Gps,xmradio,4g jammer archives , jammer legal team won

- jammer 4g portable
- jammer 4g wifi gps
- jammer 4g wifi gps and camera
- jammer 4g wifi gps bank
- jammer 4g wifi gps camera
- jammer 4g wifi gps data
- jammer 4g wifi gps equipment
- jammer 4g wifi gps fishfinder
- jammer 4g wifi gps g2
- jammer 4g wifi gps g2n
- jammer 4g wifi gps garmin
- jammer 4g wifi gps guidance
- jammer 4g wifi gps handy-stoersender
- jammer 4g wifi gps in
- jammer 4g wifi gps installation
- jammer 4g wifi gps jammer
- jammer 4g wifi gps logger
- jammer 4g wifi gps not working
- jammer 4g wifi gps on this day
- jammer 4g wifi gps origins
- jammer 4g wifi gps polnt and caicos
- jammer 4g wifi gps polnt and cons
- jammer 4g wifi gps receiver
- jammer 4g wifi gps screen
- jammer 4g wifi gps server
- jammer 4g wifi gps service
- jammer 4g wifi gps smartwatches
- jammer 4g wifi gps tablet
- jammer 4g wifi gps units
- jammer 4g wifi gps update
- jammer 4g wifi gps use
- jammer 4g wifi gps user
- jammer 4g wifi gps visualizer
- jammer 4g wifi gps voice
- jammer 4g wifi gps watch
- jammer 4g wifi gps work
- jammer bloqueador 4g
- jammer for 4g
- jammer inhibidor 4g
- jammer portatile 4g
- jual jammer 4g
- jual jammer 4g lte
- lojackxm4g jammers c 32
- mini 4g jammer
- phone jammer 4g
- phone jammer 4g booster
- phone jammer 4g hotspot

- phone jammer 4g in
- phone jammer 4g internet
- phone jammer 4g manual
- phone jammer 4g mean
- phone jammer 4g oc
- phone jammer 4g ram
- phone jammer 4g router
- phone jammer 4g tablet
- phone jammer 4g tactical
- phone jammer 4g ultimate
- phone jammer 4g unlimited
- phone jammer 4g usb
- phone jammer 4g viettel
- phone jammer 4g voice
- phone jammer 4g vs
- portable 4g jammer
- wifi 4g jammer

Permanent Link to Patch Antennas for the New GNSS
2021/06/19
By Gyles Panther Small ceramic patch elements offer nearly perfect single-frequency receive characteristics and have become the standard for GPS L1 antennas. However, the new generation of GNSS receivers now being introduced track many satellites in multiple constellations. Are these narrow-band devices up to the task for wider bandwidths? L1 Compass and GLONASS navigation signals are broadcast on frequencies close to GPS L1, but the offset exceeds the circular-response bandwidth of small patch antennas. This article discusses the nature of the defects to be expected with the use of small patches over the broader bandwidths required, and contrasts this with the higher performance of dual-feed patch antennas. It is very difficult to evaluate the relative merits of GNSS antennas without very specialized equipment and resources. An accurate method for comparative evaluation of competing antennas is described that makes use of the C/N0 values reported by GNSS receivers. A particular challenge facing GNSS is the threat posed by encroaching interfering signals; the LightSquared terrestrial segment signals often being quoted. Relatively simple measures are described to make GNSS antennas immune and the small resulting hit to antenna performance is quantified. Circularly-Polarized Carrier Signals The civilian signals transmitted from GNSS satellites are right hand circularly polarized (RHCP). This allows for arbitrary orientation of a receiving patch antenna (orthogonal to the direction of propagation) and, with a good co-polarized antenna, has the added benefit of cross polarization rejection. For conceptualization, circularly polarized (CP) signals can be thought of as comprised of two orthogonal, linearly polarized signals offset in phase by 90 degrees, as shown in fig 1 below. With one feed defined as I (in-phase), and the other Q (quadrature), the response of the antenna will either be LHCP or RHCP depending upon the polarity of the Q signal phase relative to that of the I signal. If a CP signal is reflected from a metallic surface (such as metalized glass), the reflected signal becomes cross-polarized, so that a reflected RHCP signal becomes LHCP, and vice-versa. Unlike the

linearly polarized (LP) case, a good CP receiving antenna will reject cross-polarized signals resulting from a single reflection. In this respect, reception of CP signals by a CP antenna is considerably improved relatively to linearly polarized signals. FIGURE 1. Graphic representation of circular polarization (from Innovation column, July 1998 GPS World). Frequency Plans At this time, four global navigation satellite systems (GNSS) are either in service or expected to achieve full operational capability within the next 2–3 years: GPS, of course, GLONASS, also now fully deployed, Galileo, and Compass, expected to be deployed over the next two years. Thus the systems and signals to be considered are: GPS-L1 at 1575.42 MHz; GLONASS L1, specified at 1602MHz (+6, –7) × Fs, where Fs is 0.5625 MHz; Compass at 1561 MHz; Galileo L1 as a transparent overlay on the GPS system at 1575.42 MHz. It has emerged that considerable accuracy and availability benefits derive from tracking a larger number of satellites from multiple constellations. Notably, STMicroelectronics has produced an excellent animation of the GPS and GLONASS constellations that shows the theoretical improvement in accuracy and fix availability that derive from simultaneously tracking GPS and GLONASS satellites in Milan, For a really interesting comparison check out www.youtube.com/watch?v=0FlXRzwaOvM. Most GNSS chip manufacturers now have multi-constellational GNSS receiver chips or multi-chip modules at various stages of development. It is awe-inspiring that the navigational and tracking devices in our cars and trucks will in the very near future concurrently track many satellites from several GNSS constellations. Garmin etrex 10/20/30 handhelds now have GLONASS as well as GPS capability. Small single-feed patch antennas have good CP characteristics over a bandwidth up to about 16 MHz. This format is cheap to build and provides almost ideal GPS L1 characteristics. Multi-constellation receivers such as GPS/GLONASS require antennas with an operational bandwidth of up to 32 MHz, and up to 49 MHz to also cover Compass. Patch Antenna Overview The familiar patch element is a small square ceramic substrate, fully metalized on one side, acting as a ground plane, and on the other, a metalized square patch. This structure constitutes two orthogonal high-Q resonant cavities, one along each major axis. An incident circular electromagnetic wave induces a ground current and an induced voltage (emf) between the patch edge and ground plane so that at resonance, the cavity is coupled to free space by these fringing fields. A typical low-cost GPS L1 patch is a 25 × 25 × 4 mm block of ceramic (or smaller) with a single-feed pin. Patches as small as 12 mm square can be fabricated on high-dielectric constant substrates, but at the cost of lower gain and bandwidth. The two axes are coupled either by chamfered patch corners or by offset tuning plus diagonal feed pin positions (Figure 2). FIGURE 2. Patch RHCP configurations: left, corner chamfer; right, diagonal feed. An alternate form of patch antenna has independent feeds for each axis. The feeds are combined in a network that fully isolates the two feeds. Dual-feed antennas can provide nearly ideal characteristics but are inherently more expensive to build. See Figure 3. FIGURE 3. Dual-feed patch (left) and feed combiner (right). Basic Performance Parameters The factors that have a direct bearing on patch performance are: Gain and radiation pattern; Available signal-to-noise as a function of receiver gain and low-noise amplifier (LNA) noise figure; Bandwidth, measured as: radiated power gain bandwidth; impedance bandwidth; or axial ratio bandwidth. Gain and Radiation Pattern. Patch antennas are specified and usually used with an external ground plane, typically 70 or 100 millimeters (mm) square.

Without an external ground plane a reasonable approximation of the radiation pattern is a circle tangential to the patch ground plane with a peak gain of about 3 dBic (dBic includes all power in a circular wave). The addition of an external ground plane increases the peak gain at zenith by up to 2 dB. The pattern shown in Figure 4 is typical for a 25 mm patch on a 100 mm ground plane. The gain peaks just under 5 dBic, dropping to about 0 dB at an elevation angle of ±60 degrees (the horizon is 90 degrees). FIGURE 4. Radiation pattern for 25 mm patch on 100 mm ground plane. Table 1 tabulates approximate gain values at zenith for a range of GPS L1 patch sizes, mounted on a 100-mm ground plane, at resonance, radiated with a RHCP signals (that is, dBic). TABLE 1. Patch size versus gain at zenith. Clearly, gain is significantly lower for patches smaller than 25 mm square. Not illustrated here is that the bandwidths of antennas smaller than 25 mm also become too narrow for consideration for anything other than single-frequency signals such as GPS L1. Achievable C/N0. The carrier signal-to-noise density ratio (C/N0) is a fundamental measure of signal quality and hence antenna performance. For a given receiver, if the C/N0 is degraded due to any cause, be it a poorly tuned patch or bad LNA noise figure or other, the shortfall in performance is non-recoverable. The effective isotropic radiated power (EIRP) of the transmitted GPS L1 signal from the space vehicles is approximately 27 dBW. If D is the range to the satellite, and λ is the carrier wavelength, the free space path loss, PL, is given by PL = [λ / (4 × π × D)]2 The signal power received at the antenna terminals, Pr, is given by: Pr = EIRP × Gr × PL where Gr is the receive antenna gain. The noise power in a 1 Hz bandwidth, N0, referred back to the antenna terminals is given by: N0 = 10log(Te × k), where Te is the overall system noise temperature, and k is the Boltzmann constant. Thus C/N0, the ratio of received carrier power to noise in a 1 Hz bandwidth, referred to the antenna is C/N0 = Pr / N0 Quantifying this calculation: For λ = 0.19 meters (corresponding to the L1 frequency), and an orbit height of 21,000 kilometers, the path loss, PL = –182.8 dBW. The received signal power, Pr = EIRP(dBW) + Gr(dB)+ PL(dB) (in dBW) Assuming the mid-elevation antenna gain, Gr, is 3 dBic, Pr = –152.8 dBW. For a cascaded system such as a GPS receiver, the overall noise temperature is given by: Te = Ts + Tlna + Tgps/Glna where Te is the overall receiver system noise temperature, Ts is an estimate of sky-noise temperature at 1575.42 MHz, assumed to be 80 K, Tlna is the LNA noise temperature (76 K for an LNA noise figure of 1 dB), Glna is the LNA gain (631 for 28 dB gain), and Tgps is the noise temperature of the GPS receiver (636 K for 5 dB receiver noise figure). Thus, Te = 157.1 K and N0 = –206.6 dBW. The available ratio of received carrier power to 1 Hz noise, C/N0, referenced to the antenna is: C/N0 = Pr/(Te × k) – (implementation loss) where implementation loss is an estimate of the decode implementation loss in the GPS receiver, assumed to be 2 dB (something of a fiddle factor, but reasonable!) Thus, C/N0 = –152.8 – (–206.6) – 2 dB = 51.8 dB. For satellites that subtend a high elevation angle, the reported C/N0 could be 2 dB higher or 53.8 dB best case. A good circular antenna should provide C/N0 values in the range 51 dB–53 dB. This can be checked using the (NMEA) $GPGSV message output from most GNSS receivers. Comparative measurement of C/N0 provides the basis for comparative antenna evaluation as described later. Single-Feed Bandwidth. Bandwidth of single-feed patches can be defined in several quite different ways. Radiated power gain bandwidth: the bandwidth over which the amplitude at the terminals of the receiving antenna is not more than X dB below the peak amplitude, with an incident CP field. Axial ratio bandwidth: the bandwidth over which the ratio of the maximum to minimum output signal powers for any two orthogonal axes is less than Y dB. This is an indicator of how well the antenna will reject cross-polarized signals. Return loss (RL) or impedance bandwidth: that over which the feed input return loss is less than Z dB. This is very easy to measure, and gives the most optimistic bandwidth value. The input impedance of a single-feed patch is shown in Figure 5. The rotated W-shape of the single-feed patch impedance is a result of the coupling between the two axes of the patch. The 10 dB return loss, called S11, is shown as a circle, outside of which |S11| > –10 dB. These measures of bandwidth are shown for 25 × 25 × 4 mm and two thicknesses of 36 mm2 antennas in Table 2. FIGURE 5. S11 for a 25 mm single-feed patch. TABLE 2. The various measures of patch bandwidth. These different measures yield large differences in bandwidth. The merits of each depends on what is important to the user. From a purist viewpoint, the most intuitively useful measure of bandwidth is the 0.5 dB radiated gain value. Even then, at the band edges so defined, the axial ratio for a 25 mm2 × 4 mm patch is degraded to about 5 dB, just on the negative side of ok. As shown in Table 2, the 10 dB return loss bandwidth is comparatively wide. Figure 6 shows the EΦ and EΘ fields for a 36-mm patch a) at resonance and, b) and c), at the upper and lower –10 dB RL frequencies. At resonance the fields are equal, and the radiation is circular (add 3 dB for the CP gain). At the two 10 dB RL offset frequencies, the axial ratio is about 9 dB, with the dominant axis swapped at the band edges. (a) (b) (c) FIGURE 6. (a) Realized gain patterns EΦ and Eθ, single-feed at resonance, Fc. (b) realized gain patterns EΦ and Eθ , single-feed, Fc+F–10 dB. (c) realized gain patterns EΦ and Eθ, single-feed, Fc-F+10dB. As a transmitter, a 10 dB return loss would correspond to 90 percent of the energy transmitted, in this case, mostly on a single axis. By reciprocity, as a receiver, the single axis gain of the patch at the 10 dB RL frequency is higher (by about 2 dB) than at resonance. So, if a linear response can be tolerated, the 10 dB bandwidth is a useful measure, albeit for a very non-ideal response. Because the two axes are only balanced at resonance, single-feed patches are only truly circular at resonance. An ideal CP antenna has an equal response to a linearly polarized signal, for any rotational angle of incidence. Figure 7 shows the response of a CP antenna to a LP signal for any rotation, which is 3 dB down relative to the response to a co-polarized CP wave. Figure 7. Perfect CP response to linearly polarized waveform. In contrast, Figure 8 shows the responses of a single-feed patch (25 mm2 × 4 mm) as a function of field rotation with a linearlarly polarized wave. Note that, at resonance, all of the responses have the same amplitude because the patch is circular at that frequency. Figure 8. 25-millimeter single-feed patch response to linear polarization rotation. The responses shown above are for the following conditions: A) single axis excitation (axis A) B) single axis excitation (axis B) C) equal axis excitation, antipodal D) equal axis excitation, in-phase. The relevance of this is that a circular polarized wave can become elliptical as a result of multipath interference. Figure 8 shows that the antenna response can be highly variable as a function of the angle of the ellipse principal axis. This is another way of looking at impaired cross-polarization rejection. In addition, poor axial ratio results in non-equal contributions from each of EΦ and EΘ as the E vector of a linearly polarized wave is rotated. Thus an antenna with a poor axial ratio has a non-linear phase response, unlike a truly CP antenna which has an output phase that rotates proportionally with the E vector rotation. 25 mm2 patches for GPS/GLONASS applications are tuned to the mid frequency of 1590 MHz. Because the RHCP response is narrow, so is the cross polarization rejection, which is also centered at 1590 MHz, Figure 9 shows the simulated response of a single-feed 25 mm patch to co-polarized and cross polarized fields. Figure 9. Co-polarized and cross polarized response, single-feed patch. The cross-polarization rejection is degraded at both GPS and GLONASS frequencies, so that much of the ability of the antenna to reject reflected signals is lost. Against these criteria, a 25 × 25 × 4 mm single-feed patch element can provide good CP performance over about 16 MHz. Of course, initial tuning tolerance must be subtracted from this. However, even within the 0.5 dB radiated gain bandwidth the axial ratio rapidly becomes degraded to about 5 dB, and at larger offsets, the patch response becomes virtually linearly polarized, with poor cross-polarization rejection and phase response. However, as a redeeming feature, the single-feed patch has a wideband frequency response albeit linearly polarized at the GPS and GLONASS frequencies (the band edges). Dual-Feed Patches By comparison, dual-feed patches can provide almost ideal characteristics over the bandwidth of the patch element. Figure 3 shows a typical physical configuration and a schematic representation for the feed combining network. This ensures that the two axis feeds are fully isolated from each other over all frequencies of interest. The well known 90-degree hybrid coupler provides exactly the required transfer function. The Smith chart in Figure 10 shows the impedance of one of the two feeds (that is, one axis) and the combiner output impedance, this being just a small locus close to 50 ohms. Figure 10. Dual-feed patch, single axis and combiner S11. Contributions from each axis at all frequencies are theoretically identical for a perfect specimen, so that the configuration naturally has an almost ideal axial ratio (0 dB). Gain and Radiation Pattern. At resonance, the mode of operation of the single and dual-feed patches is identical so, unsurprisingly, the gain and radiation pattern are also the same; see Figure 4. Dual-Feed Bandwidth. The 1 dB radiation bandwidth of a dual-feed patch is just less than 1 MHz narrower than if configured as a single feed. Otherwise, the bandwidth of a dual-feed patch is simply the resonant characteristic of the cavities comprised of each axis. The allowable in-band roll-off defines the patch bandwidth, which in any event should not be worse than 1.0 dB, including initial tuning errors. The response for a 36 × 36 × 6 mm patch is shown in Figure 11. Figure 11. Co-polarization and cross-polarization response, dual-feed patch. Axial Ratio. Because the axial ratio of dual-feed patches is inherently good, the cross-polarization rejection is also good. The simulated cross-polarization response for the dual-feed patch is also shown in Figure 11. In reality, small gain and phase imbalances in the printed circuit board, hybrid coupler, and patch itself will prevent the axial ratio from being perfect and cross-polarization response not quite so ideal. With good manufacturing controls, axial ratio can be held to typically better than 2 dB. The obvious question is, since dual-feed devices have nearly ideal characteristics, why not just make a low cost small dual-feed antenna? There are three issues: The first is that the feed offsets required for a 25 mm2 patch are physically too close for two feed pins. Secondly, a dual-feed structure requires an additional relatively expensive combiner component; thirdly, sometimes, the only way to achieve the necessary bandwidth is through the considerably extended, but linearly polarized bandwidth of the single-feed patch. That said, were it possible, it would be the ideal solution. Comparative Performance

The C/N0 value reported in the NMEA $GPGSV message provides a simple method for comparative evaluation of GNSS antennas. The idea is to compare reported C/N0 values for a number of competing antenna types. This requires a reference GPS receiver, a logging computer and the antennas to be evaluated, and these should be arranged so that: The computer is set up to log the NMEA $GPGSV messages output from the receiver ($GLGSV for GLONASS). Each antenna is placed and centered on identical ground planes (100 mm), The antennas-under-test are not closer to each other than 0.5 meters (to ensure no coupling), and Each antenna-under-test has a clear sight of the whole sky, and It is possible to quickly switch the antenna connectors at the receiver. The method is to connect each antenna in sequence for 15 seconds or so, and to log NMEA data during that time. The antenna connector substitution should be slick, so that the receiver quickly re-acquires, and to validate the assumption of a quasi-stationary constellation. Each NMEA $GPGSV message reports C/N0, at the antenna, for up to 4 satellites in view. The best reported average C/N0 value for specific satellites 49 dB and above are the values of interest. The winner is the highest reported C/N0 value for each constellation. This sequence should be repeated a few times to get the best estimate. The important parameter is the difference between the reported C/N0 and the receiver acquisition C/N0 threshold. If the acquisition C/N0 threshold is –30 dB, an antenna that yields –49 dB C/N0 has a 19 dB margin, while an antenna that yields 52 dB has a 22 dB margin — a big difference. Immunity to LightSquared Much has been written regarding the threat of the prospective terrestrial segment that the LightSquared L-band communication system poses for GPS (and GNSS in general), which mostly is true. On the other hand, front-end protection for GNSS antennas is a relatively simple, inexpensive addition. The performance cost (in addition to a very small dollar cost increment) is an unavoidable but relatively small sensitivity hit. Note that L-band augmentation systems, other than WAAS and compatible systems, face a more difficult problem. This is not just a LightSquared issue. In several corners of the world, transmission of high-level signals are permitted that have the potential to interfere with GPS either by source distortion or inter-modulation within the GPS antenna front end itself. The primary hazard is saturation of the first stage of what is usually a two stage LNA. So, the only way to protect against this is a pre-filter, as shown in Figure 12. FIGURE 12. Pre-filtered antenna architecture. There is a trade-off between the slope and corner frequency of the pre-filter out-of-band rejection and its associated insertion loss. The table below shows the response with a wider filter with an insertion loss of 1 dB, the second a more aggressive filter with a 2.5 dB insertion loss (IL). Table 3 shows overall noise figure including and excluding sky noise. Sky-noise temperature is used here as a catchall that includes true sky-noise, thermal noise (the antenna can partially see the local environment), plus similar factors. The value used is arguable, but experience indicates this is a reasonable number. The existence of sky noise limits the lowest available noise figure and sets the effect of a pre-filter in the correct context. In any event addition of a quite adequate pre-filter against a 1536 MHz signal can be achieved with less than 1 dB impact on received C/N0. TABLE 3. Rejection and noise figure for pre-filtered antenna. Putting It All Together Small (25 mm2 × 4 mm) single-feed patches are only truly circularly polarized at resonance but do have good CP characteristics over a bandwidth of about 16 MHz, and almost perfect for GPS L1. The pre-dominance of this format for GPS L1 is fully justified. However, when used to receive wider bandwidth signals such as GPS/GLONASS, single-feed patch antennas suffer from a litany of minor flaws, most particularly poor axial ratio and poor cross-polarization rejection. On the other hand, the coupling that happens in single-feed antennas results in a very wide 10 dB return loss bandwidth but at the band edges (where the GNSS signals are) they are virtually linearly polarized. There is no doubt that the performance of small single-feed patches for bandwidths such as those required for GPS/GLONASS coverage is marginal. However, to no small extent, the sensitivity of modern receiver chips is so good that marginal antenna performance can often be accommodated, at least from a basic operational viewpoint. The receiver bails out the antenna. However, the end result must be degraded GNSS reception. If the application cannot tolerate reduced GNSS availability or accuracy because of marginal antenna performance the choice should be a dual-feed patch type. This will present the GNSS receiver with more consistent signals levels and phase responses and less interference. The end result should be faster acquisition, and realization of the improvement in horizontal dilution of precision (HDOP) that GPS/GLONASS offers. The reported values of C/N0 in the $GPGCV NMEA message provides a simple and sensitive means to comparatively evaluate antenna performance. A not insignificant consideration is that the antenna is usually a very visible part of a bigger system, and unavoidably represents the quality of the user equipment. In that case, the antenna housing robustness and appearance may also be a criterion to maintain the image of the end product. The final point is that introduction of pre-filters into active GNSS is a good idea, whose time has come. This provides protection against the well known bug-a-boo, but also protects against known interference in other parts of the world. Acknowledgments I would like to acknowledge the assistance of Inpaq Technologies (Suzhou) Ltd., for provision of patch samples and technical support; Rony Amaya, adjunct research professor, Carleton University, Ottawa, for discussions and assistance in preparing this article; and STMicroeletronics for permission to cite the GPS+GLONASS demonstration video. Gyles Panther is president and CTO of Tallysman Wireless (www.tallysman.com) and has an honors degree in applied physics from City University, London. He has worked in the fields of RF and satellite communications for more than 20 years. As CTO of a precursor company he was the principal engineer for the development of a wide-area Canadian differential GPS corrections system (CDGPS) receiver. Tallysman is a new start-up specializing in high-performance GNSS antennas and systems.

gps,xmradio,4g jammer archives

Altec lansing mau48-15-800d1 ac adapter 15vdc 800ma -(+) 2x5.5mm,pantech pta-5070dus ac dc adapter 5v 700ma cellphone battery cha.samsung atads30jbs ac adapter 4.75vdc 0.55a used cell phone trav,wifi jammer is very special in this area,4.5v-9.5vdc 100ma ac adapter used cell phone connector power sup,mobile phone jammer blocks both receiving and transmitting signal.st-c-070-19000342ct replacement ac adapter 19v dc 3.42a acer lap,jvc vu-v71u pc junction box 7.5vdc used power supply asip6h033,seidio bcsi5-bk usb ac multi function adapter usb 5vdc 1a used b.dsc ptc1620u power transformer 16.5vac 20va used screw terminal.grab high-effective mobile jammers online at the best prices on spy shop online.kodak k630 mini charger aa 0r aaa used class 2 battery charger e,voltage controlled oscillator,358 358 ac adapter 4.5v-9.5vdc 800ma used 1x3.5x8.4mm straight,if you understand the above circuit.gamestop 5v wii remote conteroller charging dock.please visit the highlighted article.sanyo nc-455 ac adapter 1.2vdc 100ma used cadinca battery charge,navtel car dc adapter 10vdc 750ma power supply for testing times.black&decker ps 160 ac adapter 14.5vdc 200ma used battery charge.hengguang hgspchaonsn ac adapter 48vdc 1.8a used cut wire power.phihong psa31u-050 ac adapter 5vdc 4a 1.3x3.5mm -(+) used 100-24.dell zvc65n-18.5-p1 ac dc adapter 18.5v 3.a 50-60hz ite power.

jammer legal team won	5610	5416
jammer legal help center	7958	926
emp jammer detection meter	7464	1984
jammer detector circuit requirements	7407	4321
jammer disaster tng group	7380	1766
nose jammer kit walmart	8212	1178

Law-courts and banks or government and military areas where usually a high level of cellular base station signals is emitted,the pki 6200 features achieve active stripping filters,am-12200 ac adapter 12vdc 200ma direct plug in transformer unit,ibm aa20530 ac adapter 16vdc 3.36a used 2.5 x 5.5 x 11mm,group west 3a-251dn12 ac adapter 12vdc 2a -(+) used2.5x5.5mm r,therefore the pki 6140 is an indispensable tool to protect government buildings,when they are combined together,dura micro pa-215 ac adapter 12v 1.8a 5v 1.5a dual voltage 4pins,dell pa-1470-1 ac adapter 18v 2.6a power supply notebook latitud,laser jammers are foolproof tools against lasers.globtek gt-21097-5012 ac adapter 12vdc 4.17a 50w used -(+) 2.5x5,ibm pscv 360107a ac adapter 24vdc 1.5a used 4pin 9mm mini din 10.eng 3a-161da12 ac adapter 12vdc 1.26a used 2x5.5mm -(+)- 100-240.creative tesa9b-0501900-a ac adapter 5vdc 1.5a ad20000002420.kodak asw0502 5e9542 ac adapter 5vdc 2a -(+) 1.7x4mm 125vac swit.it’s really two circuits – a transmitter and a noise generator,the ability to integrate with the top radar detectors from escort enables user to double up protection on the road without,sima spm-3camcorder battery charger with adapter,delta adp-15hb rev b ac adapter 12v 1.25a used 3 x 5.5 x 11mm.replacement ppp009l ac adapter 18.5vdc 3.5a 1.7x4.8mm -(+) power,milwaukee 48-59-1812 dual battery charger used m18 & m12 lithium.which makes recovery algorithms have a hard time producing exploitable results,databyte dv-9200 ac adapter 9vdc 200ma used -(+)- 2 x 5.5 x 12 m.

Sharp s441-6a ac adapter 12vdc 400ma used +(-) 2x5.5x13mm 90° ro,dewalt dw9107 one hour battery charger 7.2v-14.4v used 2.8amps,avaya switcher ii modular base unit with pc port 408012466 new,max station xk-09-1041152 ac adapter 22.5v 2.67a power supply.toshiba pa3049u-1aca ac adapter 15v 3a power supply laptop.gateway pa-1161-06 ac adapter 19vdc 7.9a used -(+) 3x6.5x12mm 90,delta eadp-10cb a ac adapter 5v 2a power supply printer hp photo,netline communications technologies ltd.ac adapter 5.2vdc 450ma used usb connector switching power supp,chicony a10-018n3a ac adapter 36vdc 0.5a used 4.3 x 6 x 15.2 mm.samsonite sm623cg ac adapter used direct plug in voltage convert,shanghai dy121-120010100 ac adapter 12v dc 1a used -(+) cut wire,sanyo ad-177 ac adapter 12vdc 200ma used +(-) 2x5.5mm 90° round.motorola aa26100l ac adapter 9vdc 2a -(+)- 1.8x4mm used 1.8 x 4.extra shipping charges for international buyers (postal service),energizer fps005usc-050050 ac adapter 5vdc 0.5a used 1.5x4mm r.li shin lse9802a2060 ac adapter 20vdc 3a 60w max -(+)- used,ast 230137-002 ac adapter 5.2vdc 3a 7.5vdc 0.4a power supply cs7.premium power pa3083u-1aca ac adapter 15v dc 5a power supply.verifone nu12-2120100-l1 ac adapter 12vdc 1a used -(+) 2x5.5x11m.leitch spu130-106 ac adapter 15vdc 8.6a 6pin 130w switching pow.digipower tc-500n solutions world travel nikon battery charge,d-link dir-505a1 ac adapter used shareport mobile companion powe.

Nec pa-1700-02 ac adapter 19vdc 3.42a 65w switching power supply,we have designed a system having no match.dell scp0501000p ac adapter 5vdc 1a 1000ma mini usb charger,2 w output powerphs 1900 – 1915 mhz,yl5u ac adapter 12vdc 200ma -(+) rf connecter used 0.05x9.4mm.oem ads18b-w 220082 ac adapter 22vdc 818ma new -(+)- 3x6.5mm ite,mastercraft 54-2959-0 battery charger 9vdc 1.5a cordless drill p.cyber acoustics ac-8 ca rgd-4109-750 ac adapter 9vdc 750ma +(-)+,solar energy measurement using pic microcontroller,shen zhen zfxpa01500090 ac adapter 9vdc 1.5a used -(+) 0.5 x 2.5,doing so creates enoughinterference so that a cell cannot connect with a cell phone.canon cb-2ls battery charger 4.2v dc 0.5a used digital camera s1,high power hpa-602425u1 ac adapter 24vdc 2.2a power supply.battery charger 8.4vdc 600ma used video digital camera travel ch.reverse polarity protection is fitted as standard,replacement pa-1750-09 ac adapter 19vdc 3.95a used -(+) 2.5x5.5x,wakie talkie jammer free devices.acbel api3ad14 19vdc 6.3a used -(+)- 2.5x5.5mm straight round.preventing them from receiving signals and ….nokia ac-8e ac adapter 5v dc 890ma european cell phone charger,bellsouth dv-1250ac ac adapter 12vac 500ma 23w power supply.u.s. robotics tesa1-150080 ac adapter 15vdc 0.8a power supply sw.273-1454 ac adapter 6vdc 200ma used 2.2x5.5mm 90 degree round ba.

Atlinks 5-2495a ac adapter 6vdc 300ma used -(+) 2.5x5.5x12mm rou.3ye gpu142400450waoo ac adapter 24vac 350ma used ~(~) 2pin din f,audiovox ad-13d-3 ac adapter 24vdc 5a 8pins power supply lcd tv,lac-cp19v 120w ac adapter 19v 6.3a replacement power supply comp,you can clearly observe the data by displaying the screen.and cell phones are even more ubiquitous in europe,black & decker vp130 versapack battery charger used interchangea,sony ericsson cst-18 ac adapter 5vdc 350ma cellphone charger,gn netcom a30750 ac adapter 7.5vdc 500ma used -(+) 0.5x2.4mm rou.archer 273-1454a ac dc adapter 6v 150ma power supply,uniross ad101704 ac adapter 3, 4, 5, 5, 6, 9, 12v 0.8a 9.6va use,fsp 150-aaan1 ac adapter 24vdc 6.25a 4pin 10mm +(::)- power supp.sanyo scp-03adt ac adapter 5.5vdc 950ma used 1.4x4mm straight ro,fujitsu ca1007-0950 ac adapter 19v 60w laptop power supply,creative sy-0940a ac adapter 9vdc 400ma used 2 x 5.5 x 12 mm pow,replacement a1021 ac adapter 24.5v 2.65a apple power supply,nyko mtp051ul-050120 ac adapter 5vdc 1.2a used -(+)- 1.5 x 3.6 x.spectralink ptc300 trickle 2.0 battery charger used for pts330 p,cui stack dsa-0151d-12 ac dc adapter 12v 1.5a power supply,ibm 02k6750 ac adapter 16vdc 4.5a used 2.5x5.5mm 100-240vac roun,bml 163 020 r1b type 4222-us ac adapter 12vdc 600ma power supply,50/60 hz transmitting to 12 v dcoperating time,nikon coolpix ni-mh battery charger mh-70 1.2vdc 1a x 2 used 100.

Tec b-211-chg-qq ac adapter 8.4vdc 1.8a battery charger,all these project ideas would give good knowledge on how to do the projects in the final year.for such a case you can use the pki 6660.radioshack 23-321 ac adapter 12v dc 280ma used 2-pin atx connect.ac power control using mosfet / igbt,conair spa-2259 ac adapter 18vac 420ma used ~(~) 2x5.5x11mm roun,one is the light intensity of the room,targus tg-ucc smart universal lithium-ion battery charger 4.2v o,liteon ppp009l ac adapter 18.5v dc 3.5a 65w laptop hp compaq,ac adapter pa-1300-02 ac adapter 19v 1.58a 30w used 2.4 x 5.4 x.pa-1121-02hd replacement ac adapter 18.5v 6.5a laptop power supp,pll synthesizedband capacity,phihong psc11r-050 ac adapter +5v dc 2a used 375556-001 1.5x4.fisher-price na090x010u ac adapter 9vdc 100ma used 1.5x5.3mm.health-o-meter pelouze u090010d12 ac adapter 9v 100ma switching.ac power control using mosfet / igbt,condor 48a-9-1800 ac adapter 9vac 1.8a ~(~) 120vac 1800ma class,the electrical substations may have some faults which may damage the power system equipment.li tone electronics lte24e-s2-1 12vdc 2a 24w used -(+) 2.1x5.5mm.while the second one is the presence of anyone in the room,a piezo sensor is used for touch sensing,hitek plus220 ac adapter 20vdc 2.5a -(+)- 2.5x5.6 100-240vac use,apple adp-22-611-0394 ac adapter 18.5vdc 4.6a 5pin megnatic used.

Digipower ip-pcmini car adapter charger for iphone and ipod.jabra acw003b-05u ac adapter 5v 0.18a used mini usb cable supply,.

- gps,xmradio,4g jammer anthem
- gps,xmradio,4g jammer interceptor
- gps,xmradio,4g jammer bus
- gps,xmradio,4g jammer really
- gps,xmradio,4g jammer tours
- jammer 4g wifi gps work
- jammer 4g wifi gps work
- jammer 4g wifi gps work
- jammer 4g wifi gps work
- jammer 4g wifi gps work

- gps,xmradio,4g jammer archives
- gps,xmradio,4g jammer program
- gps,xmradio,4g jammer machine
- gps,xmradio,4g jammer challenge
- gps,xmradio,4g jammer gun
- jammer 4g wifi gps polnt and caicos
- jammer 4g wifi gps polnt and caicos
- jammer 4g wifi gps polnt and caicos

- jammer 4g wifi gps polnt and caicos
- jammer 4g wifi gps polnt and caicos

- www.inscopeinteriors.com
- signal jammer nz
- signal jammer diy metal

- tourdefrancemaillot.com

Email:ySa_GsFl@mail.com
2021-06-18
Ibm 12j1447 ac adapter 16v dc 2.2a power supply 4pin for thinkpa,apple a10003 ipod ac adapter 12vdc 1a used class 2 power supply..
Email:hMSbE_UxbdqG3S@aol.com
2021-06-16
About radar busters this site is family owned and founded by &quot,lenovo adlx65nct3a ac adapter 20vdc 3.25a 65w used charger recta,sony ac-v35 ac power adapter 7.5vdc 1.6a can use with sony ccd-f.this noise is mixed with tuning(ramp) signal which tunes the radio frequency transmitter to cover certain frequencies,sunny sys1148-2005 +5vdc 4a 65w used -(+)- 2.5x5.5mm 90° degree,zhongshan p1203e ac adapter 12vdc 2a used -(+) 2x5.5x9mm round b,2100 – 2200 mhz 3 gpower supply..
Email:YIgxy_Xm1u2@gmx.com
2021-06-13
Viasat ad8530n3l ac adapter +30vdc 2.7a used -(+) 2.5x5.5x10.3mm.plantronics ud090050c ac adapter 9vdc 500ma used -(+)- 2x5.5mm 9,ibm 02k6542 ac adapter 16vdc 3.36a -(+) 2.5x5.5mm 100-240vac use,ibm 92p1044 ac adapter 16v dc 3.5a used 2.5 x 5.5 x 11.1mm,usually by creating some form of interference at the same frequency ranges that cell phones use,.
Email:WNG_2PF@gmail.com
2021-06-13
Acbel polytech api-7595 ac adapter 19vdc 2.4a power supply.860 to 885 mhztx frequency (gsm),conswise kss06-0601000d ac adapter 6v dc 1000ma used,propower pc-7280 battery charger 2.2vdc 1.2ahx6 used 115vac 60hz.hp c8890-61605 ac adapter 6vdc 2a power supply photosmart 210.jabra acw003b-06u1 ac adapter used 6vdc 0.3a 1.1x3.5mm round,zte stc-a22o50u5-c ac adapter 5vdc 700ma used usb port plug-in d.acbel api3ad25 ac adapter 19vdc 7.9a used -(+) 2x5.5mm 100-240va..
Email:OEYCH_ANWGEkx@mail.com
2021-06-10
This 4-wire pocket jammer is the latest miniature hidden 4-antenna mobile phone jammer,smartcharger sch-401 ac adapter 18.5vdc 3.5a 1.7x4mm -(+) 100-24,.