG174 Φ2.8, L=3,000/ SMA |
| | AGA363913-S0-A4 | 36x39-13T | GPS/Glonass | Typ. 30 | Typ. 1.5 | Typ. 14 @ 5V | RG174 Φ2.8, L=3,000/ SMA |
| | AGA363913-S0-A1 | 36x39-13T | GPS/Glonass /Beidou | Typ. 30 | Typ. 1.5 | Typ. 14 @ 5V | RG174 Φ2.8, L=3,000/ SMA |

BT & WIFI ANTENNAS

Features

- LTCC chip type – Low cost
- Dielectric chip type – Space saving
- New chip type – Less sensitive to ground effect
- FPCB type – Space saving
- Frequency : 2400~2485 MHz


Application


- PDA
- Mobile phone
- DMB phone
- Laptop
- Headset
- Car entertainment
- MP3
- USB dongles

Technology

- Accumulated in-house production technology involving ceramic process
- Optimization of antenna performance and customization based on various application experiences
- Strong R&D design capability



| Application | Type | Part Number | Size (mm) | Frequency (MHz) | VSWR | Gain (dBi) | |
|-------------|-----------------------------------------------------------------------------------------------------|-------------|--------------|-----------------|-------|------------|------|
| | | | | | | Average | Peak |
| BT / WiFi | Chip (Helical)  | ALA321C3 | 3.2x1.6x1.2 | 2400~2485 | 3.0:1 | -1.6 | 2.3 |
| | | ALA621C4 | 6.0x2.0x1.2 | | 2.5:1 | -1.0 | 3.5 |
| | | ALA621C5 | 6.0x2.0x1.0 | | 2.5:1 | -1.0 | 3.5 |
| | | ALA931C5 | 9.0x3.0x1.2 | | 2.5:1 | -0.5 | 3.5 |
| | | ALA131C3 | 11.0x3.0x1.2 | | 2.5:1 | -0.5 | 4.0 |

| Application | Type | Part Number | Size (mm) | Frequency (MHz) | VSWR | Gain (dBi) | |
|-------------|---------------------------------------------------------------------------------------------------------|-----------------|--------------|-----------------|-------|------------|------|
| | | | | | | Average | Peak |
| BT / WiFi | Chip (Mono-Pole)  | AMAN402012MS01 | 4.0x2.0x1.2 | 2400~2485 | 3.0:1 | -1.6 | 2.6 |
| | | AMAN802012MS01 | 8.0x2.0x1.2 | | 2.5:1 | -0.5 | 3.5 |
| | | AMAN1003015ST04 | 10.0x3.0x1.5 | 5150~5850 | 2.0:1 | -1.4 | - |
| | | AMAN1004015ST05 | 10.0x3.0x1.5 | | 2.0:1 | -1.6 | - |

BT & WIFI ANTENNAS

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- New chip type – Less sensitive to ground effect
- FPCB type – Space saving
- Frequency : 2400~2485 MHz

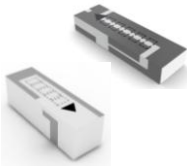
Application

- PDA
- Mobile phone
- DMB phone
- Laptop
- Headset
- Car entertainment
- MP3
- USB dongles

Technology

- Accumulated in-house production technology involving ceramic process
- Optimization of antenna performance and customization based on various application experiences
- Strong R&D design capability



| Application | Type | Part Number | Size (mm) | Frequency (MHz) | VSWR | Gain (dBi) | |
|-------------|----------------------------------------------------------------------------------------------------|------------------------------|--------------|------------------------|-------|------------|------|
| | | | | | | Average | Peak |
| BT / WiFi | Chip (PIFA)  | AMAN201510ST01 | 2.0x1.5x1.0 | 2400~2485 | 3.0:1 | -1.0 | 3.0 |
| | | AMAN301512ST01 | 3.0x1.5x1.2 | | 3.0:1 | -1.0 | 3.0 |
| | | AMAN402012ST01 | 4.0x2.0x1.2 | | 3.0:1 | -1.0 | 3.0 |
| | | AMAN1003030ST02 Dual band | 10.0x3.0x3.0 | 2400~2485 5150~5850 | 2.5:1 | -2.0 | - |
| | | AMAN1003030ST03 | 10.0x3.0x3.0 | 2400~2485 | 3.0:1 | -1.0 | 3.0 |
| | | AMAN1003015ST06 Dual band | 10.0x3.0x3.0 | 2400~2485 5150~5850 | 2.5:1 | -1.2 | - |

GSM & ISM BAND ANTENNAS

Features

- GSM quad and penta band Antennas
- ISM band Antennas



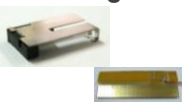

Applications

- Tracking devices
- AMR / Home automation
- Telemetry systems
- Remote control
- Short distance communication

Technology

- Chip type : Small size & High durability
- PCB & FPCB type : Low profile & high efficiency
: Adhesive tape for easy mounting
- Helical type : Easy optimizing with external lumped matching components



| Type | Part Number | Size (mm) | Frequency (MHz) | VSWR | Gain (dBi) | | EVB Size (mm) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------|-----------------|-------|------------|------|---------------|
| | | | | | Average | Peak | |
| Helical type - MAC Mono-pole -868/915MHz  | AMAN903012ST05 | 9.0x3.0x1.2 | 868MHz | 2;1 | -7 | -3.4 | |
| | | 9.0x3.0x1.2 | 915MHz | 2:1 | -4 | -1.3 | |
| | AMMAS002 | 34.0x7.0x0.75 | 868MHz | 3:1 | - | 1.9 | |
| | AMMAS001 | 34.0x7.0x0.75 | 915MHz | 3:1 | - | 2 | |
| PCB/FPCB & Cable Assembly Antenna  | AMMAP007 | 40.0x15.0x0.55 | GSM850 | 3:1 | Min. -3.9 | - | |
| | AMMAP008 | 40.0x15.0x0.14 | | 3:1 | Min. -3.4 | - | |
| | AMMAP009 | 40.0x15.0x0.14 | | 3:1 | Min. -4.5 | - | |
| Customizing  | Press / FPCB Type With Carrier | User Option | GSM900 | - | - | - | |
| Main Chip Antenna (SMD)  | AMMAP003(F) | 24.0x5.5x4.4 | DCS1800 | 3.5:1 | Min. -3.7 | 4 | 114x45 |
| | AMMAP005(R) | 24.0x5.5x4.4 | PCS1900 | | | | |
| | AMMAQ002 | 22.0x5.5x4.4 | WCDMA | | | | |
| | | | UMTS | 3.5:1 | Min. -3.7 | 4 | 114x45 |
| | | | | 3.5:1 | Min. -3.3 | 3 | 114x45 |

NFC / NFC+WPC ANTENNAS

Providing total NFC solution (Antenna + Ferrite sheet + Design & matching)

Features

- Various Design Awarded at diverse condition
- A lot of experience for certification such as EMVCO, ISO, ISIS etc
- Technical support on site
- 30% market share in NFC enabled smart phone market

Applications

- Mobile phone
- Laptop / Notebook
- Contactless IC card
- RFID reader / writer / tag
- Automotive communication & identification

Rear Case



EMV 2.0.1
Type A & B

Battery Pack



EMV 2.0.1
Type A & B

Battery Pack



EMV 2.0.1
Type A & B

Back Cover

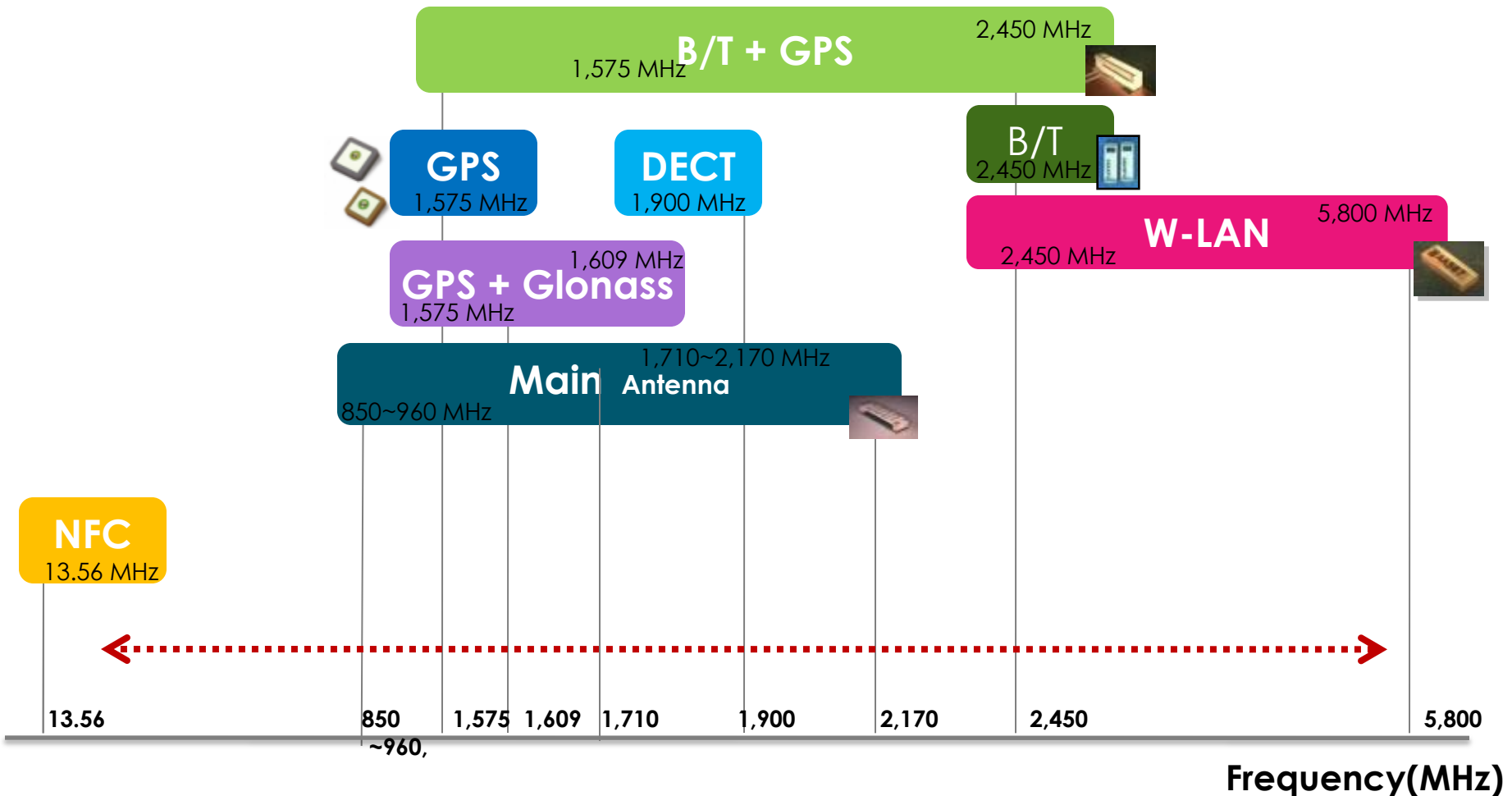


ISIS
Qi standard

VARIOUS PRODUCT RANGE BY FREQUENCY

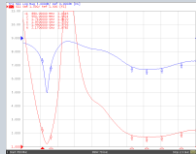

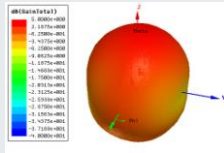
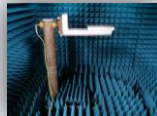


Amotech's Antennas cover wide variety frequency range











MEASUREMENT EQUIPMENT

Passive Test

| Item | Result | Equipment |
|---------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Center Frequency & Return-loss (VSWR) |  | Network Analyzer  |
| 2D/3D Anechoic Chamber |  | 8x4x4(2D) / 6x3x3(3D) / 2.8x1.6x1.8(3D)  |

Active Test

| | | |
|----------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GPS Signal Generator |  | Spirent STR4500 |
| NFC EMVCo |  | 3 sets of EMVCo full test bench   |
| BT Tester | | TC3000C (Tescom)  |
| WIFI Tester | | MT9960C R&S PTW70 (Anritsu)  |
| Cellular TRP/TIS | | E5515C 8960 (Agilent)   |