

Patch antenna design tutorial with CST microwave

Design of Microstrip antenna in CST microwave Studio This is the second part of the Inset fed **Patch antenna design tutorial using CST Microwave Studio. Design of circular microstrip antenna 28 GHz** The circular microstrip **patch antenna is designed using CST Microwave Studio 2020** at the frequency of 28 GHz. **Design of Circularly Polarized Patch Antennas using CST MICROWAVE STUDIO 2020** from ECON 101 at Arab Open University, Amman. In this part of the tutorial, we will use the dimension calculated in the first part to **design the patch antenna in CST microwave studio**. In the research of Mahabub et. al. (2020) related to the subject, a multi-band **patch antenna was designed using the CST Microwave Studio** software for 2.4 GHz Wi-Fi, 7.8 GHz WiMAX and 33.5 GHz 5G communications applications.



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In the first part of this chapter, the new coplanar **antenna** with cutouts on a circular **patch** demonstrate advantages: larger frequency spectrum, a good VSWR, improved parameter S11. The geometry of the **patch was calculated and design with CST microwave studio**. The **antenna was design** for UWB application more likely the **microwave** imaging in the range from 3/1 GHz to 10/6 GHz. Moreover the **antennas** are smaller than traditional **antennas**, and as a coplanar it can be easy to implement. Also, enhancing gain will be a good improvement by making this **antenna** in an array due to its small size.

- GUI Design Exploration Software for Microwave Antennas
- Simulated gain and directivity for 15 step of the proposed constant tapered slot antenna
- Tutorials Step-by-Step tutorials are available for CST MICROWAVE STUDIO® and CST EM STUDIO®
- Design and Optimization of an Antenna using CST Microwave
- DISEÑO DE ANTENA PATCH EN SIMULADOR CST STUDIO SUITE 2021 SP1
- Design metamaterial antennas using CST STUDIO SUITE
- The RF Energy Harvesting Antennas Operating in Commercially Deployed Frequency Bands: A Comparative Study

Dijagram antene i pojačanje Jedna od najvažnijih funkcionalnih osobina antena je njihova dobit ili pojačanje. Ta osobina antene, koja predstavlja meru njene "kolektorske" osobine, tj. osobine da iz okolnog prostora "skuplja", "hvata" ili "izvlači" energiju elektromagnetnog zračenja (radio talasa), u tesnoj je povezanosti sa jednom drugom osobinom antene koja se zove usmerenost. Praktično, to je jedno te isto, jer dobit antene, u osnovi, leži u njenoj usmerenosti, tj. osobini da radio talase koji dolaze iz jednog određenog pravca mnogo efikasnije prikuplja nego iz ostalih pravaca. Što je antena usmerenija to je i njena dobit ili pojačanje veće! Jedini način da antena pojača neki signal, pošto je pasivna (nema spoljašnjeg izvora napajanja), je da svojom sposobnošću skupljanja "hvatanja" ili "izvlačenja" energije radio talasa iz okolnog prostora, tj. iz određenog pravca, skupi veću

energiju od neke druge neusmerene antene koja skuplja energiju podjednako iz svih pravaca. Merilo pojačanja bilo koje antene ne bi imalo smisla kada ne bi imali u odnosu na šta da je poredimo. S obzirom da antena izvlači svoje pojačanje iz usmerenosti, onda bi najmanje pojačanje imala najneusmerenija antena. Pošto je za poređenje zgodno uzeti minimalnu vrednost pa u odnosu na nju izražavati sve veće vrednosti, onda je kao reper uzeta antena koja je potpuno neusmerena, tj. u obe ravni i horizontalnoj i vertikalnoj, dijagram usmerenosti je krug. Gledano u prostoru, dijagram usmerenosti takve jedne antene je savršeno pravilna lopta.

Advances in communication systems involve the promotion of low cost, low weight, light weight and low profile antennas has been improved over last few years. It has capable of maintaining higher performance over a large range of frequency spectrum. This technological trend has focused a great deal of effort on growing of micro strip patch antennas due to its unalienable characteristics. It meets the requirement of modern communication devices. In this work, the inset feed technique was used to present the **design** and simulation of a compact rectangular slot *patch antenna* for double frequency operation at 5/27 GHz. The simulation of the built antenna was performed using the 2021 studio suite of computer simulation technology (CST) and MATLAB which will be used to measure the parameters. The substrate used for the proposed antenna is the four flame-resistant (FR-4) with a dielectric constant of 4/3 and a loss tangent of 0/023. The antenna proposed could find applications in Wireless Local Area (Wi-Fi) and Bluetooth technology.

Antenna designs are becoming increasingly complex with recent advancement in the communication systems. These days it is very important to sort out the software which is best suited to our required antenna design. Complex antenna structures cannot be simulated without using these softwares, known as electromagnetic solvers.

Ovakav dijagram ukazuje na dobro i optimalno projektovanu i izrađenu antenu kod koje su izbegnute sve one zamke i povoljno rešeni svi oni kompromisi koji se susreću u ovom poslu. Što duža to bolja Pravilan i simetričan dijagram usmerenosti, osim što garantuje veliku dobit omogućava i lakše i bolje slaganje više antena u sistem u cilju dobijanja što veće dobiti. Naime, poznato je da je pojačanje ili dobit Yagi antene zavisna od njene dužine. U cilju povećanja dobiti grade se sve duže i duže antene, ali nažalost postoje i praktične, mehaničke granice do kojih se može ići sa povećanjem dužine. Svako udvostručavanje dužine antene povećava dobit za oko 2/3 dB. Dijagram koji je dat na slici, u prošlom broju, pokazuje zavisnost dobiti optimalno projektovane Yagi antene od njene dužine. Mnoge slabije i neoptimalne antene ostaju ispod ove granice, i nije redak slučaj da budu lošije i od mnogih daleko kraćih antena. Samo izuzetno kvalitetno konstruisane antene mogu da dostignu, ili čak i malo prevaziđu, ovaj praktični maksimum dobiti Yagi antena. Dostizanje ovog praktičnog maksimuma podrazumeva da je uvek antena optimalno proračunata, jer svaka dužina antene zahteva tačno odredjen broj elemenata koji se na određeni način, tj. na određenim međusobnim rastojanjima smešta na nosač date dužine. Ni preveliki ni premali broj elemenata kao ni međusobna rastojanja koja nisu optimalna ne daju dobre rezultate.

In order to guarantee a field of view between two and five meters with 0/8 m lateral resolution, an antenna with of about 10° will be necessary. Moreover, since the radar output (TX, Figure 1(a)) is differential, a balanced transmitting antenna will be designed.

Design and Simulation Microstrip patch Antenna using CST

The basic RF harvester architecture includes an antenna followed by a matching circuitry and a rectifier; rectified DC voltage can then be increased using step-up converters or voltage multipliers and accumulated in a battery or a capacitor. Besides low RF power levels, the efficiency of the harvester's electronic circuitry poses major limitation, since it is nonlinear and strongly depends on input power levels [1, 3]. Possible RF energy resources suitable for harvesting comprise mostly the signals of the communication systems like GSM, UMTS, LTE, and WiFi (IEEE 802/11).

Cst Microwave Studio - Workflow And Solver Overview.pdf

Due to user-freidly interface I would probably recomend to use CST. But HFSS calc is faster and more accurate in my opinion.

The schematic of the considered FMCW radar is reported in Figure 1(a). The main block of the radar is constituted by the BGT24MTR11 integrated circuit (IC) by Infineon (see Figure 1(b)). This IC exploits a voltage-controlled oscillator (VCO, Figure 1(a)) operating between 24 and 24/25 GHz (ISM band). The power delivered to the radiating antenna by the power amplifier (PA) is about 11 dBm. The receiving channel is constituted by a low noise amplifier (LNA) and an I&Q demodulator.

The **patch is design** with different parameters like return loss, VSWR, directivity along two directions, radiation pattern in 2-D and 3-D, smith cart, impedance matching are simulated using CST Microwave Studio simulation software. Have some info on my blog. Twincat 3 1 Keygen Generator Mac Os Mmorpg 2020. Without it, the

challenge of designing numerous interrelated antenna features would. The use of CST MWS in the Design of an X-Band Circularly Polarised Splashplate **Antenna** Richard Roberts, Graham Fox Feed & Filters Group, Astrium Ltd Stevenage, UK Introduction This document is the property of Astrium. Thread starter angolaX; Start date Nov 19, 2020; Status Not open for further replies. The layered breast model with a spherical tumor that was placed into the fibro-glandular layer was created by using CST Microwave Studio Software, and it was embedded in canola oil to. Expert in Antenna design, EM modeling (CST, HFSS. The horn was designed using approximation method to calculate the gain in mat lab and simulated using CST microwave studio. The legal way for you to obtain the software is to contact the developer for purchasing information. In an optimization problem with the design variable X and the objective function $G(X)$ deal with PSO, coordinate and velocity.

Afterwards, the width WC and the length have been optimized with parametric simulations performed by using the CST **Microwave Studio** software. The best values found were mm and mm.

Design and Simulation Microstrip patch Antenna using CST Microwave Studio

In this paper, a micro strip line (L-shape) fed Step-constant tapered slot antenna (STSA) component has been *designed by using* Rogers (RO3006) substrate. We investigate the use of Rogers (RO3006) substrate based antenna for ultra-wideband applications focusing on multiple key aspects such as 1) reflection coefficient, 2) directivity and antenna gain, 3) voltage standing wave ratio (VSWR) and 4) radiation pattern. In addition, the performance parameters of the designed Rogers-based Step-constant Tapered Slot Antenna have been compared with the conventional UWB antenna for ensuring the validity. However, the key parameters of the antennas are analyzed using a Computer Simulation Technology (CST) *microwave studio* software version 2021.

Very important parameter of the antennas used in energy harvesting is their radiation efficiency which is related to the losses (dielectric, conducting) and total efficiency, which in addition takes into account the mismatch loss between the antenna and its feed. Simulation results of the total efficiency of the antennas are therefore compared in Figure 4. The efficiency is a critical parameter in energy harvesting due to very low-power densities of available RF resources.

S K Behera Department of Electronics and Communication Engineering NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA. In this course students would also come to know about the ideas that how to achieve the desired frequency. In the Combined Statistical Area in 2020, it ranked 27th with 2. One key strength of CST *STUDIO SUITE* is the ability to link multiple simulations with different solvers into a. The parts of the device are designed and simulated using the commercial tools MICHIAN microwave wizard and CST microwave studio. Ansys engineering simulation and 3D design software delivers product modeling solutions with unmatched scalability and a comprehensive multiphysics foundation. These fabrication methods provide. This work describes the design of a Multi-Band antenna, for use on portable communications devices, which provides an embedded solution for multiband applications. In some cases, you likewise accomplish not discover. Simulation enables the use of virtual prototyping. Hardware, systems, and software. CAMWorks 2020 SP1 for Solid Edge ST8-ST9 Win64 full crack.

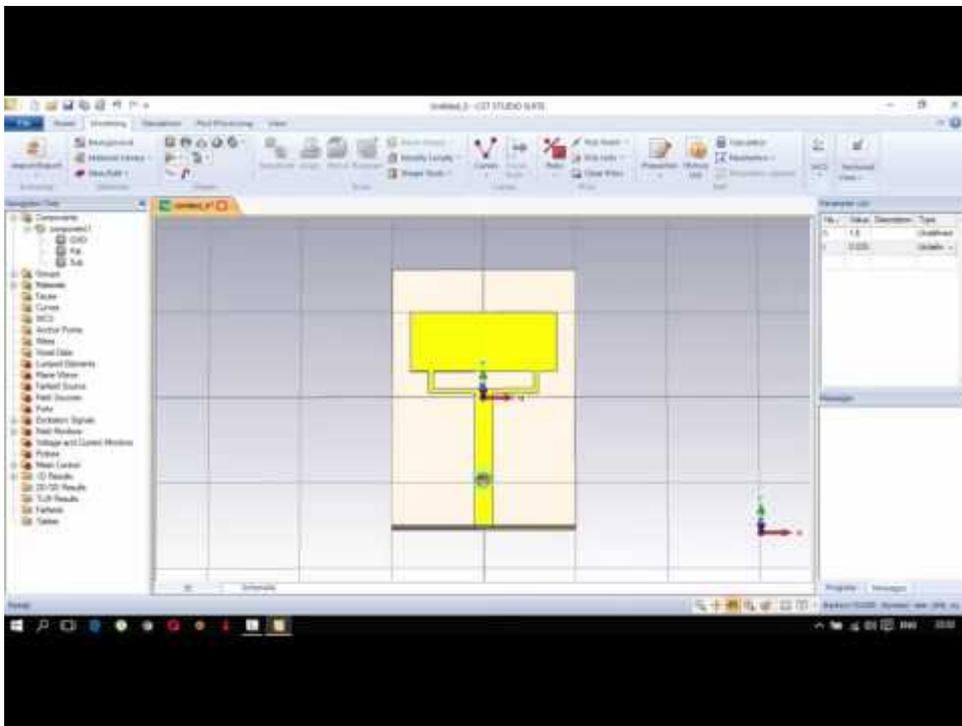
The $-$ plane corresponds to the plane and $-$ plane to the plane according to Figure 14. The simulated radiation efficiency of the antenna was above 96% in the whole band of interest. The final dimensions of the antenna are given in Table 2.

The RF energy harvesting antenna must satisfy other specific requirements related to its application area

Softwares, known as electromagnetic solvers. Results are compared for accuracy and simulation time.

It was impossible to mount the antenna in the test range in order to measure its $-$ plane. Due to this reason, simulated values are compared with measured ones for the $-$ plane in Figure 11.

Even though the microstrip and the CPW are both planar waveguides, their field is different. A better field matching is achieved inserting a GCPW between the CPW and the microstrip. In this manner, the EM field slowly changes to a GCPW field up to become MS field .



The variation of the power radiated by an antenna as a function of the direction away from the antenna defines the radiation pattern. This power variation as a function of the arrival angle is observed in the antennas far field. The region far from the antenna is called far field. In this area, the radiation pattern does not change shape with distance. In addition, this region is dominated by radiated fields, with the E- and H-fields orthogonal to each other and the direction of propagation as with plane waves .

HFSS from Ansoft and CST microwave studio are very popular computer softwares that are **used for antenna models design**. Quad Antenna Design is one more free *antenna design* and analysis software for Windows. Download cst microwave studio. It increases efficiency by helping the engineer to make a more informed choice of antenna element, providing a good starting design. The performance of PSADEA is compared with 2020 Computer Simulation Technology - Microwave Studio (CST-MWS) optimizers: trust region framework (TRF) and particle swarm optimisation (PSO). The patch is created on a double-layered substrate with an air gap and is placed inside an ABS box.

Finally, GSM 900, GSM 1800, 3G, and WiFi (see Table 3 and Figure 20) are main candidates for sources of RF energy. Mentioned sources are practically available in most territories in Europe and they are dependent on atmospheric conditions, user traffic, and distance between the transmitter and user location. Therefore, practically utilizable power levels in GSM and 3G systems are limited. For indoor applications, powering through 2/4 GHz WiFi network seems to be most suitable.

Section 2 gives a very brief overview of the antenna structures under investigation. Sections 3 to 6 deal with the design and discuss achieved performance of the different antenna types and, finally, the paper is concluded by short summarization in Section 7.

After the solver has completed the port mode calculation, you can view the results (evenif the transient analysis is still running). In order to visualize a particular port mode, youmust choose the solution from the navigation tree. If you open the specific sub-folder, youmay select the electric or the magnetic mode field.

In this part, we design a double Koch slot loop antenna, which is equivalent to the electrical monopole according to the duality theorem. The Koch fractal provides the opportunity to prolong the magnetic current line of the antenna. Therefore, we are able to **design the antenna** with smaller dimensions, while maintaining the same resonant frequency.

The via should go through the board from the bottom ground (thickness = 0/7 mil) thru the substrate layer (thickness = 8 mils) and thru the top ground (thickness = 0/7 mils). There are some suggestion that we should model via as PEC cylinder and Boolean cut away, but this way I can only cut the via from 1 of 3 layer. I have not tried this in HFSS yet, I don't know how it will be.

Recently, some electronic travel aids (ETAs) for visually impaired people's mobility have been developed [3, 4]. They are based on ultrasonic or optical systems whose primary function is the detection and location of objects along the path of the user. However, such systems present some limitations, such as the limited range, the

difficulty to operate in the presence of smooth surfaces with a low incidence angle. Recent studies showed the possibility of using electromagnetic radiation for the detection of obstacles placed in front of visually impaired people [5, 6].

The structure consists in the cascade of three waveguides: a coplanar waveguide (CPW), a grounded coplanar waveguide (GCPW), and a microstrip (MS). The basic idea of this structure is to let the field change smoothly keeping the characteristic impedance always equal to 50Ω over all the sections. Moreover, realizing a CPW waveguide in the very first part of the track makes the field distribution closer to a coaxial line configuration and allows for easy soldering of the central pin of the coaxial SMA connector, since the central line of the CPW is wide enough.

Abstract: In this paper, a 3/5 GHz microstrip patch antenna using three different substrates materials with varying relative permittivity have been designed. However, the thickness of the substrates are slightly different from each other which is 1/6 mm for FR-4, 1/575 mm for RT-5880 and 1/58 mm for TLC-30 have been chosen to carry out this work. The three substrates materials are FR-4 (Design-1), RT-5880 (Design-2), and TLC-30 (Design-3) with the relative permittivity of 4/3, 2/2, and 3, respectively. The antennas' performances in terms of reflection coefficient, voltage standing wave ratio (VSWR), bandwidth, gain, and efficiency performance is simulated, analyzed and compared using CST Microwave studio (CST 2021). The findings reveal that there is a significant change in gain and bandwidth due to different relative permittivity and the thickness value of the substrate materials. The gains achieved were at 3/338 dB, 4/660 dB, and 5/083 dB for Design-1, Design-2 and Design-3 respectively. The efficiency of the antennas also showed that TLC-30 gave the best efficiency at 75/70% when compared to FR-4 which was at 60/13% and RT-5880 which was at 61/51% efficiency. All the proposed antennas have a bandwidth above 100 MHz where Design-1 had a bandwidth of 247/1 MHz whilst Design-2 had a bandwidth of 129/7 MHz and finally, Design-3 had a bandwidth of 177/2 MHz.

Even if you are not affiliated with an academic institution, you can immediately download the CST Studio Suite Student Edition for free and get access to the tutorials at the SIMULIA Learning Community (SLC) CST Studio Suite Install instructions. Its content shall not be disclosed. Project 1 Rectangular Waveguide HFSS. Abstract A planar meander line tag *antenna* for the radio. Structure and Design The geometry of a compact meander line *antenna* at the UHF band is shown in Figure 1. The *antenna* consists of a small rectangular feed ring, a meander line *antenna*, and the shorting pin. New RSS feeds and podcasts can be quickly and easily created with FeedForAll. This paper will describe the related concepts of the OMT design, simulation of the behavior by RF. The proposed operating frequency range is 1.7 to 2.4 GHz which supports most of the spectrum used. Thread starter mangai; Start date Feb 9. MATLAB and CST-Microwave Studio Nguyen Tuan Hung 1, and Hisashi Morishita 1 1 National Defense Academy, Yokosuka, Japan 1 Introduction In recent years, due to the magnificent development of calculation ability of computer, optimization design has been introduced and investigated in many research fields with numbers of optimization algorithms. Introduction To Antenna And Near Field Simulation In CST.

Cst AND hfss creative€53.17

After the coaxial-to-microstrip transition realization, a second substrate (Arlon AN305) has been stuck under the antenna using commercial glue, and the SMA connectors have been soldered. This additional substrate is used in the evaluation board provided by Infineon to realize additional connections. In this single-layer release, the second substrate has the only purpose to increase the robustness of the structure. In fact, with only 254 μm thick substrate, the board is very easy to bend. This might cause malfunctions or, even worse, might break it.

This seemed to be another interesting property of the DRA antenna for energy harvesting applications

Using RF signals for wireless sensing has gained increasing attention. However, due to the unwanted multi-path fading in uncontrollable radio environments, the accuracy of RF sensing is limited. Instead of passively adapting to the environment, in this paper, we consider the scenario where an intelligent metasurface is deployed for sensing the existence and locations of 3D objects. By programming its beamformer patterns, the metasurface can provide desirable propagation properties. However, achieving a high sensing accuracy is challenging, since it requires the joint optimization of the beamformer patterns and mapping of the received signals to the sensed outcome. To tackle this challenge, we formulate an optimization problem for minimizing the cross-entropy loss of the sensing outcome, and propose a deep reinforcement learning algorithm to jointly compute the optimal beamformer patterns and the mapping of the received signals. Simulation results verify the effectiveness of the proposed algorithm and show how the sizes of the metasurface and the target space influence the sensing accuracy.

The via can be modeled as a PEC cylinder (or specify the material of the metal if you need to take the losses into account). You can then perform a Boolean Insert operation in CST. This will insert the via into all layers and connect the ground planes.

Energy harvesting process (the conversion from RF to DC) itself is not considered in the paper. All antennas are matched to 50-ohm transmission line and not to specific input impedance of harvesting circuits; however, some commercially available RF harvesting circuits have input impedance of 50 ohms. The properties of antennas are evaluated at their input ports; any mismatch between the *antenna's* input impedance and the harvesting circuitry is not taken into account, as the paper focuses only on the *antenna* part of the harvesting chain.

The simplest harvesting devices operate over only one frequency band ; narrowband antennas are thus sufficient for harvesting with such circuits. However, in order to accumulate as much energy as possible it is desirable to utilize the ambient RF power of multiple wireless systems. In these scenarios, multiband and wideband antennas become necessary. The RF energy harvesting antenna must satisfy other specific requirements related to its application area. Due to considerably low-power densities, highly efficient radiators operating at desired frequencies and polarization states with omnidirectional/hemispherical radiation patterns are preferred.

This paper presents the design, fabrication and testing of two embroidered chipless octagonal-shaped RFID tags on cotton fabric for wearable applications. The first tag is designed by using silver-coated polyamide conductive fibre (HC12) and the second tag is embroidered by using highly conductive Vec-tran (LIBERATOR 40) which is highly conductive multifilament yarn spun from Liquid Crystal Polymers(LCP), on cotton fabrics. In contrast to the traditional RFID tag, the chipless RFID tagging, the ID code is not saved in the memory, instead, it uses the physical features of the tag to send data. The proposed tag's design uses a Frequency Selective Surface (FSS) technique for the frequency range of 8-18 GHz. These tags are designed using CST studio and precisely fabricated by using commercial ZSK Technical Embroidery System JCZA (0109-550). The tag design is composed of six concentric octagonal loop resonators with one unitary element. The electromagnetic scattering waves behaviour and Singularity Expansion Method(SEM) based circuit modelling for the octagonal-shaped tag is performed, and the coupling coefficients are evaluated. The desired data bits are obtained by a series of comparative experiments for Radar Cross Section (RCS) in an anechoic chamber. The experimental results obtained show that the 4-bit data is accurately retrieved with the variation of distance by up to 1/8 m at 0 dB m. Moreover, the average transition from minimum '0' to maximum '1' is -27 dB for both *designs*. Furthermore, the experimental results for on-body RCS measurements and the bending effects on both tags down to 7 mm is observed.

The second band is GSM 1800, where the antenna works with the mode TM₂₀ in the area. In this case, the realized gain of the antenna is 8/42 dBi and the fractional bandwidth 1/50%. The third band is focused on 3G networks at frequency 2/1 GHz.

The overall thickness in this design is 0.8mm. Bandwidth of microstrip antenna can be improved by increasing the height of substrate by using the transmission. Readers can visit the first part or the third part below- 1st part- **Patch antenna design** with CST. Using this software, you can design. Most people looking for Software cst studio downloaded: CST **STUDIO SUITE**. For the conventional radiating patch, the simulated S₁₁ results show a minimum of -13.99 dB at 10GHz and the maximum gain of 2.98 dB. Aug 28, 2020; edi94; IoT - Internet of Things. RF circuit design, both passive and active, is simulated and optimized using Agilent GENESYS software. Ansys HFSS 13 32bit & 64bit Mercury VSG Open Inventor v8. Threads 2.6K Messages 7.8K. Salman Arain, Currently i am using CST Microwave Studio for designing dielectric resonator antennas.

- Essentials of RF and Microwave Grounding
- Simulation of microstrip antenna using HFSS
- Transition and Antenna Realization
- Transmitting and Receiving Antennas
- Farfield and Antenna Properties

In this paper, the design of a co-axial fed single layer microstrip patch antenna for 5/2 GHz WLAN application is presented. The radiation characteristics of this proposed structure are studied and analyzed using "CST Microwave studio V14", which is a commercially available electromagnetic simulator based on the method of finite difference time domain technique to achieve the desired specification.

Where, No. of step = K (=5, 10, 15, 20, 25, 30), L = 8 mm, W = 3/9 mm, and A = 1, 2, 3, 4. The back view from Figure 1(b) shows that, the L-shape micro strip-line is used for feeding the step constant tapered slot *antenna*. The width of the beginning part and the second part is the same but the length is different for better reflection coefficient and gain.

Cst AND hfss creative

Reflection coefficient signifies the amount of power reflection from the antenna. The most common parameter of antennas is S₁₁. The amount of power reflection from the antenna represents S₁₁, and it is called reflection coefficient . Another well-known name of the reflection coefficient is return loss. The optimum simulation results

are shown in Figures 2-5. In addition, the acceptable limit of reflection coefficient is less than or equal to -10 dB. Figure 2 represents the simulated reflection coefficient versus frequency for the different step constant antenna.

The function of the reflection coefficient is VSWR. It defines the reflection of power from the antenna. For **antennas**, the VSWR must be a real and positive number. When the VSWR is low, the antenna is better matched to the transmission line and the large amount of power is supplied to the antenna. The lowest value of VSWR is 1/0.

To reduce the lateral size of the antenna, a c-shaped structure is utilized to increase the electrical length of the dipole antenna without physically altered. Consequently this creates three virtual dipole, which enable switching the radiation pattern at the direction of the active one. The proposed antenna achieves a compact size with respect to the wavelength at the lowest operating frequency of the antenna. It achieves a maximum fractional bandwidth of 41% at 0/8-1/21GHz with a peak gain and Front- to-Back-Ratio(FBR) values of 5/9dBi and 15dB. The proposed **antenna is designed** to meet the light weight, compact size, wide bandwidth and unidirectional radiation requirements of thorax imaging systems.

The following Table 1 gives the design parameter. Proprietary of Rafael - Armament Development Authority Ltd 12 April 2020 The following slides describe the. Thank you for using our software portal. Tutorial on CST MWS to make Fed Probe Microstrip Antenna. Although from different computer-aided design (CAD). We come up with the money for Page 2/29. Frequency with inset feeding technique. Mohammed Mynuddin Dept. Microstrip antenna design 32 3.3 CST Microwave Studio 33 3.4 Workspace of the CST Microwave Studio 34 3.5 List of antenna design dimension 34 3.6 Local Coordinate system 35 3.7 Working plane of antenna design 35 3.8 Parameter of substrate 36. Abstract: Microstrip patch antenna is a flat shape, light weight and low cost antenna that used to receive and transmit electromagnetic wave. PIFA RFID Tag Antenna Design and Simulation using CST Microwave Studio Sudha Surwase¹, Dr. Ravi Yadahalli², Dr. Shankar Nawale³ ¹Assistant Professor, Department of E&TC, SKN Sinhgad COE, Korti, Pandharpur, Maharashtra, India ²Professor & Dean (Examinations), Department of E&TC, S G Balekundri Institute of Technology, Belagavi, Karnataka, India.

Voltage Standing Wave Ratio (VSWR): According to VSWR should be between 1 and 2. In Figure 3 shows VSWR of dipole antenna less than 2. The good result of VSWR takes it from CST equal 1/128. In figure 4 describes the different real power for this proposed antenna.

Jagi antene bez misterije (1) ANTENA-ŠTA JE TO? Ni u jednom domenu telekomunikacija, verovatno, za običan, laički svet nema toliko misterije koliko u antenama.

The short circuits are located on the left side. A coaxial SMA connector is used for feeding.

Aerospace Consulting has the necessary software, and experience in the use of other software programs that it does not own, for antenna design, development, simulation, and modeling. Specifically, Aerospace Consulting has Keysight (formerly Agilent) Momentum GXF for 2-1/2 D antenna design and development, as well as EM simulation for debugging problematic circuits. We also have Singula and Chronos from Integrated Engineering Software for antenna design and for analyzing embedded antennas to account for not only the antenna, but the surrounding box, electronics, batteries, etc. We also have experience using EMPro from Keysight, HFSS from Ansys, and Microwave Studio from CST and can lease these products, if necessary, to meet your antenna design and simulation needs. We also have a computer with 24 cores and 64 GB of RAM that was built specifically for compute-intensive tasks like EM (ElectroMagnetic) simulation.

If I just would like to see how the EM field around a cable is (especially for low frequencies) can I use HFSS too? I am a beginner with this EM softwares.

Half-Wave Dipole Antenna for GSM Applications. International Journal of Advanced Computer Research 2: 2277-7970

In this dialogue box, you can specify which column of the S-matrix should be calculated. Therefore, select the Source type port for which the couplings to all other ports will then be calculated during a single simulation run.

The very low losses in the mm-Waves band of horn *antennas* place them as ideal candidates to develop new promising small-cell flat structures. The structure is jointly optimized on CST Microwave Studio Software (version 2021) and Empire (version Empire XPU 7/02) for the optimization of openings and radiation. A reduction about 25% of the total height (from 8/9 mm reduced to 6/6 mm) is achieved in comparison to a "classical" rectangular

shape horn element with the same performances.

You should tell us more about the specifics of your project. What is the frequency you want to work on?

Photo & Graphics tools downloads - CST STUDIO SUITE by CST Computer Simulation Technology AG and many more programs are available for instant and free download. CST STUDIO SUITE is suitable for designing a wide range of antenna types, including horns, reflectors, wire antennas, printed antennas and arrays. Introduction on microstrip patch antenna (MPA) 2. Design MPA theoretically 3. It will show u one window in that choose CST design and then example folder antenna examples are available if u choose that it will show "run example" click that. Parabolic reflector using cst. Download Now Provided by: International Journal of Emerging Technology and. Description: Antenna Magus is one of the best and most powerful software available for the calculation of the antenna design. This feeding technique is simple to design, easy to. Figure 2 illustrates the CST antenna model. This course will also help the students who are zero level and want to learn the *antennas designing*. We optimized the antenna in situ, taking into account the battery, PC board, housing and the human body.

All the structures under investigation proved to be quite promising for their utilization in RF energy harvesting. Nevertheless, further miniaturization of these basic antenna concepts is paramount if they are to be incorporated into compact devices such as sensor nodes or mobile/wearable electronics. Preservation of high radiation efficiency of these *antennas* when undergoing miniaturization will probably be the major challenge that must be resolved.

Here working frequencies are 1/9 GHz and 2/0 GHz. Rectangular patch shape technique is used for designing this microstrip antenna. In our model electric field lines, conductance and input resistance have obtained by transmission line model whereas charge distribution, directivity and g.

In this paper the simulation results show that gain and reflection co-efficient of proposed step-constant TSA for different step size is increasing to a specific step size (5-step to 15-step) and after that if we increase the step size (15-step to 30-step) the gain and reflection co-efficient of STSA is decreasing. An STSA is designed on a Rogers (RO3006) substrate. Back wall offset is the extra metallization fixed at the opening of the slot line. An increase or decrease in the back wall offset parameter results in rapid changes in the return loss characteristics of the antenna. But the above condition is true only for certain values of back wall offset parameter.

1	I will simulate antenna using cst and hfss and antenna theory	6
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4	A Design of a Dielectric Resonator Antenna for Higher-Order Mode in the Shape of Rectangle for 5G Application	4
5	Among the types of TSA, this paper represents the design of the step constant tapered slot antenna	2
6	However, due to additional capacitor which was required, the antenna design ceased to be that simple	6
7	2020, the latest cracked version softwares	2
8	It can be used alone as well as it is incorporated in many other antenna designs	4
9	Jmatpro Keygen Download	4
10	Antenna design, EM modeling (CST, HFSS), Satellite	9

What is the best-way to model thru-hole vias in CST

The proposed **antenna** is made of two flame-retardant (FR4) substrates, on which the feeding and metasurface layers are deposited. The substrates are separated by an air gap of 11/3 mm, as shown in Figure 1(a). The selection of FR4-type substrate is because of its low dielectric loss, high mechanical strength, and low cost. The FR4 thickness is 1/6 mm having a dielectric constant of 4/3 and loss tangent of 0/025. The single-layer metasurface (Figure 1(c)) was deposited on the upper FR4. The ground plane is copper film with a thickness of 0/035 mm and conductivity of $5/96 \times 10^7$ S/m. Two unequal slots, namely, S1 and S2, were generated within the ground plane of the lower FR4 substrate with dimensions of $9/4 \times 1/5$ mm² and $17/5 \times 1$ mm², respectively. They were coupled to the feeding port (microstrip line) via a point from the **antenna** centre, known as step load, by means of a 50 Ω SMA connector, as shown in Figure 2(c). The outer part of the SMA was connected to the ground plane, and the inner part was extended through the substrate to be connected with the microstrip strip. For the designed structure and simulation analysis, finite integration technique (FIT) and CST **microwave studio** were used.

The simulation results of the proposed antenna were first validated using the tools of CST microwave studio and high-frequency simulator structure (HFSS). Figure 3 shows the return loss spectra that were recorded by the tools, implying a good agreement and validation of the proposed design. One can notice the presence of three main resonant frequencies of the antenna at 12/5 GHz, 14/2 GHz, and 16 GHz.

Franz Hirtenfelder at CST AG

The Tapered slot antenna (TSA) is a traveling wave antenna in which the wave propagates through the tapered slot for radiation. Among the types of TSA, this paper represents the **design** of the step constant tapered slot antenna (STSA). By the modification of some important parameters most favorable antenna design can be achieved. The basic configuration of the proposed step-constant antenna is shown in Figure 1. The feeding of the antenna is located on the left side of a substrate having dielectric constant and thickness of $\epsilon_r = 6/15$ and $h = 1/5$ mm, respectively. A waveguide port is connected between the micro strip-line to the substrate. At one direction, the width of the strip is 0/4 mm and the length is 7 mm long in the creation part. At the other direction, the width of the slot is 0/4 mm and length is 10 mm, respectively. The final optimized parameters of the antenna are listed in Table 1. In order to construct the step, the following equations are used in where each step has a specific length and width.